





THE UNIVERSITY

OF ILLINOIS

LIBRARY

720.5

HRB

v. 5

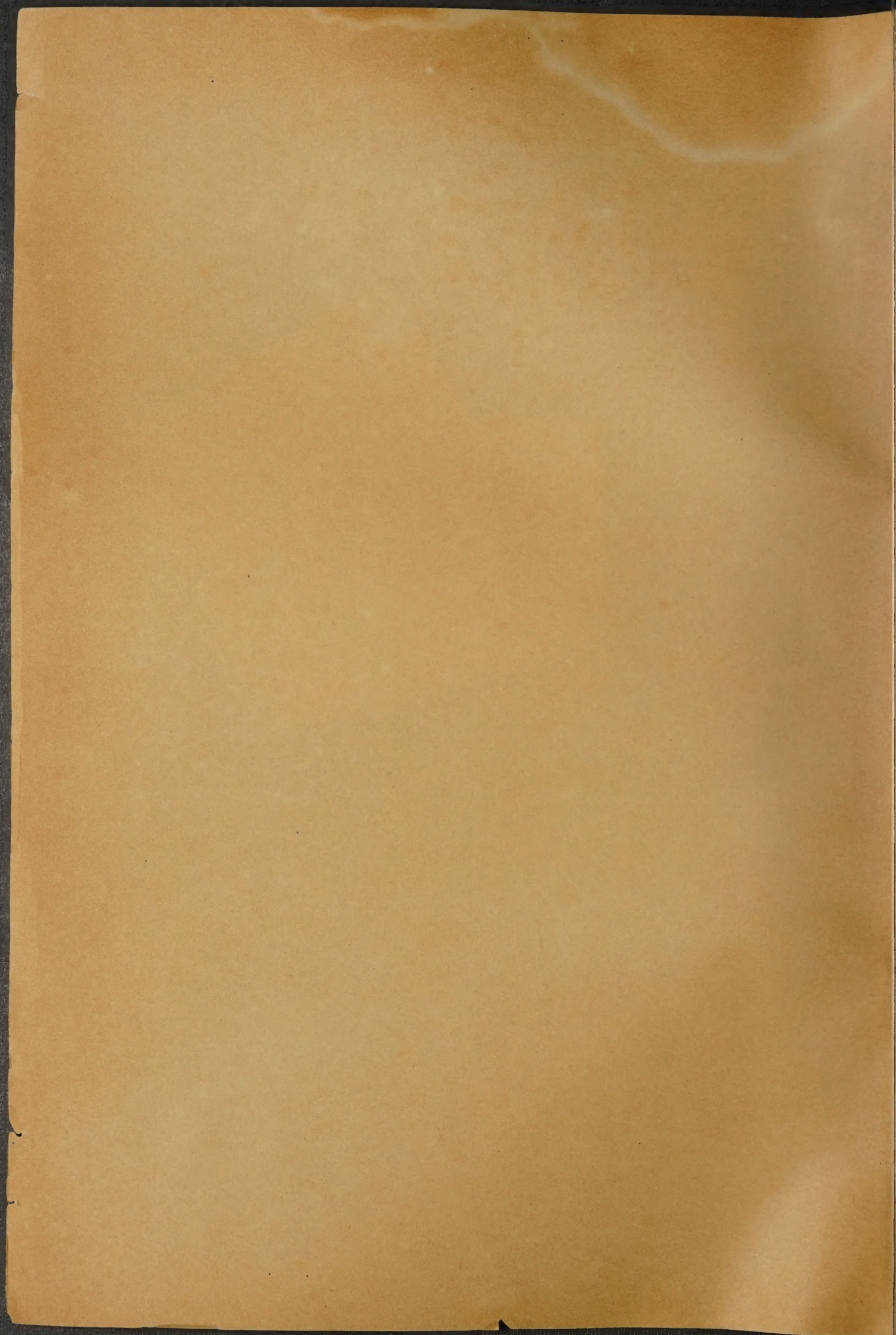


The person ch  
sponsible for  
which it wa  
**Latest Dat**

Theft, mutil  
for discipli  
the Unive  
To renew  
UNIVE

DE







1897

VOLUME  
FIVE

FEBRUARY  
AUGUST

LIBRARY  
UNIVERSITY OF ILLINOIS  
URBANA

THE BUILDERS'  
JOURNAL  
AND ARCHITECTURAL RECORD

APPEALING TO THOSE ENGAGED IN

THE ART OF BUILDING

*IT is our aim, our ambition, our aspiration even, to build our Journal worthily and well, not for the hour only, but for future years; for the few men in the forefront of an enduring and a laborious Art; for the disciplined ranks of a distinguished Profession; for the young men—Architects to be—and for all who love a clustered column or a flying buttress, a traceried window or a Greek frieze, for the man, too, who honestly plumbs a jamb.*

EFFINGHAM HOUSE

ARUNDEL STREET STRAND

LONDON



LIBRARY  
UNIVERSITY OF ILLINOIS  
URBANA



# CONTENTS.

**ABBEY, E. A., and his Work,** 286  
Aberdeen: Ecclesiastical Society, 59;  
Graving Dock, xxiv; The New Fire  
Engine Station at, 111; New College  
Buildings at, 396  
**Academy:** Elections and the Art of  
Alfred Parsons, 1  
Addington Park, 79, 176  
Aitchison: Prof. Geo. and the South  
Kensington Museum, 39  
Anderson, Dr. Rowand, 218  
Altar Plate at St. Paul's Cathedral, 237  
Antiquarian: Scotland, 332; Researches  
in Yorkshire, 395  
Archaeological Survey of the United  
Kingdom, 238  
Architect: Copyright in Drawings, xii;  
as Agent, 294; and the Public, 35  
Architecture: in Relation to the Handi-  
crafts, by T. G. Jackson, R.A., 122,  
142; at the Paris Salon, 277; at Liver-  
pool, 294; of Asiatic Hellas, 59, 80,  
139; the History of, 80  
Architectural: Association, 58, 22, 67,  
131, 142, 1, 196, 201, 235, 243, 280;  
Association of Ireland, 14, 72, 143, 179,  
260; Photography, 102  
Arrol, Sir William, and the Tay and  
Forth Bridges, 224  
**Art:** in Ireland, 31; the Service of, 94;  
Gallery in the City, a Proposed New,  
127; Summer Season in London, 173;  
in Wales, 189, 350; at the Victorian  
Era Exhibition, 189; at the Imperial  
Victorian Exhibition, 207; "of Paint-  
ing in the Queen's Reign," by A. G.  
Temple, 316; the Social Functions of,  
363; in the East End, 277; Gallery and  
Technical Institute in South London,  
384; in Hengrave Hall, 399  
Assyrian Palaces, 189  
Assyrian Tablets in the British Museum,  
80  
Auctioneers' Institute, 14  
Aumonier, William, 3  
Australian Wood Tar Paving, 187

**BABYLONIAN EXPLORATION,** 330  
Barnet: Parish Church Pulpit, 253  
Barnstaple: the Leaning Steeple of, 66;  
Demolition of an old Building at, 70  
Barry, John Wolfe, 316  
Bath: New School of Art and Technical  
Instruction, 139; Abbey, 95  
Batterberg Memorial Chapel, 382  
Battersea Park River Frontage: Pro-  
posed Embankment, 333  
Bayliss, Wyke, and the Jubilee Honours,  
316  
Beauty and Art, 326  
Beccles: an Election Farce at, 17  
Belfast: New Asylum, 24; Cathedral,  
352  
Berkeley Hotel, The, 224  
Binnie, Alexander R., 316  
Birmingham: a Year's Building, 11;  
New Arcade, 53; National Telephone  
Premises at, 155; Building at, 166;  
Improvements at, 271; and Midland  
Institute, 302, 350; Exhibition of  
Students Work at, 326; "The Nash"  
at, 302  
Blackwall Tunnel, 234  
Board Schools in London: the Cost of,  
40  
Bootle: Construction of a Cattle Jetty  
at, 304  
Borgia Apartment, The, 118, 128  
Boston: Exhibition of English Paintings  
at, 224  
Boulevard for London: a Proposed, 10  
Bradford: Society of Architects and  
Surveyors, 14; Proposed Re-building  
of Gouthwaite Hall, 317; Sewage  
Scheme at, xliii.; Antiquarian Society,  
255; Sanitary Committee's Report,  
283; Exhibition of Pictures by Turner,  
302; Historical and Antiquarian  
Society, 402  
Bridge: Across Niagara, a New, 174;  
Building in Egypt, 333  
Bridgewater: Proposed Memorial to  
Admiral Blake at, 287  
Brighton: an Old Road Closed at, 110;  
Tramway at Devil's Dyke, 398  
Bristol: Proposed Infectious Diseases  
Hospital at, 223; and Gloucester  
Archaeological Society, 276; Sanitary

Condition of, lxxiv.; Street Improve-  
ments at, 285; Cabot Memorial Tower  
at, 351  
British: Archaeological Association, 59,  
116, 276; School at Athens, 384; Art  
Abroad, 393  
Brown, Professor Baldwin, 81, 221  
Brussels Exhibition, 172  
Buckingham Palace: a Grand Stand at,  
128  
"Builder's Journal" Problems, 86, 102,  
159  
Building: Trades Exhibition at the  
Royal Agricultural Hall (Supplements  
No. 111 and No. 112); Trade Agree-  
ment, 155; at Birmingham, 166; at  
St. Albans, 190; at Newcastle, 220; in  
Deansgate, Manchester, 365; Act,  
397  
Buildings: Proposed New for the L.C.C.,  
73; Working-class Dwellings at Pim-  
lico, 109; Heath Memorial Conva-  
lescent Home at Llanfairfechan, 109;  
St. Paul's Parish Institute, Cam-  
bridge, 109; the Kremlin at Moscow,  
110; the Borgia Apartments, 118, 128;  
Museum of Egyptian Antiquities,  
Cairo, 127; Working-class Dwell-  
ings at Shoreditch, 53, 96; Silver  
Palace at the Trans-Mississippi Ex-  
position, 128; New War Office, 140; New  
Offices of the Prudential Assurance  
Company at Sheffield, 140; National  
Telephone Company's Premises at  
Birmingham, 155; and Open Spaces,  
170; New Hospital at Gwelo, 170;  
Rotherhithe Town Hall, 183; The Old  
Bailey, 188; New Theatre in Charing  
Cross-road, 189; Her Majesty's  
Theatre, Haymarket, 189; Palais de  
l'Industrie, Paris, 189; Working-class  
Dwellings at Hornsey, 190; Stafford  
House, 191; Newcastle Exchange, 217;  
New Gallery on the Chelsea Embank-  
ment, 223; Sheffield New Town Hall,  
231, 247; New Theatre at Plymouth,  
239; Government Offices at West-  
minster, 63, 109, 246, 253; at Clacton,  
254; in Gray's Inn, 269; Ophthalmic  
Hospital, City Road, 254; Norton  
Conyers, Ripon, 255; Old Bell Tavern,  
Holborn, 302; Sun Offices in Thread-  
needle Street, E.C., 302; "The  
Nash," Birmingham, 302; The late  
Mr. Barnato's House in Park Lane,  
304; County Offices at Wakefield, 315;  
Lord Leighton's House, 317; Metro-  
politan School of Shorthand, 334;  
Block of Offices at Walworth, 351;  
Queen's Opera House, Crouch End,  
397; London Suburban Theatres, 397;  
New Hotel at Dover, 397; New Theatre  
at Swansea, ciii.; New College at  
Aberdeen, 396  
Bury: Exhibition of Home Arts and  
Crafts, 318

**CAMBRIDGE:** St. Paul's Parish Insti-  
tute, 109  
Canterbury Cathedral, 159, 253  
Cardiff: Discovery of Ancient Glass at,  
223  
Carfax Tower, 385  
Carlisle: Demolition of Old Buildings  
at, 127  
Carpenters' Company, 40, 334; Art  
Scholarships at, 95  
Cathedrals: St. John's, Malta, 26;  
Exeter, 70; Canterbury, 159, 253;  
Saigon, 172; Rochester, 301, 316;  
Lincoln, 303; Peterborough, 333;  
Sligo, 352; Belfast, 352  
Cellar Flaps in Main Thoroughfares,  
384  
Celtic Art, 230  
Celtic Cross of Downpatrick, 379  
Chantilly, 221  
Chatsworth House, 348  
Chelsea: Fire at the Barracks, 154;  
the Hospital at, 177; Curious En-  
gineering Structure on the Nervion,  
191; Construction of Hospital Wards,  
206; Reach, 221, 303; New Promenade  
at, xxiv.; Physic Gardens at, 70  
Chester: Roman Discoveries at, 351,  
367; Sewage Scheme at, 255; Roman  
Remains at, 381  
Chinese and Japanese Porcelain, 382

Church: Building and Restoration in  
North-east Warwickshire, 317; of S.S.  
Mary, Andrew, and Thomas à Becket,  
Colebrook, 9; at Chesterfield, near  
Bawtry, 139; St. Pierre de Montmartre,  
Paris, 110, 154; St. Leonard, Shore-  
ditch, 155, 222; St. Thomas à Becket,  
Southwark, 208; St. Mary, Woolnoth,  
223; St. Mary the Virgin, Chatham,  
285; Little Stanmore, Edgware, 287,  
316; St. Michael and All Angels,  
Yeovil, 307; Shernbourne, near Sand-  
ringham, 317; in the Artie Circle, 366;  
St. Augustine, Birmingham, 39; St.  
David's, Exeter, 40; St. John's, Car-  
diff, 40; St. Nicholas, Aberdeen, 96;  
St. Clements Danes, Strand, 110; St.  
Bartholomew the Great, 207, 237;  
Kingsland Parish Church, 255; Kemp-  
sey Parish, 268; in Yorkshire, 278; at  
Thornhill and Dewsbury, 350; St.  
Olave, Hart Street, Bloomsbury, 350;  
St. Mary Aldermanbury, 384; St.  
Michael, Wood Street, E.C., 382, 398;  
Swansea Parish, 399; Twickenham,  
381; Whippingham, 382; Towers of  
East Devon, by R. W. Sampson, 391  
City: of London Sewers Bill, viii.; and  
West End Railway, Proposed New  
Underground Line, 140; and Waterloo  
Railway, 398; in Ruins, 95  
Civil and Mechanical Engineers' Society,  
287  
Clacton: Buildings at, 254  
Clergy and Artists' Association, 316, 384  
Clerks of Works Association, 43  
Colour Photography, 10  
Commercial Morality of Builders, 334  
Commissioners of Sewers: The Year's  
Works, 97  
Competitions: at Enniskillen, 39; New  
Grammar School, Dudley, 54; Tech-  
nical School and Free Library,  
Longton, 45; Tonbridge Free Library  
and Technical Institute, 375  
Concrete and Cements: Notes on, 300,  
313  
Congress of Archaeological Societies, 303  
Construction of Jubilee Stands: by R. J.  
Gifford Read, lxxiv., 279  
Corporations and Insanitary Areas, 383  
Correspondence: Decorative Plaster  
Work, by H. G. Watkins, 16; Deco-  
rative Plaster Work, by G. P. Warren,  
16; Value of Land in London, by  
Green and Son, 28; A Suggestion, by  
"Student," xi.; A Suggested Stu-  
dents' Column, by "Builder's Clerk,"  
72; Longton Technical Schools and  
Free Library, by Woodland Hutchings,  
84; Who Pays for the Trowel? by  
S. G. R., 131; by H. H., 163; Salary of  
Clerk of Works, by "Undecided," 148;  
Polishing Floors, by C. R. E., 163; A  
Question of Water Supply, by A. G.,  
163; St. George's Cathedral, South-  
wark, by T. Williams, 180; R.I.B.A.  
Elections, by "A Metropolitan Fel-  
low," 195, 212; by "London Asso-  
ciate," 195; by "A Fellow of the  
Institute," 227; by George H. Bibby,  
244; Planning of Small Houses, by  
"W. W.," 212; Dimensions of a  
Chimney Shaft, by E. W., 212;  
Royal Academy Exhibition, by W.  
Howard Seth-Smith, 244; The Late  
George Gilbert Scott, by C. Hodgson  
Fowler, F.S.A., 244; Chelsea Em-  
bankment, by H. J., 244; Exhibition  
of Fireproof Materials, by J.  
Alfred Fisher, 260; The Proper  
Position for the Choir and Organ  
in Churches, by the Bishop of  
Chester, 283; by W. D. Carce, 303;  
by "Septuagenarian," 320; Restora-  
tion of Canterbury Cathedral, by  
Thackeray Turner, 285; Danger of  
Fire at South Kensington Museum,  
by M. H. Spielmann, 285; Dover  
House, Whitehall, by H. W. Brewer,  
286; Jubilee Stands in Private Houses,  
by R. Butson, 303; Mr. Justice Cave  
and Architects, by George H. Bibby,  
388  
Crane, Walter, and the National Collec-  
tions at South Kensington, 30  
Crystal Palace: as a Building, 110;  
School of Art, 398

**DAMAGE:** to Church of St. Nicholas,  
Plumstead, 8  
Danes Dale, near Driffield, 395  
Dangerous Structures in London, 397  
Decoration: of London Streets, 110,  
237; of the Egyptian Hall of the  
Mansion House, 138; of an Old House  
at Herne Hill, 139; Pargetting at  
Oxford, 139; National Portrait Gal-  
lery, Edinburgh, 191; Choir of St.  
Paul's Cathedral, 301  
Demolition: of Chapel of the Rolls, 9;  
of Old Bow Street Police Station, 26;  
of St. David's Church, Exeter, 40;  
New Building at Stoke Newington, 54;  
of Helmington Hall, Hunwick, 56;  
of an Old Building at Barnstaple, 70;  
Church of St. Pierre, Montmartre,  
Paris, 110, 154; Old Buildings at  
Carlisle, 127; of Doddington Tower,  
156; Cock Tavern, St. Michael's  
Alley, 182; of Dome in Champs de  
Mars, Paris, 207; of Houses in Gower  
Street, 239; Official Residence, First  
Lord of the Treasury, Proposed, 269;  
"Old Bell," Holborn, 270, 302;  
Lauderdale House, Aldersgate Street,  
285; of Houses at Rosdun, 286;  
Hotel, Dieu Hospital Annexe, Paris,  
301; Hôtel des Arquebusiers, Paris,  
350; Old Houses in Spring Gardens,  
365  
Deptford: New Recreation Ground at,  
286; New Technical Schools at, 380  
Devon and Exeter Architectural Society,  
100, 116, 243  
Discoveries: A Temple of Rameses III.  
at Luxor, 189; Roman Wall at  
Gloucester, 222; Ancient Glass at  
Cardiff, 222; Two Stone Coffins at  
Musselburgh, 237; Papyrus in Egypt,  
268; Norman Structure at Chatham,  
285; Drawings on the Walls of a Cave,  
286; Stone Implements in Egypt, 286;  
Sculptured Stones at Edinburgh, 318;  
Foundations of the Ancient City of  
Nippur, 318; Roman Relic at Chester,  
351, 367; British Remains at Danesdale,  
365; Human Remains at Wexford,  
25; Underground Refuge at Strano-  
cum, 9; Ancient MSS. at Luton, 10;  
Remarkable Bronze Statue of Adelphi,  
41; Old Guard-room at Leap Castle,  
81; Anglo-Norman Tombstone at  
Dundonald Parish Church, 97; Roman  
Columns in Lincoln, 96; Romano-  
British Tessellated Pavement at  
Whitton, 106; Two Urns at Cullen,  
111; Unique Mosaic, 111; Old Maps  
at Amsterdam, 111; Archaeological  
Discoveries in Egypt, 118; Archaeo-  
logical Discoveries in Paris, 128; Roman  
Kilm at Hartshill, 128; Bust of the  
late Mrs. Harriet Beecher Stowe,  
140; Fourteenth Century Glass at  
Cardiff, 140; Cockpit at York, 153;  
Tessellated Pavement at Lincoln, 173;  
Inscribed Masonry at "Pope's Villa,"  
Twickenham, 175; Sealed Room at  
Gainsborough, 189; Roman Remains  
at Chester, 381  
Disinfection: By W. Noble Twelve-  
trees, 287, 321  
Doimens of Ireland, The, by W. C.  
Borlase, 365  
Dover, New Hotel at, 397  
Drainage: of Retford, xx.; of Norwich,  
lviii.  
Dreux, 238  
Dublin Master Builders' Association, 16  
Dudley: Grammar School Competition,  
at, 54  
Dundee Institute of Architecture, 27  
Dundee Institute of Engineers, ix.

**EAST RIDING ANTIQUARIAN  
SOCIETY,** 147  
Ecclesiastical Architecture, by Frank  
Caws, 49  
Edinburgh: Architectural Society, 16,  
x., 59, 72; Architectural Association,  
72, 100, 163, 218, 260; the New Hall  
at, 110; National Portrait Gallery,  
191; Registered Plumbers at, 227;  
Association of Science and Art, 238;  
Discovery of Sculptured Stones at, 318  
Educational Training of Architects, 69,  
79



Egress from Board Schools, 79  
Eighteenth Century Work, 90, 105  
Electric Farce at Beccles, an, 17  
Electric Lighting at Shoreditch, 310  
Electricity and its Dangers, 379  
Engineers' Association, the, 196  
English School of Painting in the Louvre  
Museum, 399  
Engravings of the Early English School,  
140  
Enquiry Department: 224, 260, 275, 291,  
307, 324, 356  
Excavations: at Silchester, 173, 256; at  
Jerusalem, 173; at Gloucester, 222;  
at Cardiff, 222; at Musselburgh, 237,  
in Northern Babylonia, 319  
Exeter: Cathedral, 70; Demolition of  
St. David's Church, 40  
Exhibitions: Royal Scottish Academy,  
9; Stirling Fine Art Exhibition, 39;  
of Old Miniatures, 38; Glasgow School  
of Art, 18; Brussels, 40; Paintings  
by Alfred Hunt, 40; Stockholm, 41;  
Sheffield School of Art, 54; "English  
Landscape" at the Graves Galleries,  
54; Water Colour Society of Ireland,  
79; Works of Du Maurier at the Fine  
Art Society's Gallery, 95; Relics of  
General Gordon at United Service  
Institution, 96; Studies by J. M. Swan  
at the Fine Art Society, 110; Central  
School of Arts, 127; Royal Society of  
British Artists, 127; Scottish Art in  
the Scottish Gallery, 127; Pictures at  
the Guildhall Art Gallery, 139; Pro-  
fessor Legros' Pictures at E. J. V.  
Wise's Gallery, 155; at Brussels,  
172; Dr. Probert's Miniatures at the  
Fine Art Society's Gallery, 173; Works  
of Graham Petrie and Charles Hazle-  
wood, 173; Royal Academy, 186, 198;  
Old Water Colour Society, 191; Pic-  
tures at Stratford, 207; Victorian  
Era, 189; Imperial Victorian, 189, 207,  
272; Pictures of the Tudor Dynasty  
at Manchester, 208; Amateur Art at,  
105; Piccadilly, 214; Drawings and  
Paintings by Mortimer Menpes, 221;  
Water Colours at Agnew's Gallery,  
Liverpool, 222; Dramatic and Musical  
Art at the Grafton Galleries, 223;  
Works of English Painters at Boston,  
224; "Old Masters" at Messrs.  
Colnaghi's Gallery, 237; Posters at St.  
Bride's Institute, 237; Home Arts  
Industries Association, 238; Society  
of Miniature Painters, 238; Asbestos  
at St. James' Hall, 253; East London  
Art, 253; Water Colour Drawings at  
118 Bond Street, 254; Pictures at the  
Sydenham Gallery, 268; Free Loan  
Pictures at the Borough Road Poly-  
technic, 268; Old English Dwellings  
at Earl's Court, 269; Oil and Water  
Colour Studies at the Alpine Club,  
270; Burlington Fine Arts Club, 270;  
Dudley Gallery Art Society, 285;  
Surrey Art Circle at the Clifford  
Gallery, 286; Water Colour Draw-  
ings by J. H. Lewis, 254; Onorato  
Carlandi at the Fine Art Gallery,  
301; Turner Collection at Brad-  
ford, 302; Work of Mr. J. B.  
Knight at the Goupil Gallery, 303;  
Posters by Louis Rhead, 310; Home  
Arts and Crafts at Bury, 318; Tech-  
nical Students' Work at Birmingham,  
326; One Hundred Lilliputian Pic-  
tures in Oil, by G. C. Haité, 334;  
Antique Tapestries, &c., at Messrs.  
S. J. Waring and Sons, Oxford Street,  
335; Decorative Needlework Society,  
366; Four Works by Corot, 366;  
Arts and Crafts at Wolverhampton,  
197; Art Students' Work in Paris, 385;  
Relics of Benin, 384; Drawings of  
Egyptian Tombs, by Society of Anti-  
quaries, 382; Brussels, 393  
Extensions: Medical School Buildings  
at Guy's Hospital, 8; University Col-  
lege Hospital, Proposed, 10; Guild-  
hall School of Music, 70; Naval Yard  
in Hong Kong, 80; Central Savings  
Bank, 56, 109; Guy's Hospital, 96;  
Victoria Embankment, 189, 207;  
Berkeley Hotel, Piccadilly, 224;  
Royal Palace Hotel, Kensington, 268;  
Mont Blanc Observatory, 348; Church  
of St. Olave, Bloomsbury, 350; Guild-  
hall School of Music, 374

**FACIAS** and Street Signs, 309  
Famous Firms: Messrs. Young and  
Martens, of Stratford-le-Bow, 15  
Fire: at Cox-Thermo Electric Com-  
pany's Laboratory, St. Alban's, 56;  
and Public Entertainments, 326  
Fire Clay Industry, 311  
Fleet Street, 81, 96  
Floating Church in the Fen Country,  
191  
Floor and Wall Supports of London  
Houses, 154  
Floors and their Coverings, by Wm.  
Norman Brown, 341  
Ford, R.A., Onslow, on the Horse in  
Art, 191  
French Feudal Castles, 75

**GAINSBOROUGH:** Discovery of a  
Sealed Room at, 189  
Garden in Relation to the House, 24, 38  
Gesso Work at the Arts and Crafts Ex-  
hibition, 80  
Gibraltar: a Gigantic Scheme at, 390

Glasgow: Institute of Architects, 14;  
Architectural Association, 14, 19, 21,  
72, 163; School of Art, 18; and West  
of Scotland Technical College, 43, 171,  
224; Archaeological Association, 196;  
Public Parks, 317; Presentation to  
Mr. John Burnett, 349  
Glimpses of Normandy and Brittany, by  
Charles R. Gilchrist, 256  
Gloucester: Roman Wall Discovered  
at, 222  
Government: Offices, The New, by S. J.  
Fisher, 63, 109, 382; Contracts, 206;  
Committee Enquiry, 246  
Gray's Inn, 269, 333  
Greek Sculpture and Greek Legend, 67,  
78  
Grotto at Margate, 96

**HACKNEY:** Proposed Technical In-  
stitute at, 302  
Hampton Court Palace: Wolsey's Pri-  
vate Chapel at, 207  
Hanging Committee at the Royal  
Academy, 190  
Harewood House, 381  
Hastings: the Harbour at, 301  
Helmington Hall, 56  
Her Majesty's Theatre, Haymarket, 189  
Heraldry: in English Mediaeval Archi-  
tecture, 74; of the Renaissance in  
England, 112  
Herkomer, Professor, on Art, 155  
Highgate Hill Cable Tramway, 123  
Historical Portraits: Proposed Cata-  
logue of, 303  
Horsley: Working Class Dwellings at,  
190  
Horsley, J. C., R.A.: Resignation as  
Treasurer to the Royal Academy, 384  
Hospital: A New, at Gwelo, 170; at  
Hampstead, 206; Ophthalmic in the  
City Road, 254; Accommodation at  
Norwich, 278  
House Painters and the Jubilee, 239  
Huddersfield: Sewerage Works at, 267  
Hyde, Technical School at, 380

**ICE PALACE AT MOSCOW:** a  
Proposed, 9  
Illumination of Lincoln Cathedral, 303  
Important Sanitary Action, 43  
Improvements: at Waterloo Junction,  
8; at Shoreditch, 53, 96; at Leeds, 96;  
at Keighley, viii.; at Somerset House,  
70; of Fleet Street, 81, 96, 381; Widening  
Little Trinity Lane, 111; at St.  
James' Park, 156; West Central,  
London, 170, 239; at Waterlow Park,  
172; at St. Pancras, 174; at West-  
minster, 189; at Newgate Street,  
262; at Birmingham, 271; Street, at  
Bristol, 285; Metropolitan Street, 288,  
366; Widening of Upper Thames  
Street, E.C., 335; Proposed Embank-  
ment at Battersea Park, 333  
In Istria and Dalmatia with a Camera,  
by W. Law Bros., 151, 167, 200, 312  
Individuality in Art, by T. G. Jackson,  
R.A., 62  
Institute Abroad, The: Architectural  
Association Soiree, 198  
Institution: of Civil Engineers, 14, 27,  
59, 132, 147; of Naval Architects,  
116, 128  
International Society of Wood En-  
gravers, 97  
Invention for Dispelling Fog as Applied  
to Photography, 66  
Irish: Silversmiths' Work, Old and  
New, 2; Tunnel Scheme, 270, 320, 380;  
Cathedrals, Sligo and Belfast, 352;  
Hammered Ironwork, Old and  
New, 39  
Italian Renaissance Architecture, 103

**JUBILEE:** of the Architectural As-  
sociation, 198, 201; Stands, the Con-  
struction of, lix., 279; Stands, the  
Safety of, 301; Building Act Com-  
mittee's Report on Stands, 349

**KENSINGTON PALACE,** 334  
King's Cross Railway Station: Proposed  
Re-building of, 154

**LABORATORY** in Clement's Inn, 70  
Lancashire Federation of Building Trade  
Employers, 276  
Lancaster, The "King's Arms," 333  
Lanfairfechan, Convalescent Home at,  
109  
Lead Poisoning and Employer's Li-  
ability, 156  
Lenderettes: Recent Academy Elections  
and the Art of Alfred Parsons, 1;  
Mr. Spiers' Works at the Royal Water  
Colour Society Art Club, 17; Five per  
Cent, 29; An Election Farce at Beccles,  
17; A Third Cathedral, 29; Another  
Unsatisfactory Competition, 45; A  
New Church at Stockport, 45; London  
Statues, 61; Proposed New Buildings  
of the London County Council, 73;  
The Architect as Organizer, 85; A  
Model Estate, 85; Gesso Duro as a  
Decorative Material, 101; The Brick  
Famine, 117; Important London Hou-  
sing Schemes, 117; The New English Art  
Club, 133; Two Unsolved Problems,  
133; The Last of Chelsea Reach, 140;  
London Naval Statues, 149; Varnish-

ing Day at the Royal Academy, 165;  
Art of Plastering, 165; Jubilee Art,  
181; The Architectural Association's  
Jubilee, 181; Bills in Parliament, 197,  
Arts and Crafts at Wolverhampton,  
197; A National Monument, 213;  
George Gilbert Scott, the Younger,  
213; The Time Limit, 229; Peter-  
borough Cathedral and the Protec-  
tion of Public Buildings, 229; The  
Influence of Colour, 245; The Late  
Mr. Charles James Phipps, 245; How  
Japanese Wallpapers are made, 261;  
Works Department v The Contractor,  
262; Architecture at the Paris Salon,  
277; Art in the East End, 277; Design  
at the Architectural Association, 293;  
Facies and Street Signs, 309; A  
Professional Custom, 325; Liverpool  
School Board Offices, 325; Art versus  
Professionalism, 341; Women Artists  
at Earl's Court, 357; Egyptian An-  
tiquities, 357; Are Architects "Un-  
satisfactory Men," 373; Art and  
Public Interest, 389

Leaning: Steeple, Barnstaple, 66;  
Towers and Chimneys, 86  
Lectures: "Irish Silversmith's Work,  
Old and New," by Sir Arthur Vicars,  
2; "Old Buildings and the Story  
They Tell," by Arnold Mitchell, 8;  
"Shakespeare's London," by Pro-  
fessor Hales, 8; "Secrets of Crystals,"  
by Professor Miers, 9; "The History  
of Lanuvium," by Professor Bodin-  
gton, 10; "Irish Hammered Iron  
Work, Old and New," by John  
McCloughlin, 39; "Pre-historic Monu-  
ments and their Preservation," by  
Robert Bernard, 41; "Practical De-  
signing of Iron and Steel Roofing,"  
by Alexander Drew, ii., ix., xv., xxi., xlv.,  
xlvi., lxx., lxxi., lxxxi., lxxxvi.; "The  
Isolation of Infectious Diseases," by  
Dr. W. Berry, 52; "The History of  
the Arch," by Professor F. M. Simp-  
son, 54; "The Architecture of Asiatic  
Hellas," by W. J. Anderson, 56, 80,  
139; "Cheapside," by the Rev. Canon  
Benham, 80; "History of Architect-  
ure," by W. S. Johnson, M.A., 80;  
"Italian Painting," by Professor  
Baldwin Brown, 81; "The Ancient  
Churches of Cornwall," by J. D. E.  
Penryn, 96; "Old Architecture in  
Liverpool," by Professor F. M. Simp-  
son, 96; "Three Great Etchers—  
Rembrandt, Meryon, and Whistler,"  
by D. Y. Cameron, 97; "The Pre-  
historic City of Omilitan," by W.  
Nivan, 98; "Upper Egypt, Karnak,"  
by Professor A. S. Bickmore, 109;  
"Recent Discoveries in Egypt," by  
Mr. Flinders Petrie, 118; "Hospitals,"  
by Frederick Batchelor, xxxii.,  
xxxvii.; "Art," by Professor Her-  
komer, R.A., 155; "The Monasteries  
of Essex," by George Biddell, 155;  
"Sewerage and Sewage Disposal,"  
by W. Harpur, xlviii.; "A Tour in Hol-  
land," by J. B. Mitchell Withers, 184,  
209; "The Classic Cornice," by Hugh  
Stannus, 1; "The Greek Theatre  
according to Recent Discoveries," by  
Dr. J. P. Mahaffy, 207; "Ventilation,  
Heating, and Lighting," by Dr. P. R.  
Griffiths, 207; "Ancient and Mediaeval  
Art," by Professor Baldwin Brown,  
221; "The Mosaic Decorations of St.  
Paul's Cathedral," by W. Richmond,  
R.A., 222; "Building Contracts," by  
F. E. Weatherley, 237; "Egypt and  
Early Europe," by Professor W. M.  
Flinders Petrie, 270

Leeds: and Yorkshire Architectural  
Society, 14, 72, 147; Water Supply,  
viii.; Building Trade of, 41; New  
Chapel at, 104; Building Activity in,  
134; A Visit to the Burmanoffs'  
Works, 271; Art Purchases at, 301  
Legal Cases: An Architect's Copyright  
in His Drawings, xii.; Important  
Sanitary Action, 43; An Architect's  
Application, 56; Messrs. Murdock and  
Cameron, Limited v The Corporation  
of Southend-on-Sea, 129; Joseph  
Pennell v Saturday Review, 138;  
Viscount Hill v Bullock, 138; Sim-  
monds v Malling Rural District  
Council, 262; Moorwood, Sons, and  
Co. v G. Longden and Son, 294

Lighthouses on the Chilian Coast, 189  
Lighting of Victoria Embankment, 398  
Lincoln: Architectural Society, 353;  
Roman Columns at, 96; Cathedral,  
303  
Liskeard Parish Church, The Tower at,  
255  
Liverpool: Ventilation of the New  
Museum Buildings, 172; Architec-  
tural Society, 212, 384; Exhibition at  
Agnew's Gallery, 222; Architecture  
at, 96, 294; Statuary in, 320  
London: County Council and the Works  
Department, 8, 40, 129, 154, 172, 230, 253,  
331; and the Boadicea Statuary Group,  
10; Building Scheme in Shoreditch, 53,  
96; Wren's Scheme for the Rebuild-  
ing of, 138; Hoardings in, 139; Naval  
Statues in, 149; West Central Im-  
provement Scheme, 170; A Widening  
Scheme, 174; Its Growth and His-  
tory, 176; Association of Foremen  
Engineers and Draughtsmen, 227; and  
Middlesex Archaeological Society, 84;  
Improvements at, 239, 366; Subter-  
raanean Communications in, 24; Water

Supply of, viii.; Electric Lighting at,  
26; and Middlesex Archaeological  
Society, ix.; The Defences of,  
51; Historic and Architectural Build-  
ings of, 54; Statues, 61; Street De-  
corations in, 80; Technical Education  
in, 38; Church Architecture of the  
Victorian Era, 125; Grand Stands in,  
222; County Council, xviii., 399; Posi-  
tion of the Works Department, xviii.;  
Suburban Theatres at, 397  
Longton, Technical Schools Competi-  
tion, 45  
Lord Leighton's House, 317

**MANCHESTER:** Sewage Problem at,  
xl.; Building Trades Association, 148;  
Pictures of the Tudor Dynasty at, 208;  
Building Operations at, 365; Sewage  
Difficulty at, cii  
Marchioness of Lorne as Architect, 382  
Margate: "The Grotto" at, 170  
Master Builders of Great Britain, 25  
Materials and Construction—Timber,  
lxiii  
Mediaeval French Fortifications, by D.  
Theodore Fyfe, 263  
Memorial: to Sir John Pender, 9; to  
Mrs. E. B. Browning in Kelce Church,  
81; Tablets for Stephenson's Grave,  
173; of Christina Rossetti, 224; to the  
late Joseph Thomson, the African  
Explorer, 253, 286; Proposed, to the  
late Charles Dickens, 253; Chapel at  
Whittingham, 286; to Admiral Blake,  
287; Buildings at Winchester, 301;  
to Lord Leighton at St. Paul's, 301,  
333; to Ferdinand de Lesseps, 301; A  
Novel Spanish, 301; to Dr. Goulburn,  
at Rugby, 351; Tower at Bristol, 351  
Men Who Design: William Aumonier, 3  
Men Who Build: Eustace Balfour, 294;  
George H. Fellowes Pryne, 215  
Men Who Make: a Visit to the Burman-  
offs' Works, 271  
Mentone: Drinking Fountain at, 156  
Metallic Portions of Tall Buildings, 25  
Metropolitan Public Gardens Associa-  
tion, 365  
Middlesboro' and District Association  
of Foreman Engineers and Draughts-  
men, 16  
Military Hospital near London, 70  
Modern House Interiors, 152  
Monuments: at Zimbabwe, 96; to the  
late Bishop Atlay at Hereford Cathed-  
ral, 128; to William I. of Germany,  
128; in St. George's Chapel, Windsor,  
156; to the late Samuel Webb, 221;  
Defence of St. Quentin, 286; to the  
late Captain Burges, at St. Paul's, 351;  
to Daguerre at Bry-sur-Marne, 351; to  
Robert Louis Stevenson, 381  
"Mosaic," by Harry Thomson, 361,  
376; Decorations at St. Paul's, 316  
Moscow: the Kremlin at, 110  
Munich: a City of Art, 150  
Museum: of Egyptian Antiquities,  
Cairo, 127, 138; at Windsor Castle,  
190; Select Committee's Enquiry, 349

**NATIONAL:** Gallery of British Art,  
368; Portrait Gallery, 8, 25; Gallery  
and Recent Additions, 54; Removal  
of Pictures from, 304; Arrange-  
ment of Pictures at, 381; Trust for  
Places of Historic Interest or Natural  
Beauty, 352; Defence, a Gigantic  
Scheme at Gibraltar, 390  
Naval Cadets' College at Dartmoor, 9  
New: Thoroughfare in Paris, 8; River  
Company's Bill, 254  
Newcastle-on-Tyne: Its Designer and  
Builder, xciv.; Architectural Asso-  
ciation, 291, 295; and the Architecture  
of Mr. John Dobson, 351; Building  
at, 220; "King John's Palace,"  
Heaton Park, 10; Relic of old, 217;  
Building at, 220  
New York: Homes for Women at, 140  
Norman Churches, 320  
North-Western Sanitary Inspectors'  
Association, 52, xlv  
Norton Conyers, near Ripon, 255  
Norwich: Drainage Scheme, lviii.; Hos-  
pital Accommodation at, 278  
Notes on Concrete and Cements, by  
John James Henderson, 300, 313

**OBITUARY:** Alexander Reid, Elgin;  
Josiah Thomas, City Surveyor, Bris-  
tol, 349; M. Dantan, the French  
Painter, 350  
Old: Buildings and the Story they tell,  
8; City Tavern, 182; Brussels, 220  
Open Spaces: About Buildings, by Dr.  
I. F. J. Sykes, 170  
Origin and Development of Renaissance  
Architecture in Italy, by C. B.  
Hutchinson, 157, 168  
Oxford: 343, 359; Pargetting at, 139;  
Architecture and Historical Society,  
157, 168

**PALESTINE** Exploration Fund, 384  
Papers Read: "An Unwritten Chapter  
of English Architectural History,"  
by Mr. A. S. Flower, 5, 8; "Some  
Scottish Houses," by W. J. Blain,  
19, 20, 21, 32; "The Garden in  
Relation to the House," by H. E.  
Milner, 24, 38; "The Architect and  
the Public," by W. H. Bidlake, 35;



- "Principles of the Law of Rating as affecting Engineering Works," by E. W. Pierce, 51; "Greek Sculpture and Greek Legend," by F. S. Granger, 67, 88; "The Educational Training of Architects," by Leopold Eidlitz, 69, 79; Heraldry in English Medieval Architecture," by W. H. St. John Hope, 74; "Eighteenth Century Work," by J. A. Gatch, 90, 105; "The Obligation of the Artist to Ecclesiastical Tradition," by the Rev. A. Baillie, 97; "London Church Architecture of the Victorian Era," by T. Francis Bumpus, 106, 125, 141; "Why is Scotland Fifty Years Behind in Heating and Ventilating?" by W. Oliphant, 109; "Heraldry of the Renaissance in England," by J. Alfred Gatch, 112; "Architecture in Relation to the Haudicrafts," by T. G. Jackson, 122, 142; "The Principles of Perspective as applied to Architecture," by E. Bradbury, 143; "The New Government Offices Scheme," by H. H. Statham, 145; "Modern House Interiors," by T. Butler Wilson, 152; "Origin and Development of Renaissance Architecture in Italy," by C. B. Hutchinson, 157, 168; "The Railways in India," by C. E. D. Black, 208; "The Parthenon and the Earthquake of 1894," by F. C. Penrose, F.S.A., 225; "Sanitary Plumbers' Work and Sanitation," by S. S. Hellyer, 235, 248, 280; "The London Water Supply," by Dr. Percy Frankland, 238; "Improvements in the Manufacture of Iron and Steel during Her Majesty's Reign," by Mr. G. Somerville, 238; "Coronation Stone at Westminster," by James Hilton, 285; "Disinfection: Physical, Chemical, and Mechanical," by W. Noble Twelvetrees, 287, lxxviii, 321; "Architectural Epidemics," by Harry Barnes, 295; "Notes on Concrete and Cement," by John James Henderson, 299; "Advances made in the Mathematical Theory of Naval Architecture," by Sir Edward J. Reed, 350.
- Paris: Archaeological Discovery at, 128; Demolition of Hotel Dieu Hospital Annexe, 301; Demolition of Hotel des Archevêques, 350; Demolition of Dome in Champs de Mars, 207; Demolition of Church of St. Pierre, Montmartre, 110; Salons, 302; Louvre Museum, 399; Pictures from the Salons, 383; Water Colour Drawings at the Carnavalet Museum, 398.
- Park Lane and its Architecture, 56.
- Parsons, Alfred, the Art of, 1.
- Parthenon, the, 81.
- Paving in Gray's Inn Road, 70.
- Perspective in Every Day Practice, by W. N. Cumming, 47, 75.
- Peterborough Cathedral, 333.
- Pimlico: Working-Class Dwellings at, 109.
- Planning of Small Houses, by H. V. Lanchester: A Terrace House, i.; Terrace Houses, v.; Pair of Cottages and Semi-detached Houses, xvii., xli., lvii., lxi., lxxviii.
- Plumbers' Registration Bill, 208, 318.
- Pluscadyr Priory, 56.
- Plymouth: Master Builders' Association, 16; Sanitary Scheme at, 174; New Theatre at, 239.
- Portsmouth Master Builders' Association, 179.
- Position of Choir and Organ in Churches, 284, 320.
- Post Office Sites Bill, 397.
- Pottery: Ancient, Medieval, and Modern, 25.
- Poynter, Sir E. J., on present-day Art Tendencies, 397; Lectures on Art, 381.
- Presentation to G. F. Watts, 54.
- Professional Items: 12, 27, 44, 58, 71, 82, 98, 113, 130, 146, 159, 178, 193, 209, 226, 241, 257, 273, 289, 305, 322, 336, 353, 369, 386, 399.
- Pryme, George H. Fellowes, 215.
- Public House Architecture and Decoration, 385.
- Public: Works and Buildings, 25; Works in Ireland, 54.
- QUEEN Anne's Gate: Road Repairs at, 223.
- Queensferry Bridge: the New, 269.
- RAILWAY: Proposed Deep Level from Earl's Court to the Mansion House, 190.
- Recent: Academy Elections and the Art of Alfred Parsons, 1.
- "Recent Research in Bible Lands," 382.
- Register of Historic Buildings in London, 398.
- Relics: Grotto at Margate, 96.
- Remains of a Roman Camp in London, 334.
- Restoration: Canterbury Cathedral, 2; St. John's Church, Cardiff, 40; Salisbury Cathedral, 23; Bath Abbey, 95; Royal Castle on the Wavel, 25; St. Mary's Church, Warwick, 41; Austerfield Church, near Bawtry, 139; Church of St. Leonard, Shoreditch, 155, 222; Winchester Cathedral Organ, 172; St. Bartholomew's the Great, 207, 237; Chantilly, 221; Crypt and Chapter House at Canterbury Cathedral, 253, 285; Church of Little Stanmore, Edgware, 287, 316; Rochester Cathedral, 301, 316; Church of Shernbourne, near Sandringham, 317; Ordsal Hall, Manchester, 332; Peterborough Cathedral, 333; Famous Frescoes at the Royal Gallery at Westminster, 366; Twickenham Parish Church, 331.
- Rhead-Louis Posters, 310.
- Riverside Building, 268.
- Rochester: "Estate House," 170; Cathedral, 301, 316.
- Rotherhithe Town Hall, 183.
- Royal: Society of Antiquaries of Ireland, 9; Institute of British Architects, 24, 38, 57, 69, 145, 175, 192, 225; Academy, 186, 198; Institution, 207; Palace Hotel Extension, 268; Scottish Academy, 41; Yacht, a New, 55; Architectural Museum and Westminster School of Art, 381.
- Rouen: Naval Bridge at, 208.
- Ruins: Great Zimbabwe in South Africa, 129; of London and of Nineveh, 255.
- Rural: Sanitation, lvii.
- SAFETY: of Public Halls, 221; of Jubilee Stands, 301; of British Art Treasures, 269.
- Sale: of Pictures by Old Masters, 140, 269; of the Pender Collection of Pictures, 270; of Chinese Porcelain, 285; Pictures of the late Sir W. W. Burrell, 303; of Old Mezzotint Pictures, 304; of Pictures of the late J. L. Leathart, 317; of the Ashburnham Library, 322; Drawings by Rossetti and Sir E. Burne-Jones, 334; Church of St. Michael, Wood Street, 382; of Jacobite Relics, 382; Art Trophies of Hengrave Hall, 399; Porcelain and China Ware, 399; Important Pictures in Holland, 397; Royal Academy Pictures, 397.
- Salisbury Cathedral, 23.
- Sanitary: Science, by Paul Ogden, xviii., xxiii., xliii.; Conference at Venice, xix.; Scheme at Plymouth, 174; Plumbers' Work and Sanitation, by S. S. Hellyer, 235, 248; Science of the Victorian Era, 272; Condition of Bristol, lxxiv.; Inspectors' Association of Scotland Congress, lxxviii.; Inspectors' Examinations, 324; Supervision in the City, 191.
- Sanitation and Waterworks in India, xci.
- Saw and Cutter Sharpening Machines, by J. C. Crathorne, 284.
- Scaffolding: Accident at Coldrenick Viaduct, 365.
- Scarborough: the Marine Drive at, 156, 288.
- Scottish Plaster Work, by John Murray, 119, 135.
- Secrets of Crystals, 9.
- Service of Art, 94.
- Sewage: Disposal at Yeovil, xx.; Problem at Manchester, xl.; Scheme at Bradford, xliii.; The Disposal of, by W. Harpur, xlviii.; Works at Huddersfield, 267; Scheme at Clacton, 255; Difficulty at Manchester, cii.
- Sewers: Commission, New Offices, 54; Commission: A Retrospect, cii.
- Shakespeare's: Cliff, Dover, 40; London, 8.
- Sheffield: New Town Hall at, 53, 231, 247; Technical Education in, 96; Proposed Overhead Electric Tramway System, 9; Society of Engineers, ix., 59; Refuse Destructor, xxxvi.; New Offices of the Prudential Assurance Company, 140; Society of Architects and Surveyors, 84, 147, 179, 184, 276, 348; Society of Engineers, ix.
- Shoreditch: Housing Scheme at, 53, 96; Dust-destroying Furnaces at, 127, 310; Church of St. Leonard's, 155, 222.
- Silchester: Seven Years' Excavating at, 256.
- Silver Palace, a, 253.
- Sinking of Maitland Park, 95.
- Site of the New War Office, 140.
- Social Function of Art, by Professor Max Nordau, 363.
- Society: of Architects, 59; of Engineers, 148.
- Society Meetings: Arts and Crafts Society of Ireland, 2; Royal Society of Antiquaries of Ireland, 9; Timber Trades Benevolent Society, 11; Leeds and Yorkshire Architectural Society, 14, 72, 147, 152; Glasgow Institute of Architects, 14, 131; Glasgow Architectural Association, 14, 72, 163, 212, 291; Architectural Association of Ireland, 14, 72, 143, 170, 260; Bradford Society of Architects and Surveyors, 14; Society of Engineers, 14, 148, 388; Auctioneers' Institute, 14; Institution of Civil Engineers, 14, 27, 59, 132, 147; Edinburgh Architectural Society, 16, 59, 72; Dublin Master Builders' Association, 16; Middlesex Association, 16; Plymouth Master Builders' Association, 16; Sheffield Society of Architects and Surveyors, 34, 147, 179, 184, 276, 348; Master Builders of Great Britain, 25, 337; Derbyshire Archaeological and Natural History Society, 26; Dundee Institute of Architecture, 27; Dundee Institute of British Architects, 24, 38, 57, 69, 145, 192, 225; Royal Scottish Academy, 41; The Clerks of Works' Association, 43; London and Middlesex Archaeological Society, 84; Society of Antiquaries of Scotland, 179, 230; Sheffield Society of Engineers, 59; Dundee Institute of Engineers, ix.; Philosophical Society of Glasgow, ix.; Liverpool Engineering Society, 51; North-Western Sanitary Inspectors' Association, 32; The Society of Architects, 59; British Archaeological Association, 59, 84, 116, 276, 291; Surveyors' Institution, 59, 244, 276; Aberdeen Ecclesiastical Society, 59; Architectural Association, 5, 8, 22, 67, 131, 142, 196, 201, 243, 280; Edinburgh Architectural Association, 72, 100, 131, 163, 196, 218, 260, 387; Sanitary Inspectors' Association, xxiv.; the Builders' Association, 84; International Society of Wood Engravers, 97; Devon and Exeter Architectural Society, 100, 116, 196, 243; Institution of Naval Architects, 116, 128, 350; National Registration of Plumbers, 116; Royal Scottish Society of Arts, 131; Bristol Association of Clerks of Works and Builders' Foremen, 132, 148; East Riding Antiquarian Society, 147, 371; Manchester Building Trades' Association, 148; Oxford Architectural and Historical Society, 157, 168; Portsmouth Master Builders' Association, 179; Glasgow Archaeological Society, 196; the Engineers' Association, 196; Royal Institution, 207; Society of Arts, 208, 238; Liverpool Architectural Society, 212; Building Societies' Association, 212; London Association of Foremen Engineers and Draughtsmen, 227; Iron and Steel Institute, 227, 276, 340; Edinburgh Association of Science and Art, 238; Essex Archaeological Society, 244, 371; Bradford Antiquarian Society, 255; Bristol and Gloucester Archaeological Association, 276; The Lancashire Federation of Building Trade Employers, 276; Civil and Mechanical Engineers' Society, 287, 321; Bradford Antiquarian Society, 255; Northern Architectural Association, 291, 295; Birmingham and Midland Institute, 302, 350; Clergy and Artists' Association, 316; Sanitary Inspectors' Association of Scotland, lxxviii.; Yorkshire Archaeological Society, 307, 387; Lincoln Architectural and Archaeological Society, 353; St. Albans Architectural and Archaeological Society, 355; Sanitary Institute, 355, 388; Institution of Mechanical Engineers, 355, 402; Society for the Promotion of Hellenic Studies, 367; North-Eastern Sanitary Inspectors' Association, 371; Bradford Historical and Antiquarian Society, 402; Shropshire Archaeological and Natural History Society, 402; Wiltshire Archaeological Society, 396.
- Society of Architects' Address to the Queen, 382.
- Some Village Church Towers of East Devon, 391.
- South Kensington Museum, 26, 39; the Design and Planning of, by Aston Webb, 56; the Proposed Completion of, 81, 127, 207, 221.
- South London Art Gallery, 384.
- St. Albans: Architectural and Archaeological Society, 355; Building at, 190.
- St. Paul's: and its West Front, 54.
- Mosaic Decorations at, 316; Stained Glass Windows at, 382.
- Stafford House, 191.
- Stockport Infirmary Extension, 235.
- Statuary in Liverpool, 320.
- Statues: of Boadicea, 41; of the Queen in Dundee, 56; of Mr. Cecil Rhodes in Buluwayo, 56; of the late Sir Richard Owen, 111; of Dame Alice Owen at the Royal Academy, 156; Equestrian, of Maria Theresa, 238; of Mrs. Siddons, 301; of the Queen at Manchester, 304; of Alexandre Dumas, 317.
- Statues: Proposed Cleansing of, in London, 129; at Beverley Minster, 190.
- Stratford, Picture Exhibition at, 207.
- Street Pavements, 342.
- Subsidence at Quarry Bank, 397.
- Suburban Theatres, 397.
- Subway, another Proposed, 268.
- Sunderland: Building Bye-laws, 11.
- Supplement, Surveying and Sanitary: i., v., ix., xiii., xvii., xxi., xxv., xxxiii., xxxvii., xli., xlv., xlix., liii., lvii., lxi., lxx., lxxix., lxxxiii., lxxxv., lxxxix., xciii., xcvi., ci.
- Surveying and Sanitary Notes: viii., xvi., xix., xxiv., 100, xxxvi., xl., xlv., xlviii., li., lv., lix., lxvii., lxxi., lxxv., lxxxix., lxxxiii., lei., xcix., ciii.
- Surveyors': (County Dublin) Bill, viii.; Institution, 59.
- Swansea, New Theatre at, ciii.
- TECHNICAL: Education in London, 38; Education in Sheffield, 96; School for Hyde, 380; Schools at Deptford, 380.
- Telegraphy without Wires, 316.
- Thames Floods, 26.
- Third Cathedral, A, 29.
- Thought and Art in Ancient Greece, by D. Bennet Dobson, 327.
- Tiles, by W. Norman Brown, 188.
- Timber Trades Benevolent Society, 11.
- Tonbridge: Free Library Competition, 375.
- Tour in Holland, A, by J. B. Mitchell Withers, 184, 209.
- Tramway: Proposed, across Westminster Bridge, 351.
- Tunnel: the Proposed Irish, 270, 320.
- at Blackwall, 234.
- Twickenham: the Parish Church at, 381.
- UNDERGROUND Houses at Teclinch, 207.
- VALUE of Landed Property in London, 8.
- Vauxhall: Temporary Bridge, 139; the Old Bridge at, 156.
- Ventilation, Heating and Lighting, 207.
- Views and Reviews: Fires and Public Entertainments, 326; Beauty and Art, 326; Rocks, Rock Weathering, and Soils, 367.
- WAKEFIELD: County Offices at, 316.
- Wallace Art Collection, The, 52, 81, 138, 189, 333.
- Walworth: New Block of Offices at, 351.
- Waterfall and Electric Lighting, 25.
- Waterloo and City Tunnel, 190.
- Westminster Cathedral Foundation stone, Laying, 366.
- Wexford: Discovery at, 25.
- Wiltshire Archaeological Society, 396.
- Winchester College, 294.
- Wolverhampton: Arts and Crafts Exhibition at, 197.
- Workhouse Planning, by G. H. Bibby, v., xiii., xxv., liii., lxxiii., lxxxv., lic., xciii., xcvi.
- Workmen's Dwellings in Manchester, vii.
- Wooden Viaducts in Cornwall, 26.
- Woodspring Priory, Weston-super-Mare, 41.
- YEovil: a New Church at, 307.
- York: Discovery of a Cockpit at, 156.
- Yorkshire Churches, 278.



# ILLUSTRATIONS.

**ABBEY:** Kirkstall, 4; Selby, the South Side, Centre Plate, No. 116; Melrose, Centre Plate, No. 117; View of Westminster, 63; the Jerusalem Chamber, Westminster, 165; Welbeck, 199. Adcock, F., St. Saviour's, Southwark, 29, 30, 31, 165. All Saints' Church, West Dulwich, 213, 214, 215. Ampton Hall, Bury St. Edmunds, 87, 88. Antique Silver, 335. Arbo, Porta Marina, 167; Church Tower, 167. Arch: a Triumphant, at Pola, 153. Architectural Epidemics: Robinson's Window, 295; a Complication of Belch- era and Coll-cutica, 295; Jones's Porch, 296; Smith's Pediment, 296, 297; Bib and Tucker Architecture, 297. Armstrong and Knowles, Messrs., Centre Plate, No. 124. Athenian Church, An, 261. Athens: Tower of the Winds, 327; Portico of the Caryatides, 327; Temple of Jupiter Olympis, 328; Monument of Lysikrates, 328; Temple of Victory, 329. Aumonier, W., 1, 2, 3, 4, 5, 6. Austen and Paley, Messrs., 45, 46.

**BALFOUR AND TURNER, Messrs.,** 85, 86, 87, 88, 89, 90, Centre Plate, No. 111. Balliol College, Oxford, 359. Barnes, Harry, 295, 296, 297. Batchelor, T., xxxiii, xxxiv, xxxv. Bath Cabinet Factory, A, Centre Plate, No. 126. "Bib and Tucker" Architecture, 297. Bibby, Geo. H., xiii, xiv, xv, liii, lxxiii, lxxix, xciii. Bishop's Throne, St. Paul's Cathedral, 4. Brewill and Bailly, Messrs., Centre Plate, No. 123. Brick Carving, 6. Broadbent Church Tower, 393. Bungalow on the Thames: Proposed, 349. Burnantofts Works, Leeds, 271, 272, 273. Business Premises, Mosley Street, New- castle-on-Tyne, Centre Plate, No. 124.

**CABINET, An Old, by G. A. Johnson,** 91. Capital, Fazzi Chapel, Florence, 103. Castle Frases, from the North, 33; from the South, 34; Plan, 34. Cathedral: Sebenico, 200; Trau, 202, 203; Gold Plate for St. Paul's, 229; Lincoln. Details of South Porch to Retro Choir, 383. Centre Plates: Chimney Pieces in Law Courts, Birmingham, by Aston Webb and Tugess Bell, No. 105; Liverpool Museum Extension, Detail of Front, by W. D. Carré, No. 106; Porch, Beau- pre, Glamorganshire, No. 107; Kirkstall Abbey, by C. E. Mallows, No. 108; Home for East London Hospital, Bognor, Messrs. Cheston and Perkin, No. 109; House in Hampshire for Mrs. Scott, by C. F. A. Voysey, No. 110; House in Park Lane for Mr. Beit, by Messrs. Balfour and Turner, No. 111; Design for Club of Arts and Letters, by John Watson, No. 112; Kellie Castle, Fife, Ceiling, drawn by R. S. Lorimer, No. 113; Ceilings, Baillie Macmorran's House, Lawmarket, drawn by John Murray, No. 114; House at Ashbourne, by C. F. A. Voysey, No. 115; Pugin Studentship, Howden Church, the East End: Selby Abbey, South Side, by C. de Gruchy, No. 116; Melrose Abbey, by T. J. Wass, No. 117; Shooter's Hill, House, by Leonard Stokes, No. 118; Proposed New Church, Eland, Yorkshire, by G. H. Fellowes- Prynn, No. 119; Sheffield Town Hall, Nos. 120, 121; Design for Agricultural College, by Messrs. Silcock and Reay; Portley Wood, Warrington, by W. G. Hewitt, No. 122; Farm Buildings, Britwell Court, by Paul Waterhouse; Proposed Church, Cresswell, by

Messrs. Brewill and Bailly, No. 123; Private Chapel, Matlock Dale, by E. Guy Dawber; Business Premises, Mosley Street, Newcastle, by Messrs. Armstrong and Knowles, No. 124; Entrance Lodge, Hare Hall, Romford; House at Esher, Surrey, by W. H. Seth-Smith, No. 125; A Bath Cabinet Factory, by Messrs. Silcock and Reay; Design for City Hall, Belfast, by Messrs. Graeme-Watt and Tullock, No. 126; Tower, Magdalen College, and Tower of Founder's Buildings, Oxford, by H. I. Triggs, No. 127; Garden Front, St. John's College, Oxford, by G. A. Cox; Merton College, Oxford, by H. I. Triggs, No. 128; New City Hall, Belfast, design by Messrs. Hall, Cooper, and Davis, No. 129; Symbols of St. John and St. Matthew, South Kensington, by F. H. Waring, No. 130. Chambers, York Street Residential, 85, 86. Chapel, A Private, Matlock Dale, Derby, Centre Plate, No. 20. Chasubles, Spanish and Italian, 33. Chateau Gaillard, 266. Cheston and Perkin, Messrs., Centre Plate, No. 109. Christ Church, Oxford, 361. Church: St. George's, Heavily, Stock- port, 45, 46; St. Anselm's, Davies Street, 89, 90; East End of Howden, Centre Plate, No. 116; Yiewsley, by C. A. Nicholson, 186; of St. Columb, 198; All Saints', Dulwich, 213, 214, 215; St. Peter's, Staines, 216, 217; St. Saviour's Mission Church, Ealing, 218; New, Eland, Yorkshire, Centre Plate, No. 120; St. John's Hampshire, 251; An Athenian, 261; Ifley Tower, Ox- ford, 346; Proposed at Cresswell, Centre Plate, No. 123; Towers of East Devon, 389, 390, 391, 392, 393, 394, 395. Collard, A. O., 349. Colyton Church Tower, 392. Competition, The Library and Tech- nical Institute, Tonbridge, 373, 374, 375, 376, 377. Complication of Belch- era and Coll- cutica, 295. Cordova, In, 293. Cottage, An Old, by Edith Dawson, 61. Cox, G. A., 347; Centre Plate, No. 128. Craigievar: Sketch from the North- East, 20; Plan, 21; Sketch from the South-West, 21. Crathes: Sketch from the South-East, 19; Plan, 19; Sketch from the South- West, 20. Cumming, W. N., 47, 48, 49, 75, 76, 77.

**DAWBER, E. GUY, Centre Plate, No.** 124. Dawson, Edith, 61. Design: For Church Decoration, Hamp- stead, 17; for City Hall, Belfast, Centre Plate, No. 126; for Club of Arts and Letters, Centre Plate, No. 112; for St. Andrew's Hospital, Worthing, 219. Dining Room, Ampton Hall, 88. Dobson, W. E., 383. Donegal Castle, 150; Overmantel and Fireplace, 149. Door: in Cloister, Santa Croce, Florence, 103. Doorway: to Cloisters of St. Gregorio, Venice, 101; Early English, Llandaff Cathedral, 133; by A. B. Pite, 186. Drew, Alex., ix, x, xi, xv, xvi, xxi, xxii, xlvii, xlviii, xlix, lxi, lxi, lxi, lxi, lxxxi, lxxxii, lxxxvi.

**EDMUNDS, L.,** 133, 149, 150. Edwards, E. M., 15. Extension of Stockport Infirmary, 234, 235. External Pulpit: Magdalen College, Oxford, 346.

**FARM BUILDINGS:** at Britwell Court, Centre Plate, No. 123. Fisher, Alex., 197. Fisher, R., 63, 64, 65. Fold Stool, St. Paul's Cathedral, 5. Fyfe, D. Theodore, 264, 265, 266.

**GATE:** King Street, Westminster, 65; Tothill Fields Prison, 65. Gold Plate for St. Paul's Cathedral, 229. Graeme-Watt and Tullock, Messrs., Centre Plate, No. 126. "Grim Guardians," by W. Aumonier, 1. Gruchy, C. De, Centre Plate, No. 116.

**HALL, COOPER, AND DAVIS,** Messrs., Centre Plate, No. 128. Harford Church Tower, 394. Hawkes, T. F., 171. Haywood, W., 385. Hewitt, W. E., Centre Plate, No. 122. Home: Convalescent, Bognor, Centre Plate, No. 109. Hospital: Addenbrooke's, Cambridge; Royal, Preston, xxxiii.; Derbyshire; Antwerp Civil, xxxiv.; Royal, Liver- pool: John's Hopkin's Baltimore, U.S.A., xxxv.; St. Bartholomew's, London, xxxvii.; Royal S. Hants.; St. George's London; Royal, Dundee, xxxviii.; Royal, Manchester, xxxix. House: Westwood, Sydenham, 73; at Esher, Surrey, Centre Plate, No. 125; in Hampshire, Centre Plate, No. 110; in Park Lane, Centre Plate, No. 111; at Ashbourne, Proposed, by C. F. A. Voysey, Centre Plate, No. 115; at Pul- tenham, by C. F. A. Voysey, 187; Shooter's Hill, by Leonard Stokes, Centre Plate, No. 118; Camberley, Surrey, 254, 255; New Boarding House, Westminster Schools Plan, 318, 319; Old, High Street, Oxford, 341. Hutchings, J., 343, 346, 357, 358, 359, 360, 361, 362.

**IFFLEY Church Tower, 346** Ince, Howard, 101. Infirmary: Extension of Stockport, 234, 235. Iron and Steel Roofs: Wind Pressure, ix.; Types of Coverings, x., xi, xv., xvi., xxi., xxii., xli., xlvii., xlix., lxi., lxi., lxxxi., lxxxii., lxxxvi.

**JACKSON, T. G., R.A.,** 17, 251, 318, 319. Johnson, G. A., 91. Jones's Porch, 296. Jones and Willis, Messrs., 309. Jubilee Stands: Fig. 1, lxi., Fig. 2, 3, lxx.; S. Side of Westminster Bridge, 279; Parliament Square, 279; Devon- shire House, 280; National Gallery, 280; St. George the Martyr's Church, 281; S. Side of St. Martin's Church, 281; St. Paul's Cathedral, 282.

**KELLIE CASTLE, Fife, Ceilings, 121,** 137; Centre Plate, No. 113.

**LANCHESTER, H. V., i., ii., v., vi., xvii., xviii., xli., xlii., lvi., lviii., lxxvii., lxxviii.,** Suggestion for West London Improvement Scheme, 170. Lincoln Cathedral: Details of South Porch to Retro Choir, 383. Llandaff Cathedral: Early English Door- way, 133. Lodge: Hare Hall, Romford, Centre Plate, No. 125. London Improvement Scheme, 170.

**MAGDALEN COLLEGE, Oxford,** 345, 346, 347; Centre Plate, No. 127. Mallows, C. E., Centre Plate, No. 108; 373, 374, 375, 376, 377. Marten, W. H., 15. Measured Work: Porch in Courtyard, Old Beaupre, Glam., Centre Plate, No. 107; an Old Oak Cabinet, 91; Palazzo Albergati, Bologna, 104; Plaster Ceilings, Kellie Castle, Fife, by R. S. Lorimer, 121, Centre Plate, No. 113; 137, Plaster Ceiling, Baillie Macmorran's House, Law- market, Centre Plate, No. 114; Old Tomb, Churchyard, Thames Ditton, by F. J. Hawkes, 171.

Medieval French Fortifications: Provins Keep, 263; Chateau Gaillard, 263; Chateau D'Etampes, 264; Chateau de Coucy, 264, 266, 267; Tour du Pont, Villeneuve, 265. Merchiston Castle Ceiling, 120. Merton College, Oxford, Centre Plate, No. 128. Midmar, from the S.E., 32; Plan, 32; From the N.W., 33. Monument of Lysikrates, 328. Mountford, E. W., 231, 232, 233, 245, 246, 247, 249, Centre Plates, Nos. 119 and 120. Murray, John: Scottish Plaster Work, 119, 120, 134, 135, 136. Murray and Foster, Messrs., 181, 182, 183, 184, 185.

**NEW BOND STREET, 179;** Upper Part of Front, 66; Waiting Gallery, 67; Staircase Hall, 67. New College, Oxford, 362; Quadrangle, 344. Newton-Poppleford Church Tower, 359. Nicholson, C. A., 186.

**OLD TOMB in Churchyard, Thames** Ditton, 171. Oriol College, Oxford, 357, 358. Overmantel and Fireplace, Donegal Castle, 149. Oxford: Old House, High Street, 341; Sundial Corpus Christi College, 342; a Doorhead, 343; Worcester College, the Old Buildings, 343; The Quad- rangle, New College, 344; Magdalen College, 355; External Pulpit, Mag- dalen College, 346; Ifley Church Tower, 346; Magdalen College, 347; Tower, Magdalen College; Tower of Founder's Buildings, Magdalen College, Centre Plate, No. 127; Oriol College, 357, 358; St. John's College, 358, 360; Queen's College, 359; Balliol College, 359; Christ Church, 361; New College, 362; Choir, Christ Church Cathedral, 363; Garden Front, St. John's College, Centre Plate, No. 128; Merton College, Centre Plate, No. 128.

**PALACE:** Remains of Byzantine, Con- stantinople, 17; Diocletians', Spalato, 312. Palazzo: Ruccelai, Florence, 103; Alber- gati, Bologna, 104. Panel: Door, by W. Aumonier, 2; for Chimney-piece, 3; Perforated, Carved both sides, 5. Pearson, John L., R.A., 73. Perspective, 47, 48, 49, 75, 76, 77. Pirano, 151. Pite, A. B., 186. Pite, W. A., 198. Plan: Drum Castle, 18; Aberdeenshire, 18; Crathes, 19; Craigievar, 21; Midmar, 32; Castle Fraser, 34; New Government Offices, 64; York Street Chambers, 86; Ampton Hall, 88; St. Anselm's Church, Davies Street, 90; Addenbrooke's Hospital, Cambridge, xxxiii.; Royal Infirmary, Preston, xxxiii.; Derbyshire Royal Infirmary, xxxiv.; Civil Hospital, Antwerp, xxxiv.; Royal Infirmary, Liverpool, xxxv.; John's Hopkins, Baltimore, U.S.A., xxxv.; St. Bar- tholomew's, London, xxxvii.; Royal S. Hant's Infirmary, St. George's, London, Royal Infirmary, Dundee, xxxviii.; Royal Infirmary, Manchester, xxxix.; Chateau Gaillard, 262; Provins Keep, 263; Chateau D'Etampes, 264; Chateau de Coucy, 264. Planning: Small Houses, by H. V. Lanchester, i., ii., v., vi., xvii., xviii., xli., xlii., lvi., lviii., lxxvii., lxxviii.; Workhouse, xlii., xiv., xxv., liii., lxxiii., lxxxix, xciii. Plaster Work: Church Street, Berwick, 119; Whittingham Tower, 119; Win- town House, 120; Merchiston Castle, 120; Kellie Castle, Fife, 121, Centre Plate, No. 113; St. Mary's Hall, Law- market, 134, 135; French Ambassador's



House, Cowgate, 135; Croft-an-Righ, 136; Kellie Castle, Fife, 137; Baillie Macmoran's House, Lawnmarket, Centre Plate, No. 114.  
Pola: Porta Gemina, 151; Roman Amphitheatre, 152; Triumphal Arch, 153; a Shrine at, 152.  
Pomeroy, T. W., 231, 232, 233.  
Porch: St. Saviour's, Southwark, 30; Old Beaupre, Glam., Centre Plate, No. 107.  
Portable Folding Stand, 242, 243.  
Portrait: W. Ammonier, 5; W. H. Marten, 15; E. M. Edwards, 15; E. J. Balfour, 87; G. H. Fellowes Prynn, 215; E. W. Mountford, 231.  
Posters: by Louis Rhead, 310, 311.  
Prentice, A. N., 277, 293, 325.  
Provins Keep, 263.  
Prynn, G. H. Fellowes, 213, 214, 215, 216, 217, 218, 219, Centre Plate, No. 119.  
Pugin Studentship, Centre Plate, No. 116.  
Pulpit: External, Magdalen College, Oxford, 346.

QUEEN'S COLLEGE, Oxford, 359

REID, R. J. GIFFORD, lxix., lxx., 279, 280, 281, 282.  
Reynolds, E. F., 346, 348.  
Robinson's Window, 295.  
Roman Amphitheatre, Pola, 152.  
Rotherhithe Town Hall: Porch and Doors to Main Entrance, 181; Caryatide, 182; View from Lower Road, 183; View from Moodke Street, 183;

Ground Floor Vestibule, 184; First Floor Vestibule, 184; Interior of Council Chamber, 185.  
Rovigno, 151.  
Royal Academy Sketches, 186, 187, 197, 198, 199.  
Ruins of Basilica, Salona, 314.

ST. GEORGE'S, Stockport: West End, 45; Interior, 46; Pulpit, 46.  
St. John's, Hampstead, 251.  
St. John's College, Oxford, 358, 360; Centre Plate, No. 128.  
St. Paul's Cathedral: Bishop's Throne, 4; Fold Stool, 4.  
St. Peter's Mission Church, Staines, 216, 217.  
St. Saviour's Mission Church, Ealing, 218.  
St. Saviour's, Southwark: the Nave, 29; the Porch, 30; Memorial Stalls, 31.  
Salona: Ruins of Basilica, 314; a Wayside Inn, 315.  
Sampson, R. W., 389, 390, 391, 392, 393, 394, 395.  
San Maria Maggiore, Rome, 277.  
Sculpture: Sheffield Town Hall, by T. W. Pomeroy, 231, 232, 233.  
Sebenico: Loggia, 201; Cathedral, 200; West Front, 200; North Door, 200.  
Seth-Smith, W. H., Centre Plate, No. 125.  
Sheffield Town Hall: Sculpture in Vestibule, 231, 232, 233; Chimney-piece in Mayor's Parlour, 245; Panelling in Council Chamber, 246; the Mayor's Parlour, 247; Plan, 249; Detail of Centre Block; from the North-west,

Centre Plate, No. 120; the Council Chamber; The Grand Staircase, Centre Plate, No. 121.  
Sidford, A. E., 254, 255.  
Sidford Church Tower, 392.  
Sidmouth Church Tower, 395.  
Silcock and Reay, Messrs., Centre Plate, No. 122, 126.  
Smith's Pediment, 296, 297.  
South Kensington Museum: Symbols St. John and St. Matthew, drawn by F. H. Waring, Centre Plates, No. 130.  
Spalato: Diocletian's Palace, 312; Tomb of Diocletian, 313; Necropolis, 313.  
Stokes, Leonard, Centre Plate, No. 118.  
Studio: Entrance to W. Ammonier's, 3.  
Sundial: Corpus Christi College, Oxford, 342.

TALYTON Church Tower, 390.  
Temple: of Jupiter Olympis, Athens, 328; of Victory, 329.  
Tomb in St. Mary's Church, Welwick, Yorkshire, 385.  
Toubridge Free Library Competition: Corner Treatment by "Norman," 373; Library Entrance by "Norman," 374; Plan of Premiated Design, 374; Plan by "Light," 374; Note from the Design by "Art," 375; Plan by "A in Circle," 376; From the Design by "Art," 376; from a Design by L'Envoi, 377; Plan by "N in Circle," 377.  
Tour du Pont, Villeneuve, 265.  
Tower of the Winds, 327.  
Towers: Village Church, of East Devon, 389, 390, 391, 392, 393, 394, 395.

Town Hall: Sheffield, 231, 232, 233, 245, 246, 247, 249; Centre Plates, Nos. 119 and 120; Rotherhithe, New, 181, 182, 183, 184, 185.  
Traut: A Venetian Fort, 201; Cathedral, 203, 204; Municipal Palace, 204.  
Triggs, H. L.: 341, 342, 343, 344, 345, 363; Centre Plate, No. 127, 128.

VOYSEY, C. F. A.: Centre Plates, Nos. 110, 115, and 187.

WARING, F. H., Centre Plate, No. 130.  
Wass, F. J., Centre Plate, No. 117.  
Waterhouse, Paul, Centre Plate, No. 123.  
Watson John, Centre Plate, No. 112.  
Welbeck Abbey, 199.  
Whittinghame Tower Ceiling, 119.  
Wilson, H., 199.  
Wimperis, E. W., 66, 67.  
Wintoun House: Drawing-room Ceiling, 120.  
Worcester College, Oxford: the Old Buildings, 343.  
Woodhouse and Willoughby, Messrs., 234, 235.  
Workhouse Planning, xiii., xiv., xxv., liii., lxxiii., lxxxix., xciii.  
Wrought-iron Balustrade, by Messrs. Jones and Willis, 309.

ZARA: West Front of Cathedral, 167; Interior of Cathedral, 168; Porta di Terra Firma, 168.









### The Recent Academy Elections and the Art of Alfred Parsons.

WE have commented elsewhere on the result of these elections, and

we return to the subject again to note one or two considerations in connection with it which we think have been overlooked in other pages. The first is that, as an achievement by the Royal Academy, it stands almost alone in the history of that body. It is probably the first time the Academy has ever elected three artists at one time. To reverse Mr. Whistler's famous saying, the "Artists" have gone in, and the "Britons" stay out. It is quite a pleasure to reflect upon such an unique exhibition. Of course, someone has had the usual amusing idea to ventilate, and this time it is that, because two of the three vacancies have been filled by Americans, therefore this must be a sort of sop to "our cousins across the water"—a Royal Academical endorsement of the recent Peace treaty. A very ingenious explanation, but one not very complimentary to the Artists interested. We prefer to believe, curious and astonishing as it doubtless sounds, that the Royal Academy has, for once at least, elected these gentlemen on purely artistic grounds, and it being undoubtedly so, it is worth more than a passing note. Mr. Sargeant is one of the most brilliant portrait-painters of his generation, and entirely deserves his position. Mr. Shannon has done admirable and beautiful work, and his election comes not a day too soon. But to our minds the tribute to the genius of Mr. Parsons is the best deserved—certainly of the two new Associates, even if history does not ultimately prove, as we think it will, that it is one of the wisest things the Academy has ever done. For we have in Mr. Parsons a painter of landscape almost without a rival. To those who know such works of his as "When Nature painted all things gay" (which was purchased under the terms of the Chantrey bequest, and is now in the South Kensington Museum), or are familiar with any one of his famous paintings in the Exhibitions of the Royal Academy, this fact need not be dwelt upon. There is, however, one side of his paintings upon which we should like to dwell, and that is his perfect rendering of English skies. If, as some critic once remarked, his treatment of landscape is at times apt to be somewhat photographic, this criticism can never be applied to his painting of what Mrs. Meynell calls "celestial scenery." It is doubtless because Mr. Parsons values so much the scenery of the skies that he emphasises the importance of it in his paintings. And he is right; it is so often forgotten that we have above us at all times, save perhaps occasionally in foggy and grimy London—far finer pictures than are to be found anywhere on earth. And the "celestial scenery" has this advantage, that you have no travels to take, no journeys to endure in order to enjoy it. It is here at our own windows if we will but raise our heads and look. It is never wearisome, because it is never the same. It comes to you and varies its pictures for your enjoyment, as earthly scenery never does. Few windows are debarr'd from these wonderful pictures; all or nearly all inclose and frame them. Our own is as commonplace and as ordinary a one as you like; yet as we write there is to be seen through it a perfectly marvellous combination

of colour and cloud form, and a picture is there now that Turner would have envied. Through this commonplace window (it is true we are writing in the country, away in the distance, dim and indistinct, is a range of snow-topped mountains (to be sure they are nothing but clouds) with wreaths of faint blue vapour curving through them, far lovelier than anything you would see in Switzerland or in Spain. The "terrestrial scenery," to again borrow from Mrs. Meynell's delightful prose, itself depends for life and movement upon the clouds above, and the greatest changes upon it, the change from spring to summer, from autumn to winter, are only small compared with that with which it is constantly endowed from the heights. These are things which are never forgotten by Mr. Parsons. Study one of his landscapes and notice the subdued brightness and light of an afternoon's sun across some fair English

few years ago, and which, more recently, have been republished in book form. To those Art students and general readers of our paper who wish to refer to his pen work for the purposes of study, we cannot do better than refer them to these drawings, which are typical examples of his work. In nearly every month, however, many of his drawings are to be found, both in wash and in pen, and they are ever a source of interest, instruction, and delight. From among so many it is difficult to speak of any one in particular, but there were a series he did in illustrations of Blackmore's "Springhaven," which deserve a special word. These also appeared in "Harpers' Magazine," and are admirable examples of his versatility and power. They are quite different in treatment and expression from those we have just mentioned, and should be compared with them in order to properly appreciate his genius.



"GRIM GUARDIANS" ON OXFORD MUNICIPAL BUILDINGS, CARVED IN STONE:  
BY W. AUMONIER.

valley; how he has obscured and dimmed it by a fleeting, purple, vaporous cloud, giving the whole picture at once the romance and charm of mystery. But it is not as a painter of skies alone that Mr. Parsons excels. He is one of the most refined and exquisite illustrators in black and white in England. His election is a tribute to the importance of the illustrator in the Art-world of to-day. No better pen-drawings had been produced at any time than those delightful series of pictures Mr. Parsons made in conjunction with his friend and fellow Associate, Mr. E. A. Abbey, illustrating "Old English Songs," "A Quiet Life," and "The Vicar," which appeared in "Harpers' Magazine" a

Neither should his extraordinary and beautiful decorative work be omitted in the comparison. The studies of flowers and plants which have formed many a head and tail-piece in the magazine just mentioned, are characterised by a keen observation and knowledge of plant life and form which is simply marvellous. These are drawings which rival Durer, and have no equal in their way anywhere. No man has surely ever better deserved his election than Mr. Parsons. Certainly no one has conferred more distinction upon the body which has elected him. Indeed, we do not consider that it is an honour to him at all. His fame would have been just as enduring



without the recognition of the Academy. Was Albert Moore the worse for the loss? or is Mr. Whistler. But the Academy itself, it is safe to say, is the better and the stronger for his sympathy and support. Moreover, his election encourages the hope that this may be the dawn of better things, and of the Academical recognition of the illustrator as an Artist equal to the Painter, Sculptor, and Architect that soon we may find such men as Phil May within the charmed circle.

### RESTORATION OF CANTERBURY CATHEDRAL.

THE restoration at Canterbury Cathedral is progressing. What was ordered to be done in the crypt is now quite complete, and there is some talk of re-opening in course of a very short time, but nothing appears to be actually settled as yet. The carving and decorations have been treated with care and almost veneration, but the course which was unfortunately pursued of cleaning the plain work of the columns and groins with stone grit, gives a garish effect, as compared with which mere whitewashing would be almost dull and subdued. This effect will, however, wear off in time, and as the fabric here does not seem to have been tampered with or injured in any worse sense, it may be tolerated for awhile, looking to the sharp, clear view it enables us to obtain to and from one point or another of this wondrous substructure. Within the Chapter House the works decided upon are being rapidly proceeded with. A



DOOR PANEL, CARVED BY W. AUMONIER.

substantial scaffolding, in which some 600 poles were used, was erected by Thompson, of Peterborough, who has this part of the work in hand, and on a thorough examination being made it was found that the fine oak timbers supporting the roof and carrying the ceiling were for the most part sound, notwithstanding

the hundreds of years during which they had done duty, but the ends of some were worm-eaten and decayed, and had to be removed, and new ends spliced on. The panelled and carved oak ceiling, once beautifully embellished, was found to be very badly supported; some of the fastenings had come away, and part was held up by chains.

#### THE WOODWORK

itself was in excellent preservation, as may be guessed when it is stated that the ribs of all the eighty-four panels (each is 7ft. 6in. by 8ft. 3in. in area) were sound, though the panelling in some twenty of them had suffered and needed partial renewal. The faulty timbers having been made good, the ceiling was prized into its proper place from the top of the scaffold and safely secured. Undoubtedly these measures were taken none too soon. The ceiling is now being redecorated in colours and gilding by Mr. A. O. Hemming, of Margaret Street, London. The indications of some of the armorial bearings on the twenty-six shields (thirteen on either side of the bottom range of panels) were sufficiently distinct to enable this to be reproduced without difficulty; in other cases the necessary details were obtained in the Cathedral library. Down below, the masons are making good the

#### DEFECTIVE PLASTER-WORK

of the walls. The arcading of the side walls was found to be in very fair condition, but this cannot be said of the shafts of the columns supporting it. The originals were of Purbeck marble, but a number had partially flaked away, and others had been replaced by shafts of ordinary stone. Every piece of the old marble that can be possibly used is to be replaced, and new Purbeck is to be used, where necessary, in place of the old marble or substituted stone. The carved work at the east end is in the best condition of any in the building, that of the canopy above the ancient choir being in really admirable preservation. It will be some months before the whole of the work within is completed, and the new east window of stained glass (the design of this has not yet been decided upon) put in, but there is a wish to have the building re-opened somewhere about June, when the ceremony will probably be performed by the Prince of Wales.

### ARTS AND CRAFTS SOCIETY OF IRELAND.

SIR ARTHUR VICARS, Ulster King-at-Arms, at the last meeting of this Society, delivered one of a series of lectures, the subject being "Irish Silversmiths' Work, old and new." A large quantity of valuable silver plate, ancient and modern, was displayed. Sir Arthur Vicars said he claimed to possess no particular knowledge of the silversmith's craft. His object was to give a short outline of the origin of the various styles of ecclesiastical and domestic plate, specimens of which were lent to him by Lord Drogheda, Mr. West, Messrs. Waterhouse, Mr. Johnson, and one or two others. He desired to excite an interest in what was Artistic and of good design, as against what was not. The Goldsmiths' Company of Dublin was incorporated in the reign of Charles the First, and was established on a basis similar to that in England. The district in Dublin at the time for work of the class was Christ Church Place. Having mentioned many details in connection with Hall-marks, he referred to pieces of ecclesiastical plate, chalices, and patens, with Latin—some with English—inscriptions on them. The inscriptions stated that the article was presented to such and such a Church, and probably it was made at the time of which it bore date. In the Irish Exhibition, held in London in 1888, a lot of Irish plate, chiefly from Dublin Churches, was exhibited. He took casts in plaster of the Hall-mark on the pieces of Church plate exhibited there, and of the inscriptions. Domestic plate, unless of a comparatively recent date, was without inscriptions. A Guild of Goldsmiths also existed in Cork, and some elegant work was turned out

there. Youghal, Galway, and Waterford had their own marks, and it was highly probable that other towns had them also. In 1783 there was a village, called "New Geneva," near Waterford, where a colony of foreign Protestants established themselves, and amongst them were many Swiss who worked in gold



DOOR PANEL, CARVED BY W. AUMONIER.

and silver. After some years about £30,000 was expended there, the Genevese became discontented and left, and "New Geneva" went down. The lecturer then gave an interesting description of the various

#### FINE SPECIMENS OF CHURCH AND DOMESTIC PLATE

exhibited, belonging to periods from the thirteenth century to modern times. He stated that in London, years ago, an attempt was made to run down Irish workmanship, but the Irishmen in the trade defended their own Art and Design, and the result was that now a specimen of Irish Art in silver, which some years ago would not bring more than £8 or £10, would now bring from £80 to £100. He could not speak with any authority on the progress made in Ireland within recent years in other Arts and Crafts, but he could most positively say that the silversmiths' craft in Ireland was progressing, and had shown marked advance in recent years; and if they could only keep before them the maxim of good design and conception, there was no reason why the Irish silversmith craftsman should not be able to come up to the standard of former days, if the public, on the other hand, would only ask for work of good design, and "see that they get it."

### SCULPTORS ARCHITECTURE OF THE RENAISSANCE.

Owing to a typographical error the Christian name of Mr. Gilbert, R.A., was given as "Albert," in our last issue. It should, of course, have been "Alfred."



## Men Who Design.

No. 4.

WILLIAM AUMONIER.

THE work of our native wood and stone carvers in the ages when architectural activity was at its height—as plenty of examples still preserved bear witness—was of a degree of excellence equal to the best contemporary work abroad. That to-day the Art is not a flourishing one arises from various causes—to some of which I shall immediately refer—but emphatically not from want of clever and capable craftsmen.

In the first place, there is in Art, as in most other things, a large amount of luck. An artist's opportunities depend largely upon causes beyond his control. The great crafts-

man who is so fortunate as to be born in a building age, with mighty fabrics in progress that are to give delight and cause wonder to countless future generations, is able to grapple with opportunities that give full scope to every whit of artistic power and possibility that is in him. Wren's opportunity was brought him by the great Fire of London, and it seems safe to say that we should never have known the highest expressions of the genius of Raphael if he had not chanced to live under Popes Julius II. and Leo XIII., whose splendid extravagance and restless ambition brought about the execution of the immortal frescoes of the Vatican.

Less fortunate artists who find themselves capable of great things, yet in an age of small ones, must just do their best under the conditions, recollecting that mere size has nothing whatever to do with Art, though it has (alas!) with Fame.

The fortunes of architectural carving are naturally bound up with those of architecture. It undergoes the vicissitudes, and suffers from the conditions experienced by the mother Art. Consequently, at a time like the present, the craftsman, through no fault of his own, is seriously handicapped in comparison with his predecessors. The nineteenth century has evolved no prevailing style. Chaos, or at least personal predilections and preferences, hold the field. In days when some one architectural order was all prevailing, in which men believed, and to which they brought their undivided enthusiasm, their work inevitably gained from thought and study being focussed upon one theme, instead of being diffused over many. But our present purpose is not so

much to bewail the conditions that environ modern craftsmanship, as to show how finely, in the person of one of its representatives, Mr. William Aumonier, it has grappled with them. The first thought that strikes one after an inspection of Mr. Aumonier's workshops at New Inn Yard, Tottenham Court Road, is of the wide catholicity of taste and long study that the work in hand implies in its controlling mind. For many years Mr. Aumonier himself worked at the carver's bench with gouge and chisel, but the expansion of his business has rendered that impossible. But everything is produced by the skilled Craftsmen he has gathered round him from his own designs and under his own eye, assisted by his two sons, Mr. William Aumonier, jun., and Mr. Percy Aumonier, the latter of whom has evinced tastes for decoration in colour, which his father wisely encourages.

Mr. Aumonier's success is to be attributed to the high artistic ideals that he has set himself in all his work. Whatever the nature of the commission he has in hand, he always endeavours to infuse his own individuality into its execution. Admitting that he is compelled to follow tradition, he reserves and exercises his prerogative, in details and views of treatment—by subtle differences of height, by effects of light and shade—to follow it in his own manner. That is to say, that he has the proper self-respect every artist should have. His method of study is always to go direct to the old work and make his own drawings, instead of trusting to the sketches of other men, thereby endeavouring to catch the spirit of the old craftsman. Again, Mr. Aumonier, if he can help it, never models the designs for his craftsmen to carve in wood, but supplies simply a charcoal drawing of the subject, holding that this saves the carver from becoming merely a mechanical copyist, and allows him scope for treating the execution in his own way. Some of Mr. Aumonier's views upon his Art may be gathered from the following extracts from a speech delivered at a meeting of the Royal Institute of British Architects last year: "The wood-carver in the past was evolved out of the village carpenter, as is seen in the choppy, vigorous cut of the Chester and Ambrosio work at Milan, the carver having only just emerged from the use of the chisel proper to take up the carver's gouge." After referring to the possibilities of beauty in the treatment of wood, and pointing out the error of trying to make it represent

good workman he will combine freshness and grace; freshness, because the work grows under his own hand, showing the cuts and gouge marks in it fearlessly to the last, to



ENTRANCE TO THE STUDIO.

mark for ever the secret of its birth, like the last strokes of the painter's brush; grace, because there is no form the artistic mind can conceive but may be obtained in wood, if honestly sought after."

An idea of the range of Mr. Aumonier's work will be gathered from the illustrations of some of his more recent achievements accompanying this article. The Gothic stone carvings of the Oxford Municipal Buildings were modelled upon the spot by Mr. W. Aumonier, jun. The spirit and vigour shown in the execution, and the grasp of the style displayed in the design of these grotesques are simply surprising, and serve to show of what our modern craftsmanship is capable. Here are all that quaint combination of the decorative and monstrous that naïf delight in the realisation of the purely imaginary, that we are sometimes told belonged solely to the mediæval craftsmen, and stand comparison with works like the devils of Notre Dame or the gargoyles on the Abbeys at Caen. The new Victoria Law Courts at Birmingham have provided Mr. Aumonier with an opportunity for some of his best work, and the two fireplaces, modelled in terra cotta (here illus-



PANELS FOR CHIMNEY-PIECE, DESIGNED AND CARVED BY W. AUMONIER.

other materials, such as marble or bronze, he added: "To this end we want it cut by a strong man, fully alive to the capabilities and susceptibilities of his material. If he is a

trated), are remarkable for the delicate design and finished workmanship upon which the artist legitimately prides himself. The wood-carving of the Bishop's Throne and Sedilia for





ST. PAUL'S CATHEDRAL: THE BISHOP'S-THRONE, DESIGNED BY MESSRS. BODLEY AND GARNER, AND CARVED BY W. AUMONIER.

St. Paul's Cathedral, executed in connection with Messrs. Bodley and Garner, and now in place in the choir, also calls for a word of strong praise. In perfect harmony with the older work of Wren, the design of Mr. Aumonier is at the same time more restrained, more dignified, and more decorative than the ornament of the former, and it is, moreover, exceedingly interesting to examine a piece of English Renaissance work handled by a competent contemporary craftsman.

Mr. Aumonier belongs to an artistic stock, one of his brothers being the well-known member of the Royal Institute of Painters in Water Colours, and another having the direction of Messrs. Woollam Bros.' manufactory of Art wall-papers. Originally French, the family fled from Rouen, in Normandy, after the revocation of the edict of Nantes, and the persecution of the Huguenots, and settled as silk-weavers in Spitalfields.

Mr. William Aumonier was born in Highgate fifty-six years ago. He was first apprenticed in London, proceeding at the age of nineteen to Paris, working both in wood and stone, and for six months he was engaged on the restoration of Amiens Cathedral, under M. Violet le Duc. His first important work was for Messrs. Bodley and Garner, comprising stone and wood carving and plaster modelling for the School Board offices upon the Thames Embankment. Since then, the list of his achievements is a long and honourable one. During the seven-

teen years that he has been in business for himself his commissions include the following, beside those already mentioned:—St. Bride's Church, Fleet Street (wood carving); Basil Champneys, Architect. Newnham College, Cambridge (brick and wood carving); Basil Champneys, Architect. Harrow School (brick and wood carving); Basil Champneys, Architect. SS. Austral and Ophir (Orient Line) (wood carving and modelling); J. J. Stevenson, Architect. Christ's College, Cambridge (stone and wood carving); J. J. Stevenson, Architect. French Protestant Church, Soho (terracotta modelling); Aston Webb, Architect. Bath Municipal Buildings (stone and wood carving); J. M. Brydon, Architect. Chelsea Vestry Hall (stone and wood carving); J. M. Brydon, Architect. Hospital for Women, Euston Road (stone and wood carving); J. M. Brydon, Architect. Lady Margaret Hall Oxford (stone and brick carving); J. M. Brydon, Architect. Glasgow Municipal

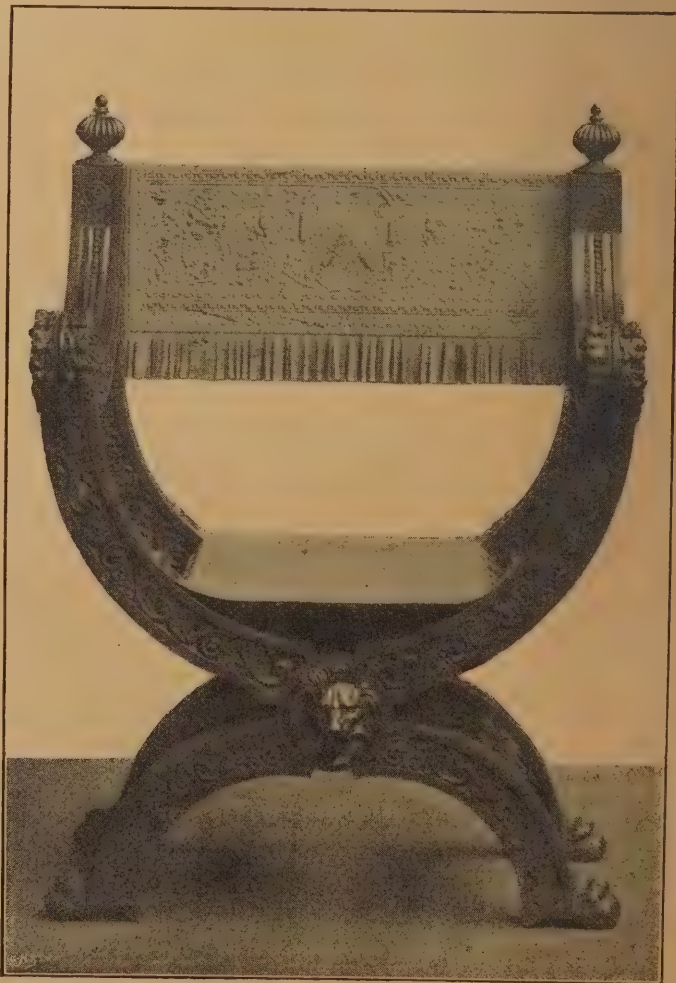
Aumonier feels strongly that the way to get the best work from the architectural carver is—in his own words—"for architects to treat him as a brother artist or craftsman, in sympathy with the work in hand, called in to give artistic finish to new buildings, and not as a person out of whom is to be screwed as much work as possible for as small an amount of money as the carver will allow his patrons to give him."

THE congregation of All Saints' Church, Burton-on-Trent, contemplate the erection of a new and permanent edifice at a cost, including endowment, of £20,000. Mr. J. Lambrick, secretary to Messrs. Bass, Ratcliff, and Gretton, has promised, on behalf of the directors, to give 50 per cent. of such a sum as may be received from other sources.

MR. C. J. CROFTS, engineer-in-charge of the important harbour-construction works now being vigorously carried out at Port Natal, has arrived by the Cape mail steamer *Scot* to confer with Sir Charles Hartley and Mr. Wolfe Barry regarding the whole scheme of operations.

THE giant statue of the first Emperor on horseback, with a female figure of Peace leading the steed, has just been removed from the workshop to its destination in Berlin, where it will be formally unveiled on 22nd March. There is still a considerable amount of work to be done before the statue is completed, and, in order to finish it by the date in question, operations will be frequently pursued throughout the night by electric light.

THE executive committee has decided to recommend to the general committee of the Benson Memorial Fund that a sum not exceeding £2500 be set apart for the Canterbury monument, and that the balance of the fund be devoted to some definite portion of Truro Cathedral.



FOLD-STOOL, ST. PAUL'S CATHEDRAL, EXECUTED BY W. AUMONIER FROM THE DESIGN OF MESSRS. BODLEY AND GARNER.

Buildings (stone carving); W. Young, Architect. St. Albans Abbey (stone and wood carving); and many more. He is at present engaged upon the stone carving for the Baths and Winter Gardens at Harrogate, in course of erection from the designs of Mr. J. M. Brydon, who, by the way, has been a supporter of Mr. Aumonier for upwards of twenty-five years.

Although at home in all the branches of his Art, Mr. Aumonier's own predilections are for the Italian and old French Renaissance work. Of both he has collected many fine examples, which are his constant study. One of the most hopeful signs of the present time is the increasing recognition of the status of the craftsman, and Mr.





CARVED PANEL, BY W. AUMONIER, JUN.

### AN UNWRITTEN CHAPTER OF ENGLISH ARCHITECTURAL HISTORY.

BY MR. A. S. FLOWER.

AS the history of English architecture has not yet been written, no apology is due to any particular author for venturing to suggest a few unconsidered trifles for which room might be found in such a work. But to an audience of Architects, an apology for introducing a subject of this kind at the present day, seems very much needed. One is confronted at the outset with the question: Are not all such studies wholly useless and pernicious? Leaders of opinions confidently assure us that they are; and, knowing quite well the disesteem into which historical studies have at present fallen, I hardly dare to occupy your time with matters which so many architects desire to see not merely "relegated," but eternally confined, to limbo. It is simply in obedience to the request of the honorary secretaries that these notes are offered. I could think of no other subject but my own out-of-date and very unfashionable hobby of English Gothic Architecture; but, as shirking the duty, or, as I think I ought to say, declining the honour, seemed out of the question, I took encouragement from a passage in the President's opening address, where he bade us "study the mind in the building, through painstaking measurement and logical reasoning. Find out how and why every joint and form was made. The answer lies hidden in the building." This is just what for a long time I have been trying to do; and I am, therefore, at last acting on our President's advice, in bringing before you the results of some independent research into the history and characteristics of the

#### MEDIEVAL ARCHITECTURE OF ENGLAND.

Waiving then, for the present, the great question as to whether any such studies are to be recommended at all, and assuming, merely as a premise, that a young Architect wishes, for some reason or other, to learn something of the Old Architecture of his country, how can we best assist him? I should like first to quote some old advice given on this subject, which no one here can ever have seen in print. The extracts are lengthy, but

have a bearing on what is to follow. "If you ask how you are to study Architecture, you will probably be told to read up the whole history of the Art in all countries, with formidable lists of names, dates, and dimensions. You will have recommended to you treatises on the orders and styles, on rules of proportion and other arithmetical niceties; and will be further advised to read books on the principles of beauty and taste, and probably much poetical extravagance in addition. . . . However we may define Architecture, we must agree that it is a practical Art, confined by the requirements of utility, the properties of materials, and the laws of mechanics. Therefore in studying it, be practical; put aside all considerations derived from archaeology, sentiment, or association, and simply use your own eyes and your own common-sense; learn by obser-

vation and by reasoning. Ask the buildings themselves why they are as they are, and what is their meaning. Imagine yourself with the builders, asking what they are going to do, and wherefore.

#### SO, WHEN YOU CRITICISE,

you will neither praise a building because it is correct or classical, or reminds you of something which you have admired elsewhere; nor will you condemn it because it appears new and strange, or, on the other hand, familiar and unoriginal; you will simply consider, is it good in itself, that is, is it well fitted for its purpose and well adapted to its position, are its materials well chosen and well put together, is it expressive of its object and its construction, does its design show everywhere a striving after beauty. If all this is the case, it is good Architecture; but if one of these

qualities be lacking, though the building may display the most costly and splendid materials, the highest mechanical skill, the most careful workmanship, the most accurate copying of some acknowledged masterpiece, the result, as Architecture, is inevitably bad. To criticise buildings, you must try to grasp the circumstances of their erection, and look at them from the point of view of a constructor. The disposition must be encouraged of thinking of a building as a thing composed of stone, brick, timber, and iron, erected for a definite purpose, and under particular conditions, and not, with the architectural writers of the last three centuries, as merely an affair of lines and conventional proportions and ornaments, quite independent of materials, use, or position, just as if it existed only on paper; nor, with some of our own day, as a thing whose essence is accidental picturesqueness, historic or romantic associations, or the superficial decoration of sculpture, painting, or heraldry. This almost anticipates the new philosophy of

#### ARCHITECTURAL MATERIALISM,

and as we hear so much nowadays against even the use, and not only the abuse, of books in connection with Architecture, I quote these passages from an unpublished paper which I read to an amateur society many years ago. The present subject obliges me to make many references to books, so I wish just to clear the ground, and put myself in order, so to speak, by explaining that, having gone through the phase myself, I quite appreciate the standpoint, and can thoroughly enter into the feelings of certain good friends of mine, fellow members of the Architectural Association, who not only object to any form of book-learning, but even declare, as one quite lately did, that all architectural books ought to be burnt. There is truth, of course, in the idea underlying this—all the books in the world will not make one Architect; but the easy proof of this proposition does not negative nor even weaken another one—namely, that books may be useful to Architects.

Returning to our imaginary student, we tell him, of course, to go out sketching and measuring, and not to neglect to take notes of construction and materials; every one will agree in this advice. He then surmounts, let us suppose, every technical difficulty, until we find him able to draw with the utmost accuracy and most thoroughly artistic touch any subject he may meet with; he has seen and sketched hundreds of buildings, and acquired quite a respectable acreage of details; he can freely reproduce from memory any portion of his



PERFORATED PANELS, CARVED BOTH SIDES: BY W. AUMONIER.

NOTE.—A paper read at the Architectural Association, on Friday last.—ED.



sketch-book; he is, in short, a consummate draughtsman; but there is

#### STILL SOMETHING WANTING.

I am not speaking now of the faculty for design, but simply of that knowledge of the architecture of the past which we are presuming that he desires. Does he really understand these buildings? For all that he has done so far, he may be no more capable of seeing into the ideas and motives of the men who built them than the most prosaic and mercenary photographer. The difference between the two is not necessarily more than one of manual process; the mental attitude of each may be substantially the same. Unaided observation, accompanied by however great technical skill in recording, will not enable a man to read the riddles of ancient buildings. Whenever curiosity begins to be aroused as to how, or when, or why, some particular work was built; whenever, in short, the student wishes to go a stage further, and to know all about what he is sketching, he comes to feel the need of definite guidance; in fact, he has recourse to books. He requires them for several reasons: to learn methods of arranging, connecting, and utilising his own disjointed memoranda; to obtain many indispensable facts, which he could not possibly discover for himself; to bridge over gaps in his own experience; to become acquainted with principles and theories which may throw light on what he has observed, or direct him into fresh fields of inquiry. Books on the history of architecture are not, as is frequently asserted, fetters forged by malign opponents for the enthralment of Art; nor are they simply labour-saving tools to assist lazy men in the mechanical business which they

#### CALL THEIR ART.

Rightly used, they are the means by which an architect may learn the true nature of his Art, its difficulties, its qualities and powers, its grand possibilities. But architectural books lead us at once to the thorny question of styles. "Read a little history," the student is sometimes told, "but steer clear of anything to do with divisions of styles. All Art is one; therefore all Gothic architecture is one, and it is criminal wickedness to attempt to divide it." Advice of this sort in many cases cannot possibly be attributed to any dislike or contempt for the kind of architecture in question. It is principally based, I believe, on a misconception, which it seems worth while trying to explain. In most branches of knowledge, if not in all others, it is generally agreed that sub-division and definition are requisite in order to render learning and teaching possible. "The orderly arrangement," I have seen it expressed, "and classification of its material is necessary to the true advancement of knowledge." Of course, if it has to be conceded that Gothic architecture is a thing by itself, not subject to the common rules of human experience, the argument that methods like those found necessary in other Arts and Sciences can be successfully applied to it, falls to the ground at once. But this those who talk about a one and indivisible style have still to prove. In the meantime, I prefer to believe in the sound old Roman maxim, *Divide et impera*, which may be freely rendered, "By division you will become master." If we suggest, then, that for the sake of a more intimate acquaintance with the character of

#### GOthic BUILDING

the learner should analyse it, should consider its component parts separately and in their relations to one another, instead of only gazing on it as a whole, beautiful but incomprehensible, we must consider the means at his disposal to enable him to grasp his subject. Directions, guideposts, and landmarks innumerable await him; but, unfortunately the greater number of them, and of these the most conspicuous and most generally followed, have been set up on the wrong roads. This is, I believe, the real cause of the distrust now so strongly manifested in all definite study of Gothic. Many men have a vague sense that there is something inadequate, something unsatisfactory, in the orthodox teaching on the

subject, and jump to the conclusion that, therefore, all teaching of it must be wrong and misleading. The idea of improving our present methods does not seem to anyone worth a thought. As it is of no material disadvantage nowadays to an architect to know nothing about Gothic, the elder men either leave it alone, or go on, content with the notions about it remembered from their boyhood, thinking the whole subject so simple, so easily mastered, that everything which could possibly be known about it was long ago finally settled and laid out, cut-and-dried, leaving no room for further research or progress. But this attitude has had results for the younger generation. There are still men, even amongst the youngest of us, who take an interest in our inheritance from the middle ages, and there is besides a much larger, and rapidly growing body outside, who do the same, and who look to us for instruction and guidance. To these architectural students, craftsmen, and amateurs, we have nothing to offer but a confused, incomplete, and largely untrue account of our ancient architecture. Shoals of books, indeed, there are, but all of them, down to the very latest, are but echoes of the imperfect description of Gothic architecture composed, and to a great extent invented, by the antiquarian dilettanti of

#### A HUNDRED YEARS AGO.

Perfectly true and correct echoes of the old voices they may be, as to that there need be no dispute; but the very important consideration, that in so many ways we have now the means of knowing more than even the cleverest of our great grandfathers could possibly attain to, has, in the general treatment of this subject, been most strangely and sadly overlooked. No wonder is it, then, that an intelligent student, turning to the recognised authorities, and, finding himself in a maze of unreal and contradictory statements, often quite at variance with the evident testimony of the buildings as well as with the authentic records of history, becomes utterly disgusted, and is tempted to say, "These things have nothing to do with architecture." Illustrations, of course, have been immensely improved, many new facts and descriptions have been added; but as to all matters of generalisation of principles and of application to practice, we are using a system which is demonstrably absurd, and which deserves to be obsolete. I

speak from a considerable experience of the actual difficulties found in pursuing this subject, which evidently oppress even zealous and hard-working students, and these remarks are entirely prompted by the desire to do something, if possible, towards smoothing the path to a reasonable understanding of it. We have stayed marking time, while in every other branch of knowledge a great advance has taken place, and it is quite time that we should bring ourselves up into line. But the remedy is not to be found in general abuse of antiquaries. Their pioneer work has been of

#### INDISPENSABLE IMPORTANCE.

The fault lies in our having yielded up to them the duty of commanding and directing, which we ought to have exercised ourselves. Hence so many of the generally received ideas about Gothic architecture come from laymen, not from architects, with the natural result that they are thoroughly amateurish, and completely ignore the one thing which we care most about—design. We have forgotten that the proper function of our antiquarian comrades is merely to heave the lead and accurately report the soundings for our information and guidance; and not, in any circumstances, to

set the course or steer the ship. To descend from metaphor to details the lay mind—even in the case of the best educated and the cleverest men—seems incapable of thinking of architecture except only as a species of superficial adornment, applied in an ascending scale of ostentation. Every imaginable question in architectural design is reduced by the average Englishman to the single, and to him all-sufficient, one of comparative richness or plainness. Thus we hear members of Parliament and other typical exponents of public opinion treating all buildings as necessarily falling under one or other of three heads; they must belong, that is to say, to what they term the "plain" or "cheap" style, to the "ornamental" or "expensive" style, or else to the intermediate one generally known as the "handsome" style. Imbued with such ideas, our lay antiquaries, when unfortunately not content with collecting and verifying facts, they took to formulating systems, naturally classified and described all our ancient architecture according to the increasing quantity of ornament, which they supposed they could recognise in

#### SUCCESSIVE PERIODS.

They were practically unanimous in their



SPECIMEN OF BRICK CARVING, MIDDLESEX HOSPITAL,  
BY W. AUMONIER.

division of all Gothic work into early or plain, intermediate or more ornamented, and late or late and profusely ornamented. There was a vast amount of discussion as to the precise terms to be used to express these distinctions, and as to the particular dates at which one should be held to have merged into another, and almost by accident the designation of the latest style, which very nearly settled down into "Florid," has come down to us as the much more architectural "Perpendicular"; but the method all round was the same; not to study the differences of design in the buildings, and trace thence the divers principles which had governed their builders, not to study the social history of the nation, and learn thence the various events which had influenced its modes of building, but to start with a hard and fast, ready-made schedule of three heads, and cut, cram, main, and squeeze so as somehow to get it filled. It was reserved, however, for a later generation, almost our own contemporaries, to carry this tripartite system to absolutely symmetrical perfection, by overriding clear historical facts, and declaring the existence of three separate styles, each exactly contemporaneous with one century of the Gothic age. Complaints of this kind may



perhaps be called unreasonable or hypercritical. The books in common use, one may be told, give us quite as near an approximation to truth as we need either expect or desire. To try, therefore, how far this easy confidence is really justified, I must ask you to consider, as briefly as possible, just one instance of irreconcilable difference between views generally accepted and

#### PLAIN FACTS OF HISTORY.

To quote from a very well-known manual: "The change from one style to another was not immediate; it generally took nearly half a century to effect the transition, and the last half of each of the five centuries was such a period of change or transition. Buildings of the last ten years of a century generally belong in style rather to that which follows." Passing on to particulars our authority further tells us:—"In the fourteenth century the general character is of the style called Decorated; the last half of it is the period of transition from the Decorated to the Perpendicular." Nothing could be more beautifully simple and regular; but nevertheless it used to be a great puzzle to me how, if all this were true, one never met with a "Decorated" building after the middle of the century, while, without any premonitory signs of change, everything after that time was to be found designed on entirely different, indeed, almost opposite, principles. No reaction in taste could by itself account for such a startling change, and from no architectural writer nor any general historian could an explanation of the mystery be obtained; indeed, none of them seemed to recognise the fact. Only after a good deal of search in the by-paths of history did I come across the clue, namely, that the "Decorated" style, after an existence of only some five and thirty years, was suddenly cut short and literally killed by *The Black Death*, that awful pestilence which went near to depopulating England in the years 1348-9. Plagues are disagreeable and unpicturesque subjects, not unnaturally avoided both by historians and artists, but this particular epidemic forms such a

#### MARKED TURNING-POINT

in the artistic as well as the social history of England that it is impossible not to refer it. I believe that anyone who will take the trouble to study the history of these few years will have no difficulty in learning both how it came about that the "Decorated" style never ran its natural course of logical development, and also what were the causes of the special characteristics of its successor.

The chapter of the history of English Gothic architecture which has never yet been written is the one which shall treat of the whole matter on the sole basis of design. No one, except an architect, can write this chapter, but only one, so far as I can discover, has ever fairly essayed it—I refer, of course, to the late Edmund Sharpe. His description of Gothic building is the most architectural one which we possess, and is full of valuable suggestions; but hardly anyone regards it as more than a partial success, and it has certainly not succeeded in supplanting, as its author hoped, the popular amateur version. Sharpe made a bold and original endeavour to place the study of Gothic on better foundations, but his own work was doomed to failure, because it rested only on one particular section of design, and that not in reality the most important. In seeking a key to the

#### UNDERSTANDING OF GOTHIC ARCHITECTURE

in window-tracery alone, and grouping buildings all in accordance with that onestandard, Sharpe showed that, after all, he was, however unconsciously, still under the influence of the amateur school, who saw in tracery, as they do to this day, the principal evidence of that comparative amount of decoration which they dominate "style." But if I rush in where Sharpe failed, if he feared not, to tread, I shall be in danger of the apt quotation of an ancient proverb. If anyone is expecting me to say that I have got the missing chapter in my pocket, I fear he must be disappointed. But over there, in the lantern which our kind

friend Mr. Wonnacott will shortly bring into action, I have collected some material which may suggest to someone how it might be written, and will at any rate, lighten the dullness of my sermon. . . . This first slide is one which I have just had made from an MS. in the British Museum, and I do not know that the subject has ever been exhibited before. It is taken from Matthew Paris's "Life of King Offa" (Cottonian MS. Nero D i). The author and illustrator of this work was, I may perhaps remind you, a Benedictine monk of St. Albans Abbey, who died a few years before King Henry III., and is said to have been equally distinguished as theologian, historian, Artist, poet, and mathematician. The original is an outline drawing in brown ink, measuring about 9in. by 5in., so that the large figures are about 4in. high. The subject is Offa, king of Mercia, directing the building of St. Albans Abbey, and, it is hardly necessary to say, the drawing illustrates a building scene of the days of its author, and not of the remote period which he is describing. Its main interest lies in the fact that we have here an unquestionable contemporary representation of a mediæval architect, together with some important evidence as to his position and methods of work. It is worth while taking note of even the details of this drawing, because some of the most fashionable modern theories about Gothic architecture depends entirely upon the supposed non-existence of architects in the

#### MIDDLE AGES.

It has quite recently been confidently stated, though apparently upon no better grounds than an *a priori* assumption, that "there never was no such person," or that, if there was, he was quite undistinguishable in any way from an ordinary mason. We have been told that he could never, like a degenerate modern architect, have been seen upon the works with his coat on—because he could not have possessed one, nor even in his shirt-sleeves, for a similar reason! Now the man before us, to consider his outward aspect first, is not of this sort. In all particulars of dress and general fashion, he bears a close resemblance to the king and his attendant. So far, too, from looking just the same as any one of the crowd of workmen whom we see engaged in their various handicrafts, he is unmistakably a man of learning and culture, whose work lies in designing and directing, rather than in simple manual labour. He is discussing, on very friendly terms, some point concerning the building with the king; the latter apparently has made some suggestion, but the architect is giving his opinion with no undue show of deference, while the courtier keeps in the background till the question is settled. Even were there no other signs to guide us, this drawing is enough by itself to suggest that a great Gothic building was not, as is so often pretended, a

#### MERE CONCRETION OF MATERIAL,

piled up by the unorganised and undirected labour of many similar units—exactly in the manner of a coral reef—but was, on the contrary, the actual creation of a single intellect, as truly and absolutely so as a play of Shakespeare or an oratorio of Mendelssohn. There is not in reality the slightest disparagement of the other workers who took part in raising such a building in saying that their work could not have come into being without an original mind to give the necessary impulse and control; it is no more than saying that the cleverest actors and the most skilful musicians depend after all for the opportunity of exercising their powers on the previous labour of the individual dramatist and composer. When we know that Matthew Paris not only witnessed important building operations in his own Abbey, but was in great favour with Henry III., and present at his court during the erection of the Abbey Church of Westminster, we may readily imagine that in representing the legendary scene of Offa's foundation of St. Albans, Paris drew upon his recollections of the frequent interviews he must have witnessed between Henry and the Architect of the great Church, in the building

of which the King took such deep and constant interest. But notice also this architect's compasses and square—they denote more than that he is merely an expert in building—they mark the geometrician. This is a point we must return to, after looking at the other slides, views, and details of buildings, selected for special reasons, which, for convenience's sake, must be shown now. . . . To come back now to Matthew Paris's drawing. Here we may find the clue, without which we can never learn to see the mind of the

#### MEDIÆVAL ARCHITECT IN HIS WORK.

He was essentially a geometrician. In the great intellectual movement of the thirteenth century no branch of learning, except theology, was more widely cultivated than geometry; and this science, both then and for long afterwards, occupied an altogether higher position relatively to other intellectual pursuits than it does at the present time. Among the many side-lights which the recognition of this fact seems to throw upon the development of English architecture is one with regard to the vexed question of influence from the East. Most people have at some time felt, if they have not, through lack of tangible proofs, actually allowed, that Oriental suggestions must have played some part in the formation of English Gothic architecture. As an explanation of this, it has generally been loosely asserted that the English crusaders tried to reproduce at home the Saracenic architecture which they had seen and admired in the course of their campaigns; a supposition which, besides being unsupported by a shred of evidence, must seem to any one acquainted with the average military mind, absolutely incredible. But when we think of the highly-prized Arabic geometrical treatises then finding their way into every monastery and university (the latter being at the time thronged by lay scholars, in numbers almost impossible to realise), there is little difficulty in imagining how the subtle influence of books, written by men whom the most learned of Europeans revered as their intellectual masters, became the means by which Oriental inspirations were grafted upon the rising tree of English architecture. Until we can form some idea of the

#### INFLUENCE OF GEOMETRY

during the middle ages, nowhere stronger, I believe, than in our own country; until we can partly realise the fascination in the study and exercise of it which then possessed every educated mind, lay and clerical alike, we shall never be able to understand the conditions under which our Gothic structures were designed. Geometry is the indispensable key to the thoughts of the men who built them; indeed, I will go so far as to say that, were I asked to define English Gothic architecture in the fewest possible words, my definition would be:—"A species of building wherein every part, from the greatest to the least, is dominated by the same geometrical motive?" I beg you to notice, however, that I do not say, simply, "dominated by geometrical motives," nor "by a motive," but "by the same motive." A great deal turns upon this. It will not be at all surprising to hear this definition objected to as being neither new nor true. It may be contended, on the one hand, that everything possible to be said about the connection of geometry with Gothic architecture has been already said; and, on the other, that true Art soars far above the trammels of such a cold, hard,

#### PROSAIC SCIENCE.

Both objections cannot be dealt with together. The former, of course, the less important, may perhaps be sufficiently answered in a few words; but, to establish a case to meet the latter, which I expect would be fervently urged, would require the production of a large body of pictorial and other similar evidence, such as, unfortunately, I am unable to bring before you in the limits of the present paper.

But with regard to my previous references to the relation of geometry to Gothic design. The mention of it at once calls up visions of plans and sections of Churches, crossed over



like maps by squares and triangles, with arguments on the supposed rules of their setting-out, which have rarely succeeded in carrying conviction, chiefly on account of the apparently arbitrary and usually contradictory systems of measurement adopted by rival theorists. It suggests also that much ingenuity has been devoted to one particular class of geometric design by the illustration of the infinite variety of patterns producible from contained and intersecting circles. Nor will it be forgotten that some authorities have gone so far as to speak of a

"GEOMETRICAL PERIOD,"

though only as a shortlived minor division of English Gothic. We may be grateful for hints from all these sources, but they neither exhaust the subject nor give us the information for which we seek. It should be remembered that, owing to the general destruction of our ancient libraries, and the consequent dearth of direct home evidence, people have been implicitly relying upon certain works on proportion which happen to have come down to us from German and Italian architects of the latter part of the fifteenth and of the sixteenth centuries, to explain the principles of English architecture in the thirteenth and fourteenth centuries! To arrive at an understanding of the actual manner in which old English architecture was influenced by geometry, not for a limited time only, but from its birth to its decline; not through any one form or figure only, but through many; not merely generally or at random, but with a single order of forms dominating, as a keynote, each particular era in succession, we must discard many old methods, old prejudices, old associations. We must look for new facts in our own buildings, and for new light upon them from our social history. We must establish our principles solely upon the firm base of observations, instead of stubbornly dogmatising in the old, viscous manner, and mangling facts to make them square with unwarrantable theories. In doing this we may gain even more than truer and fuller knowledge of the past; we may find sure helps and great encouragement for the future.

*The discussion which followed will be published in our next issue.*

## OLD BUILDINGS AND THE STORY THEY TELL.

MR. ARNOLD MITCHELL recently delivered a lecture at Oldham on "Old Buildings and the Story They Tell," and, in giving an account of Peterborough Cathedral, said: It was built in the Middle Ages, and is one of the finest in the country. It has a front distinct from the building itself, built in order to out-rival the appearance of the Cathedral of Ely, not far away. The Dean and Chapter, who are the responsible custodians of the building, consulted experts, who reported that the front wanted restoring. Operations have now commenced, and part of the front is being taken down. Faddists and sentimentalists who had not the responsibility on their shoulders had expressed the opinion that old buildings should be left till they crumbled down. He wanted people to have a more sensible idea than that. It was interesting to note how builders had improved step by step as they passed from one period to another. The evolution of the pointed arch from the semi-circular one, showing the greater beauty of the pointed, owing to the variety of curves that could be made with it, was worth noticing. Excellent views of different Cathedrals were given, showing the passage from Norman to the beautiful early English style of Architecture. Examples of the development of windows of Churches and Cathedrals from the long, narrow slit of the castle-building period to the beautiful tracery windows of more modern dates were interesting. Another set of views showed the capitols of columns from the early style of simple square stone designs to the sculptured ones with their beautiful light and shade effects.

## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
February 10th, 1897.

*"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."*—JOHN RUSKIN.

At the meeting of the London County Council last week, the report of the General Purposes Committee recommending the appointment of Mr. W. Adams as Manager of the Works Department at a salary of £1500 a year was carried. Mr. Adams has been for twenty years an engineer on the North-Western Railway, and was responsible for the maintenance of the company's London stations. In thanking the Council for his appointment, Mr. Adams said no effort would be spared on his part to make the Works Department a success. From his experience he should say that the Council could do work itself cheaper without a contractor.

FAR more serious consequences than were at first discovered have resulted from the recent experimental explosion of a large quantity of cordite at the Royal Arsenal, Woolwich. A careful examination of the district shows that the effects of the concussion were disastrous to much property there. The ancient Church of St. Nicholas, Plumstead, and half-a-dozen shops were found to be wrecked and hundreds of houses damaged. The Church itself, which is 900 years old, had its latticed windows blown out, the ceiling brought down, and has had to be closed. Three large plate-glass windows and a 6ft. mirror have been smashed at a shop in the Plumstead-road, and the ceilings of a number of dwellings in all parts of the parish have fallen in. The weight of cordite which exploded in the thirteen cylinders was 1400lb. It made a hole 15ft. deep and 12ft. wide, and earth and stones were thrown a distance of a mile: One hundred feet of iron fencing and the telephone wires at the Government butts were demolished.

THE works in progress on the South-Eastern Railway at Waterloo Junction and in Southwark relate to the general scheme for widening the approaches to Charing Cross, Cannon Street, and London Bridge Stations. Some years ago it was seen by the directorate of the railway that provision would have to be made for the increased traffic, both on the suburban feeders of the system and of the main line; and it was decided to construct the necessary widenings by degrees. Parliamentary powers having been obtained in the Sessions of 1882 and 1890, the great railway bridges that cross the Thames from near Waterloo to Charing Cross, and from Bankside, Southwark, to Cannon Street, were widened, and an additional down line run into each of the stations. Other powers were obtained in 1896, and yet more important ones are being sought in the present Session for widenings that will provide two up and two down lines throughout.

MESSRS. DRIVER AND CO., of 4, Whitehall, have let on building lease for a term of eighty years, the site of Hanover Chapel, having a frontage of about 75 feet to Regent-street, and containing an area of 6666 square feet, at the yearly rental value of £2120. This gives a rental value of 6s. 4d. per square foot, and this ground rent, capitalised at thirty years'

purchase (which, we are informed, it will be worth when the buildings are erected), comes out at £415,000, or, approximating half a million per acre.

EARLY in May the south wing of the new medical school buildings at Guy's Hospital, which will shortly be ready for occupation, will be opened by the Prince of Wales. It is satisfactory to learn that this important addition to the hospital has been provided without in any way touching upon the funds of the charity, the sum required for the erection of the building and about £13,000 having been entirely subscribed by the members of the staff and the teachers in the Medical School. The portion of the building which his Royal Highness will open comprise a large lecture theatre and a completely equipped physiological department.

"SHAKESPEARE'S LONDON" was the attractive title of an interesting lecture delivered in Toynbee Hall by Professor Hales. He recommended all students of our great dramatist to gain some knowledge of what our metropolis was when, at the early age of twenty-one, Shakespeare arrived in it. The first regular theatre was erected in 1576, in Shoreditch; then shortly came the Curtain, in the same district. With them, as well as with the Globe, on Bankside, and another in Newington Butts, the young man was connected, and very likely played in inn yards, like that of the Old Bell in Holborn, where the galleries leading to the sleeping rooms made a capital auditorium. Shakespeare's plays had abounding evidence of the interest their author had in the city whose life was the book always open before him. The Tower, London Stone, Smithfield, the Savoy, Ely-place, Tyburn, Old St. Paul's, Blackheath, Mile-end-green, and an immense number of other places in and around the metropolis were graphically commemorated.

THE refusal at a public auction last week of a bid of £57,000 for the site of Cleveland House, at the corner of St. James's-square and King-street, may well give rise to some reflections on the growing value of landed property in London. In 1665, little more than two centuries ago, Charles II. granted a lease in perpetuity of the forty-five acres upon which the square stands, for the annual rental of £80 to Henry Jermyn, Earl of St. Albans. To-day a quarter of an acre cannot be had for less than £60,000. It is clear that aristocratic incomes cannot keep pace with this development. Only successful speculators, and but few of them, are prepared to pay a ground rent of £2000 or £3000 a year, before a stick or stone has been laid of a future mansion. The first occupant of Cleveland House was the unlucky Earl of Essex, Arthur Capel, Viceroy of Ireland, who left its shelter to meet his mysterious fate in the Tower.

GREAT preparations are being made at the back of the Bourse, Paris, for the opening of the new thoroughfare which brings the Rue Réaumur from the Temple district down to the Rue Quatre Septembre, thus forming a splendid straight highway from the Opéra away towards the Place de la République. The dry weather which has come after the snowstorms enables the work of levelling the long street to be carried on with alacrity, but a good deal of time must elapse before the sides of the new urban artery near the Money Market will be presentable, owing to the number of houses which have been pulled down. The Municipality is in the meantime spending a good deal of money on the preparations for the opening of the thoroughfare.

MR. HANBURY recently stated in the House of Commons that the popularity of the National Portrait Gallery was not increasing, and gave as his reason the fact that the number of visitors has decreased from 49,000 in the first month of its opening to 12,000 in December last. This statement may suggest a very erroneous impression. The Gallery was opened in April, and the opening of a new Exhibition naturally attracts a large number of visitors



from curiosity. No reasonable person would expect the attendance in any subsequent month to be anything like so large. Nothing, therefore, could be more absurd than to take the first month as a standard—nothing, except perhaps to take the month of December as affording any fair comparison with a summer month. To begin with, the Gallery is open for eight hours a day in the spring and summer, and only for six in the winter. Secondly, it is now closed entirely on Sundays; during the summer it was open on Sundays. Thirdly, even within the hours of opening during the winter, it is often entirely impossible to see the pictures properly. The parsimony of the Treasury denies to the Gallery any means of artificial lighting, and sometimes the Gallery has in consequence been closed altogether. To argue that the popularity of the Gallery is declining because fewer visitors went in December than in April or May would be about as reasonable as it would be to say that great-coats are declining in popularity because fewer were worn in May last than in the preceding December. The fact is that there are at present no data for any conclusive comparison, for summer cannot yet be compared with summer, nor winter with winter.

A SITE has been acquired at Dartmouth for the Naval Cadets' College. It commands a fine view of the Dart, and is as eligible a place as could be found in that locality. It has been stated that it was not intended to seek architectural assistance outside the department. Admiral Field, however, was informed by the First Lord that an Architect has not yet been selected, but that the Board will not take action without the most able professional assistance which they can secure. The country has a right to expect full value for the money to be expended, and this is only to be secured by employing a thoroughly qualified and experienced Architect to prepare the plans.

A DEPUTATION of the Sheffield Corporation Tramways Committee recently visited a number of towns in the United Kingdom and on the Continent with the object of collecting information as to the merits of various systems of tramway haulage in operation. The deputation now reports to the Tramways Committee that of the forms of traction at present in operation the overhead electric system possesses the most advantages, and is the most suited to the requirements of Sheffield. It is recommended, however, that only certain sections of the tramways should be at present adapted to the system in order that it may be tested.

THE Stirling Fine Art Exhibition, opened last week, has always kept an important position among Scottish Exhibitions. The standard of the works exhibited is an elevated one; and there are few local Exhibitions that can show so many excellent works in a comparatively limited area as those that have been brought together in the Smith Institute, Stirling. A word of praise is due to the Hanging Committee. The practical artists engaged on this part of the work were John Smart, R.S.A., and Wellwood Rattray, A.R.S.A., and it must be allowed that they have hung the pictures with more regard to the intrinsic merits of the works than to the alphabetical decorations attached to the artists' names. Several loan pictures of exceptional merit are shown. The post of honour in the Exhibition has been assigned to a beautiful, full-length, life-size portrait of "Mrs. Graham," by J. J. Shannon, the newly-elected Associate of the Royal Academy. It has been lent from the collection of Mr. Donald Graham, of Airthrey Castle. While the loan pictures certainly give a high tone to the Exhibition, the pictures sent from Scottish studios are by no means to be despised. The Exhibition is certain to be of great service by making the local visitors acquainted with the progress of Art beyond its own circle, it is also of use as bringing before the public the work of young artists who find admission to the large Exhibitions difficult through lack of accommodation. In this Exhibition there are many works that are meritorious in themselves, but which might not have found admittance to the more popular

collections through lack of room, and from the plethora of pictures by artists who have made a name in the Art world.

THE "Secrets of crystals" which Professor Miers disclosed to his audience at the Royal Institution, in the course of his second lecture on the subject, were not of a very startling kind, but they were very pretty and interesting none the less. The most attractive of them were those which exhibited the action of crystals on transmitted light. It is the property of nearly all crystals that they are doubly refracting, which is to say that a ray of light passed into them will be split up by them into two rays, which travel at different speeds through the crystal. In the sapphire this property is exhibited by the different colour of the rays which emerge, one being the sapphire blue as most people recognise the colour, and the other ray being about the colour of indigo. Tourmaline, in the same way, exhibits two shades of green. But if the crystals are submitted to the influence of polarised light, as Professor Miers submitted them, the emergent rays form most symmetrical and beautiful patterns on a screen. Sometimes the pattern is a series of concentric circles about a dark cross; sometimes the dark cross develops into its ultimate form of hyperbolic branches, and the concentric circles become ellipses; sometimes, and this appears to be more often, there are two "eyes" or "foei" of the polarised refractions. Whatever beautiful form the screen-image takes, however, one fact may always be gleaned from it. The image represents, one might say, the interior construction of the crystal; and the degree of symmetry which it exhibits is an accurate representation of the amount of symmetry the crystal possesses in all its physical aspects. Etching a crystal will reveal its form, because any attempt to dissolve the face of a crystal has the result of splitting up the face into a rough surface, which, on examination by a microscope, reveals a number of tiny facets showing the true form of the crystal.

THE Church of S.S. Mary, Andrew, and Thomas à Becket, at Colebrook, contains several rare architectural features, one of them being an ancient font cover. The sculpture thereupon has, in the course of time, been sadly mutilated and defaced, and other damaged parts have been mended with deal and elm, whilst sundry coats of blue and buff paint have been daubed unsparringly upon it by zealous, if all too injudicious, successive ages of churchwardens. This interesting mediæval relic has just been most conservatively restored, at the expense of Mr. A. O. Sillefant, J.P. It is octagonal on plan—spiral, and of ogee outline—well and effectively moulded. The finial assumes the form of an archangel, facing both ways, and with hands (also front and back) in the attitude of devotion; whilst the wings are extended. It has the cross on the forehead, which emblem invariably marks archangels, who, with their leader, St. Michael, wore this symbol when warring with the devil and his angels. The font cover has been restored by Messrs. Harry Hems and Sons, of Exeter, who have also done much other work at the Church from time to time. During the past seven years the edifice has been carefully renovated from the designs of Messrs. Tait and Harvey, Architects, of Exeter, and, although more necessary work remains to be done, the building is now in a fairly presentable condition.

Moscow is now considering plans for an ice palace to be built this winter in imitation of the one which adorned the Empress Anne's reign. That was constructed in 1740, between the Admiralty and the Winter Palace at St. Petersburg, and was formed throughout—walls, roofs, windows, columns, and decorations, in fact, everything from the foundation up—entirely of ice, the evenness of the winter weather there assuring for a term the durability of the masonry. At the entrance to the structure was a large gallery filled with ice statues, and on pedestals of ice stood vases filled with flowers, with hovering birds above them, all of the same materials, as were the

clock-cases, chairs, tables, wardrobes, utensils, candelabras, beds, and all the other furnishings. It is not yet known whether the Architects of the present structure will try to rival the proportions and perfection of the old one, but if they do it will exceed in attractiveness any of the existing edifices of the Russian capital.

AN interesting discovery has recently been made of an underground dwelling or place of refuge of primæval man on the estate of Mr. Ford-Hutchinson at Stranocum, in the county of Antrim. It appears that during some agricultural operations the workmen noticed the falling in of the soil, and, excavating deeper to ascertain the cause, unearthed the entrance to what proved to be a remarkably extensive and well-preserved souterrain. This underground dwelling is remarkable in many ways. It is situated under the south rampart of an old earth-fort of about 300ft. diameter, surrounded on the south-west and north by a deep fosse, the east side being an almost perpendicular descent of 80ft. to the River Bush, which winds round its base. The bend of the river is commanded by a projecting earthwork on the north side. The souterrain is entered by a flight of five well-formed but narrow steps which lead from the original level of the interior of the fort to the floor of the vestibule of the carved dwelling. From this the first chamber extends nearly due south under the rampart for 6ft., by 1ft. 6in. wide and 4ft. high. At the end of this first chamber is a door 4ft. 4in. wide and about 2ft. high, passing which the next chamber at once takes a right angle turn to the east, running for 13½ft., with fairly even dimensions to another and similar door, which leads to a chamber 29ft. 9in. long and 1ft. 8in. wide, and averaging 4ft. 9in. in height. Three feet from the door to this chamber, and on the north side of it, is another and similar door leading to a fine chamber at right angles to it, extending 14ft. northward by 2ft. 8in. wide and 4ft. 10in. high.

At the end of the great east chamber is a small tunnel or passage 2ft high, 18in. wide, and 6ft. long, leading to the outer side of the fort's rampart which seems to have served for the double purpose of an escape for the occupants, if hard pressed, from the main entrance, and also for draining the souterrain, which has a gradual fall of 4ft. to this point. The walls are built of rough boulder stones, and the roof is composed of large flat stones spanning from wall to wall, some of which appear to have been quarried, and in two places there appear to have been vents carried up from the ceiling. The floor is of earth throughout. The only things found in the souterrain were two bones, supposed to belong to a cow, two pieces of iron ore, and a piece of lias limestone. The floor of the rath appears to have been literally covered with rudely paved hearths, which yielded a lot of ash, and several fragments of pottery and a portion of a quern for grinding corn.

It has been decided that the memorial to the late Sir John Pender shall take the following forms, as funds permit: That a bust of Sir John Pender be placed in a suitable institution in London, at a cost not exceeding £500. That a sum of not less than £5000 be placed in trust with the Council of University College, London, to form an endowment fund for the maintenance of the electrical laboratory in that college, on condition that the Council name the laboratory the "Pender Laboratory," and the existing chair of electrical engineering the "Pender Chair of Electrical Engineering." That a "Pender Scholarship and gold medal" in connection with electrical subjects be established in Glasgow.

At the last meeting of the Council of the Royal Society of Antiquaries of Ireland it was proposed by Mr. George Coffey, seconded by Mr. J. J. Digges La Touche, and passed unanimously: That the Council of the Royal Society of Antiquaries of Ireland has heard with regret that a presentment has been passed by the presentment sessions for the liberties of Kilmallock for the purpose of taking down the



King's Castle at Kilmallock. The Council is surprised at the contemplated act of vandalism, inasmuch as the preservation and protection of ancient and historic monuments are recognised as a matter of great public interest, and trust that now public attention has been directed to the subject the presentment will not be proceeded with. The Council would further suggest that steps be immediately taken to place this interesting monument in charge of the Board of Works for protection under the "Ancient Monuments Protection Act."

It is all very well for the Deputy Keeper of the Public Records to make much of the discoveries which have resulted from the demolition of the Chapel of the Rolls, says the *City Press*, but we cannot forget that the destruction of that building was carried out after official assurances had been given that it would not be touched. Very likely we might learn a great deal about the Guildhall and Westminster Abbey if they were to be pulled down, but most people probably prefer the buildings to the knowledge. We have lost Rolls Chapel, and are now in possession of the knowledge purchased with its precious stones. The chapel on the eve of its demolition showed no vestige of mediæval work. The inner plastered roof was but forty years old; the inner walls were plastered throughout; the external ones covered with a thin layer of flint, except where patched with comparatively modern brick; the buttresses were missing or mutilated; the four large windows were devoid of tracery. It was, says the Deputy Keeper, a mean and ugly building, interesting mainly for its monuments and stained glass. The demolition brought to light several relics of the building as it originally stood. Amongst these was a window, apparently *temp.* Edward III., which had been fitted up at an early date (some parts of the mullions were found). Another window (dating from the time of Edward I.), with mutilated jambs and mullions of Caen stone, was also disclosed; this window had been closed up probably in the seventeenth century. A fine chancel arch (*temp.* Henry III.) was discovered. Its existence had never even been suspected. Its base being 2ft. underground, it has been suffered to remain. It is intended to re-erect the stones of the arch in the new building, which will rise on the chapel's site. There were also found buttresses, probably of Henry III.'s reign. Mr. Lyte gives the history of the chapel, which, as is well known, was originally founded by Henry III. for Christianised Jews. The keepers of the House of Converts came also to be keepers of the Rolls of Chancery; hence the name Rolls Chapel. Pennant has stated that Inigo Jones rebuilt the chapel in 1617; this was not so. The seventeenth century reconstruction and mutilation was probably done by way of repair after the Fire of London, which is believed to have damaged the building.

At the last meeting of the L.C.C. the General Purposes Committee proposed the following recommendation: "That Mr. Bull be asked to convey to Mr. Thornycroft the thanks of the Council for his liberal offer in connection with the Boadicea statuary group, but at the same time to inform him that the Council is not in a position to contribute towards the cost of casting the model of the group, or to bind itself to do so hereafter even should Parliamentary power be given for the purpose; and that while the Council will proceed to promote the Bill, it must be understood that any steps which Mr. Thornycroft may take in the matter are taken entirely on his own responsibility." Mr. Roberts moved that the recommendation be referred back. He recommended the Council that Mr. Thornycroft had offered them the statue, which was valued at £20,000. Mr. Bull, one of their members, had collected a large sum towards the sum for casting, and only another £1000 was necessary, which Mr. Thornycroft had offered to provide under certain conditions. It was an illogical position for the Council to take up and refuse the offer. London was sadly wanting in the matter of statues, and the Boadicea statue was such a remarkable and artistic one, that it would be a scandal if the Council threw the

opportunity away. In this Queen's Year it would be particularly appropriate if the statue of the old British warrior Queen was erected in the county of London. Mr. Crooks seconded the amendment, remarking that to lose this opportunity would be nothing short of a calamity. The recommendation was approved.

PRINCIPAL BODINGTON'S lecture to the members of the Leeds Philosophical and Literary Society last week upon "The History of Lanuvium" was of especial interest, in view of the presentation to the society by the late Lord Savile (just before his death) of a valuable collection of antiquities found upon the site of this old Roman city. The town, which is situate about twenty miles due south of Rome, can easily be reached by railway, but in former times access was obtained to it by the Great Appian Way. Lanuvium was built upon a promontory overlooking the Pontine Marshes, and although traces of ancient buildings had always been found there, their character was little known until Lord Savile—then in residence as British Ambassador in Rome—turned to the spot as a most promising field for research. A few of the articles excavated were presented to the British Museum, but the whole of the remainder, said the lecturer, had been given to Leeds, and the value of the collection was enhanced by the unlikelihood of Englishmen being allowed in the future to carry away such antiquarian treasures from foreign countries. Dr. Bodington went on to deal at some length with the historical story of Lanuvium, and, as showing the antiquity of the city, mentioned that a famous shrine which existed there had been proved, by the finding of three terra-cotta heads of a Greek type, to date back to the beginning of the sixth century before Christ—a period within 150 years of the traditional founding of Rome.

THE proposed "Boulevard" for London—namely, Portland-place—should not be compared, as some are now doing, to a Paris boulevard. The suggested plan is not Parisian, but Berlinian. An avenue of trees down the middle is what the Marylebone Vestry is thinking of. The City of Boulevards is not Paris, but Berlin. English people forget that, or are ignorant of the fact—because for one of them who visits Berlin, a hundred visit Paris. The typical Berlin boulevard means an avenue down the middle, and a row of trees at each side of a street. In Unter den Linden, for example, there are three avenues in the middle, a plan which is being followed in some of the fine new streets.

ANTIQUARIES are trying to save from destruction the Herber Tower, in the Town Wall, Newcastle. They are solicitous, as well, for the preservation of the ruin in Heaton Park, known as "King John's Palace." That same ruin has been the cause of a good deal of speculation with visitors to the park. It does not appear to have any direct history, but Mr. Cadwallader J. Bates, an eminent authority on local lore, discovered a clue which bears facial evidence of probability. In some ancient document he found that King Henry III. granted at Westminster, in 1267, a licence to John Comyn to enclose his principal seat in the manor of Tarsset, on the North Tyne, and to crenellate and fortify it, on the remarkable condition that it should be done after the same fashion as the seat of Adam de Gesemuth (Jesmond) at Heaton. This Adam was in that very year the High Sheriff of Northumberland, and had acquired an evil fame for robbery and extortion, and there can be little doubt, according to Mr. Bates, that the ruins in Heaton Park are those of the "camera" of Adam de Gesemuth. The sheriffs of the thirteenth century, being men of such ill-disposition, needed the protection of stout walls, and probably Adam received permission to fortify his home because he was a staunch adherent of the King. So, too, was the John Comyn, aforesaid. Not far from the ruin is a spring known as "King John's Well." When the Newcastle Corporation became possessed of the Heaton Park, excavations were made around the ruins of the palace, and amongst the relics which the workmen discovered was an

old stone trough. This was utilised in connection with a spring that flowed in another part of the grounds, and was christened after the palace, the surmounting stone having inscribed upon it the words, "Ye Well of King John." It is not known how the name of King John came to be connected with the place.

A DURER SOCIETY is in course of formation in order to supply artists with fac-similes of the etchings and engravings of that great master at a moderate price. An artist could hardly have been selected whose work has already been so admirably reproduced. The only *raison d'être* of the society is to obtain examples at a lower cost than heretofore, which, as Mr. Ruskin has urged, is not always advantageous to the cause of Art.

It is reported that a well-known Member of Parliament, representing a London constituency, is arranging to build and endow, at a cost of £120,000, a new wing to the University College Hospital, in commemoration of the Queen's long reign. Another munificent gift is promised by a resident of Hampstead, who proposes to build and endow a seaside convalescent home, at a total cost of £70,000, for the benefit of necessitous people in his parish.

THREE very ancient MSS. have recently been unearthed at Luton. They were found up the chimney by workmen employed on the demolition of an old house. One parchment is in book form, and the other two are scrolls. The volume is elegantly engrossed, and artistically illuminated in colours and gold. The engrossing on the scrolls is also an exhibition of fine penmanship. The documents have been cleaned by the officials at the MSS. Department of the British Museum, and Canon Pynchard, vicar of Christ Church, Luton, who has interested himself in the discovery, finds that one of the scrolls is a Bull of Pope Urban V. or VI., and issued to the vicar of Shefford—presumably the village in the north of Bedfordshire of that name—in the fourth year of his Holiness's Pontificate, commencing with the Papal greeting, and setting forth that certain persons shall be rebuked unless they discontinue certain behaviour. The date would seem to be the fourteenth century. The other scroll is a manor roll, and records the transference of land. The volume is incomplete. After translation the documents will be presented to the Corporation, to be held in trust for the town.

We are getting nearer and nearer to colour-photography, but the eager runners toward this fascinating goal are still baffled. The French process recently submitted to the Society of Arts by M. Villedieu Chassagne, on behalf of himself and Dr. Adrien Michel, and explained by Sir Henry Trueman Wood in the *Times* in rather more detail than in the Society of Arts Journal, is to some extent a secret. But enough is known to show that a photograph has not yet been actually taken in colours. A coloured print is not obtained. When the negative is developed and fixed in the ordinary way it looks like any other negative. A positive is printed from it, and that, too, looks exactly like an ordinary photographic print or transparency, and shows no trace of colour. But it is a specially-prepared positive, and when it is washed over with three coloured solutions—blue, green, and red—it takes up in succession the appropriate colour in the parts, the combinations of the colours giving all varieties of tints. This is wonderful enough to baffle the experts in knowledge of the ordinary photographic processes and of the action of light. The inventors, however, are not ready yet to disclose the secrets of their method, and the precise value of the discovery as an advance in colour photography cannot at present be determined.

THE formal opening of the smaller of the two new water reservoirs at Fowey took place a few days ago. The reservoir is 75ft. by 60ft. wide, 11ft. 6in. high, and is supported by strong and numerous pillars. The reservoir at Windmill Field will be completed by the end of April next.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

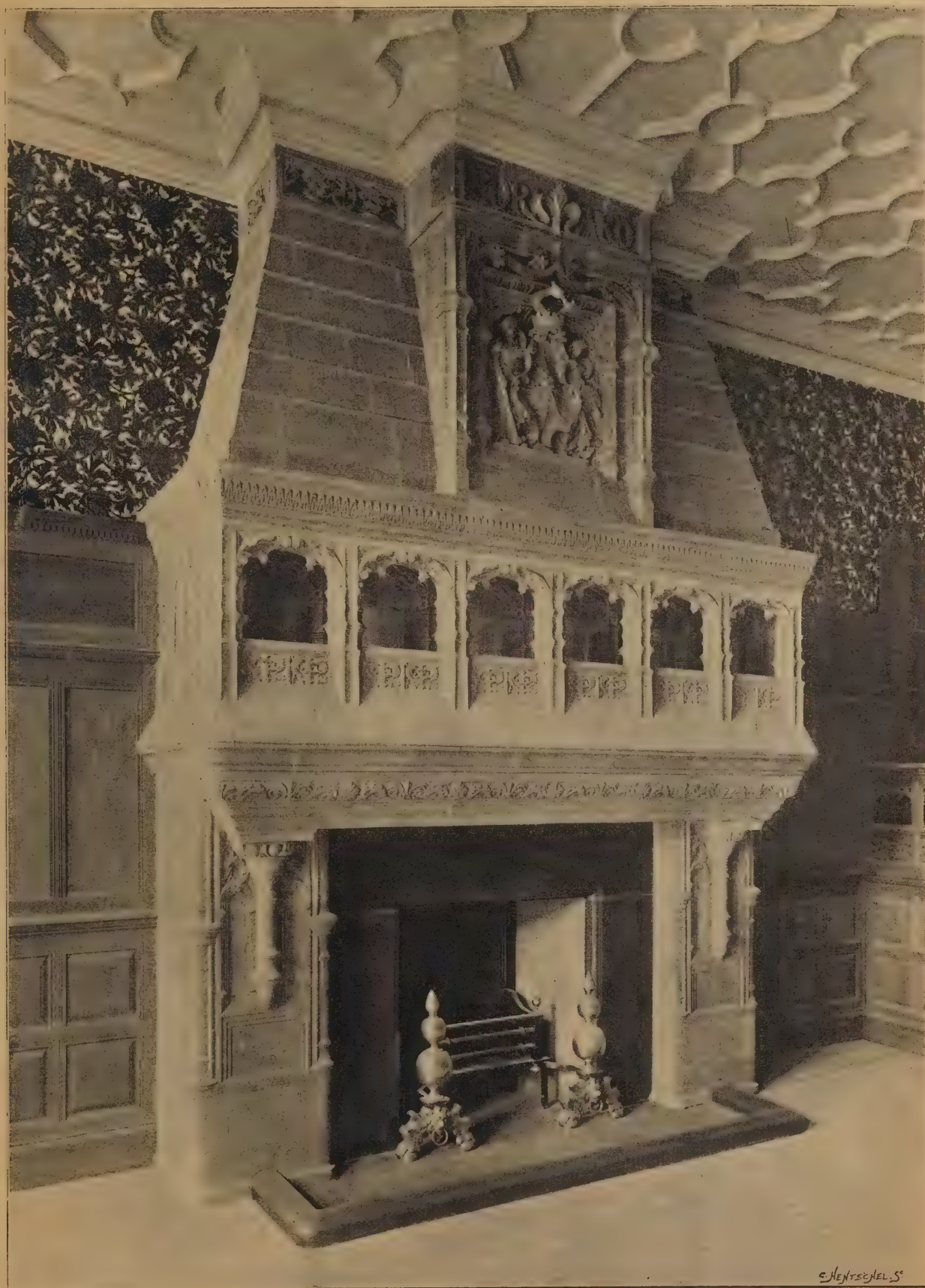




CHIMNEY-PIECES IN VICTORIA LAW COURTS, BIRMINGHAM

MODELLED IN TERRA-COTTA





I. MESSRS. ASTON WEBB AND INGRESS BELL, ARCHITECTS.  
BY W. AUMONIER.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



### SUNDERLAND BUILDING BYE-LAWS.

THE proposed bye-laws as to new streets and buildings in Sunderland are likely to cause some lengthy committee meetings. It is pretty safe to say that the discussion will chiefly centre around the points raised by the memorial presented by the Architects and builders. Bye-law 3 orders that if any street is so situated that, in the opinion of the Corporation, it will or may become a main or leading thoroughfare, its width shall be 50ft. at the least, or if houses therein exceed 35ft. to eaves its width to be 60ft. The memorialists state that if this bye-law is passed the power thus given should be used with the utmost discretion, and they are strongly of opinion that if a road has to be made of a greater width on account of the probability of its becoming a main thoroughfare, the Corporation should pay for such increased width, as well as for the paving and flagging of such increased portion. Then the bye-law says that in all other instances the minimum width of new streets shall be as follows:—40ft. for front or cross streets, the houses not being more than 26ft. to eaves. This the memorialists contend is unnecessary, and would tend to prohibit the building of one-storey houses, and they add: (1st) Whatever restrictions are imposed, cottages will always be the popular class of house for working men. (2nd) By the increased width of streets the eventual cost of maintenance and cleansing will be greater to the town. (3rd) By the adoption of 40ft. streets the town and paved area of the town will increase in a greater ratio than at present. (4th) We consider 30ft. is sufficient width for cottage property. (5th) More latitude should be allowed in this bye-law, as houses are frequently built only one or two feet higher than 26ft. In the bye-laws with respect to the structure of walls, foundations, roofs, &c., exception is taken, especially to the following one:—"The whole ground surface or site of a new domestic building to be covered with a layer of Portland cement concrete six inches thick." The memorialists contend that that thickness is excessive, and they consider lime concrete is sufficient. Then, further, they do not think that it is necessary to enforce brick footings to the ordinary classes of property where concrete formations are put in. Further, it is unnecessary, they say, for the footings of every wall to be built in cement mortar to the level of the top side of the ground floor joists in cases where a damp-proof course is used. The committee consider that external walls of new buildings should be as follows:—Buildings 16ft. high, walls to be 14in. thick, and to have piers built every 3ft. apart of heading courses. These piers, the Architects and builders say, will induce dampness and destroy the advantages of hollow walls, and is the thickness not unnecessary?—12in. sufficient. Bye-law 25 states that the fall of all yards and gardens from the house to the back or front streets respectively to be one in thirty. This fall, it is pointed out, is very great, and dangerous in slippery weather, and the consequences would be serious where the yard was long and there was no or very little front garden. Builders should have the option of sloping their yards to any conveniently-placed gully where the back street is above the level of the front street.

THE opposition to the proposed demolition of Christ Church and other city churches in Birmingham is now organised into tangible form. A committee has been formed, and steps are being taken to call a public meeting of protest, and to raise a guarantee fund to oppose the Bill in Parliament.

It has been resolved to extend the Holt Schools of Science and Art, Birkenhead, by the erection of an electrical laboratory, at a cost of £931 13s.

The south wing of the new Medical School Buildings at Guy's Hospital will be formally opened in May. The sum required—about £13,000—has been entirely subscribed by the members of the staff and the teachers in the Medical School.

### THE TIMBER TRADES BENE- VOLENT SOCIETY.

A largely-attended meeting of merchants and others connected with the timber trade of the United Kingdom was recently held at Carpenters' Hall to form a benevolent society for the timber trade in celebration of the Queen's long reign. The chair was taken by Mr. E. J. Morgan, who was supported by Mr. C. Bird, Mr. C. J. Wade, Mr. W. L. Foy, the Hon. C. Lawrence, Mr. C. Churchill, Mr. H. H. Green, Mr. T. Stevenson, Mr. A. Raffety, Mr. G. L. Renton, Mr. W. H. Rider, Mr. B. G. Elliott, and Mr. L. Gabriel. The Chairman, in opening the proceedings, said that for many years the members of the trade had looked upon one another with feelings of mistrust and fear, but he hoped that they would now all work together as one body corporate.—Mr. C. Bird, who originated the scheme, then moved a resolution pledging the meeting to promote the speedy formation of the Timber Trades' Benevolent Society. He explained that the proposed Society was to provide annuities or temporary relief for necessitous and deserving members of the trade. At the present time the timber trade was one of the few trades that had no benevolent society. The object of the meeting was to remedy that state of affairs. The idea had excited an immense amount of interest in the trade, and £3000 had been already subscribed. The Society was to include the members of the trade throughout the United Kingdom, and they had received promises of support from many of the largest provincial firms.—The resolution was seconded by Mr. Wade, and adopted unanimously. The meeting then proceeded to elect officers. Mr. W. L. Foy was elected president, and Mr. E. J. Morgan the treasurer, while Messrs. Bird and Wade undertook the duties of hon. secretaries until such time as a paid secretary should be appointed. The following gentlemen were then elected as a committee, and the draft scheme for the formation of the Society was referred to them: Mr. C. Churchill, Mr. R. Brandt, Mr. J. E. Cobbett, Mr. B. G. Elliott, Mr. R. Foster, Mr. T. Gabriel, Mr. P. Hoar, Mr. L. Neame, Mr. F. Nicholson, Mr. G. L. Renton, Mr. A. Raffety, Mr. T. Stevenson, Mr. J. A. Wilson, Mr. T. Booth, Mr. W. H. Rider, Mr. C. Leary, Mr. Gellatly, Mr. Mulford, and Mr. R. J. Kidman.

### A YEAR'S BUILDING IN BIRMINGHAM.

THE following is the Surveyor's return of new buildings erected in Birmingham, for which plans were approved by the City Surveyor, during 1896, with a summary showing the corresponding figures for the three previous years:—

	1896.	1895.	1894.	1893.
Houses and shops .....	1,852	1,806	1,790	1,658
Business premises .....	35	13	30	26
Warehouses and shopping .....	247	197	117	149
Miscellaneous .....	314	313	353	291
Alterations and additions .....	324	246	242	163
Churches .....	2	2	1	1
Chapels .....	2	1	4	3
Schools .....	2	3	3	3
Totals .....	2,778	2,581	2,540	2,294

The plans submitted for approval numbered 1,017, as compared with 797 in 1895, an increase of 220. The churches are both temporary iron structures, one being situated in City Road, and the other in Cherrywood Road. The chapels, two in number, are a Baptist chapel, in Crabtree Road, and a temporary chapel, in Elkington Street. The schools are St. Martin's (Church of England), Dean Street, and Wesleyan Schools, in Benacre Street. The principal items among the miscellaneous are the rebuilding of the Gaiety Palace, Coleshill Street; a new police station, at Harborne; branch district post office, Five Ways; extension of Central Fire Station, Upper Priory; water-gas works, at Saltley and Windsor Street; extension of the Deaf and Dumb Institute, Edgbaston; reconstruction of the old Inland Revenue Offices, Waterloo Street; mission-room and institute, Freeth Street; mission-room, Garrison Lane; mis-

sion-room and Sunday school, Belmont Row. The alterations and additions include alteration and extension of Unitarian Chapel, Newhall Hill; extension of schools, All Saints' Church Hockley; enlargement of Free Library, Aston Road; additions to Board schools in Highfield Road, Saltley, Hutton Street, Goodrick Street, and Icknield Street; also to St. Matthias's Church School, Wheeler Street, and to schools in South Street, Harborne, and Tennant Street. Amongst the business premises are: New premises for the National Telephone Company, Newhall Street and Edmund Street; Messrs. Newberry's, Old Square; A. R. Dean, Corporation Street; rebuilding Hen and Chickens, New Street; residential premises, Cornwall Street and Newhall Street. During the year 773 notices have been served on property owners and others as to dangerous buildings and projecting signs. Six hundred and forty-nine square yards of land have been given up to the Corporation by owners of property setting back shop fronts, bay windows, and other projections. Under the Factory and Workshops Acts 142 factories have been inspected, 17 of which have been altered, and 23 others are now being altered in accordance with the requirements. The year generally has been a very busy one with the building and kindred trades in the city, and has been chiefly notable for the number of new warehouses and factories that have been erected, and for the many large alterations and extensions of existing factories that have been made.

### KEYSTONES.

ON the 4th February operations for the demolishing of the Leinster Hall, Dublin, were commenced for the purpose of transforming the building into the projected new Theatre Royal. It is shortly intended to advertise for tenders for the construction of the works. The tenders will, it is said, not be confined to Ireland, but, other circumstances being equal, Irish contractors will have the preference. The plans have been already passed by the Corporation, and the work will be proceeded with as quickly as possible.

THE EARL OF LEICESTER has given a donation of £2,000 towards the fund which is being raised to rebuild the Jenny Lind Infirmary at Norwich, in commemoration of the Queen's long reign.

It is intended to build a chancel, vestry, and organ chamber, and reseal Holmesfield Parish Church. The total cost will amount to from £350 to £400.

THE Primitive Methodists have obtained a site opposite the Manchester, Sheffield, and Lincolnshire new station, Wigan, for the erection of a hall and schools. The scheme will cost about £2400.

A MEMORIAL tablet to the late Mr. John Grindrod, formerly head master of the Central Schools, Ince, has been unveiled at the Ince Parish Church.

WESLEYAN Chapel extension in London proceeds apace. During the past year four large chapels have been opened, and a fifth chapel has been acquired by purchase. At Waltham Abbey, and also at Cheshunt, immediate steps are to be taken to build new chapels. A special committee is dealing with West Ham. In the Barking Circuit steps are being taken with a view to extension. Gospel Oak and certain parts of Stratford Circuit are to receive attention. At Walthamstow one new chapel is to be built immediately, the site for another has been secured, which is now occupied by a temporary iron structure.

THE old school connected with Christ Church, Southport, has been sold, and a new school is to be erected as a memorial of Archdeacon Clarke, who was so long vicar of the parish.

SIR ALFRED HASLAM has undertaken to defray the cost of erecting a new aisle to St. Paul's Church, Derby.

COLONEL C. H. LUARD, C.E., from the Local Government Board, has held an inquiry at Greetland into an application by the Council for sanction to borrow £4,200 for sewerage purposes.



## Professional Items.

**ARMLEY.**—A new chapel and schools are in course of erection at Armley. The site, which is 1,391 square yards in extent, cost £417 6s., and including that sum the total cost of the chapel and schools is estimated at £3,577. The plans were prepared by Mr. W. S. Braithwaite, Architect, South Parade. The buildings, which will have a very pleasing appearance, will be of brick, relieved with stone dressings. The style adopted is a plain treatment of Gothic, the main features being the tracery window in the front gable, the tower, which will be an octagonal wood and slate spire at the corner of the building, and the clerestory treatment of the nave. The chapel is divided into nave and two side aisles, and is 52 ft. long by 39 ft. wide, independent of the organ and choir chamber. On the ground floor there will be accommodation for 300 persons, the choir will be seated for twenty, and in an end gallery provision will be made for ninety—in all, 410. The entrances will be at the two corners of the chapel, facing Hall Lane, and they will be connected by a vestibule or corridor.

**BELFAST.**—After improvements, extensions, and renovation, Falls Road Methodist Church has been re-opened. The work has been undertaken and carried out in two sections; the first section comprised the addition of over seventeen feet to the length of the church, including the roof and galleries. A specially-arranged pulpit has been erected, with communion space and rail. Grouping therewith is the choir and organ gallery, all being carried out in polished pitch-pine, with mahogany dressings. The ground floor of the church has been re-pewed with open bench end seats. The entrance porches have been completely reconstructed; swing doors and glazed screens have taken the place of the pre-existing awkward doors; the floors of the porches have been tiled with encaustic tiles. The stairs to the galleries have been improved. The windows have been reglazed with cathedral leaded lights, of simple, quiet tints. Windows have been opened in the front facade, which not only light up the inner porches and stairs, but also throw light under the deep end gallery. The street entrance, gates, and railings are to be improved. The second section of the work comprises a suite of congregational rooms at the rear of the church, opening off the galleries, as well as from the ground floor of the church. The builders' work of No. 1 section has been carried out, and the second section of the work commenced, by Messrs. J. Lowry and Son, of Great George's Street, from the plans and under the superintendence of Messrs. J. J. Phillips and Son, Architects, Belfast.

**BEVINGTON HILL.**—The opening of new altars in St. Bridget's Church, Bevington Hill, took place last Sunday. The altars consist of a plain alabaster table raised on steps of St. Anne's marble. A massive tabernacle, surmounted by a lofty canopy of Caen stone, is placed in the centre. At the sides are niches destined for statues of S.S. Patrick and Columbkille, who, with St. Bridget are the chief patron saints of Ireland. In the reredos are inserted four panels illustrating the life of St. Bridget, the sculpture which is in high relief, having been executed by Messrs. Norbury and Paterson.

**BLAIRGOWRIE, N.B.**—Plans and specifications have been prepared for the Post Office building, Kirriemuir, by Messrs. L. and J. Falconer, Blairgowrie and Fort William. The whole contract has been undertaken by Messrs. Crabb and Ballantyne, masons, and Mr. Charles Ogilvy, joiner, Kirriemuir.

**BRIGHTON.**—The new out-patient department of the Sussex County Hospital—the foundation stone of which was laid on the 29th Feb. of last year—was opened by the Duchess of Fife, on the 29th Jan. The building, which stands on the opposite side of the

road, facing the hospital, is built of brick, with a covering of plaster-work. It is simply one story in height, but is of fine elevation. The main entrance leads by way of a short passage to the waiting-hall, a lofty room, 92ft. by 26ft. At the rear are a double set of examination rooms, one for the medical staff and the other for the surgical staff. Dressing and bath rooms are attached to each, and there is also a dark room for eye patients. Further back still is a dispensary with waiting lobby attached. The heating will be effected by means of hot-water pipes, and the building is to be lighted throughout with the electric light, which is already fitted. The work, which has occupied a little less than twelve months, has been carried out by Messrs. Saunders and Sons, of Brighton.

**BRISTOL.**—A new block of buildings is being erected on a prominent site in Baldwin Street, at the corner of Marsh Street. The style of the building is Renaissance, and it consists of four storeys and basement. Externally the ground floor is of blue pennant and Hamhill stone, the upper floors being executed in Bath stone and bright red Cattybrook bricks. Internally the ground floor is being designed to accommodate two insurance companies, with separate entrances, while the remaining floors are devoted to suites of offices. There are strong rooms and lavatories on each floor, and other conveniences. It is expected the building will be ready for occupation by September 29th next. The estimated cost of the work, including cost of site, is £13,000. Mr. Edward Gabriel is the Architect, and Mr. A. J. Beavan the builder.

**BRISTOL.**—The Almondsbury Cottage Hospital, which has been offered to Bristol by Mr. Sholto V. Hare, in connection with the proposal to found a convalescent home for the medical institutions, is of an ornamental character. It is of the modernised Queen Anne style, built of Cattybrook brick, with rich freestone facings. The main entrance is under the clock tower, and leads into a commodious vestibule from which access is gained to the parish or clubroom. The staircase is elaborately carved. At right angles to this part of the building is the hospital, which consists of three sick wards for the accommodation of five patients, and the convalescent ward. All the rooms are fitted with the most modern appliances and teak seats. The rooms are lofty and well ventilated. The tower contains a double-faced clock, which chimes the hours and half-hours on fine bells. The building was erected according to the plans of Mr. C. E. Ponting, Diocesan Surveyor, of Marlborough.

**BROADCLYST.**—Attention has been called to the serious condition of the pinnacles of the tower of the parish church. In September last, during a gale, one was blown off, carrying away one of the grotesque gargoyles. The pinnacles have been examined by Mr. Harbottle, F.R.I.B.A., and he reports that all the eight need attention, and that one in particular is really dangerous, inasmuch as, if it fell, it would certainly pierce the roof of the church. The Church and a portion of the tower were erected about 1400, the tower being at a subsequent date completed to a height of 100ft. exclusive of the pinnacle.

**CARDIFF.**—A new school at Howard-gardens, Cardiff, was opened on the 3rd inst. The building is erected at the rear of the Cardiff School Board Offices, Howard-gardens, contiguous to the lecture theatre of the higher grade school, and is a block of buildings 117ft. long by 42ft. in width, and two storeys in height. The ground floor comprises two class-rooms, each accommodating fifty scholars, with cloak-room and lavatory accommodation conveniently situated. Upon the same floor is situated the gymnasium, and also a students' workshop. The first floor affords accommodation for two class-rooms, each accommodating fifty scholars, the rooms being divided by revolving wood shutters. The art class room is also situated upon this floor, and is well lighted, and there are also teachers' private rooms, store-rooms, cloak-

rooms, and lavatories. The buildings are constructed wholly of white pressed brick, relieved with red brick bands and arches, which harmonise with the adjacent buildings, and at the same time have a peculiarity of their own. The roofs are covered with green slates and red terra-cotta cresting. The floors throughout are constructed of concrete, with iron joists, covered with wood blocks. The buildings have been erected by Messrs William Thomas and Co., Cardiff, under the superintendence of the Architects, Messrs J. P. Jones, Richards, and Budgen, Cardiff.

**DONCASTER.**—The Doncaster District Council has decided to request the surveyor, Mr. Wood, to tender his resignation, owing to his failure to satisfactorily maintain the roads under his charge. At the meeting it was stated that the County Council had threatened to stop payments until the roads were put in repair, and that there were complaints from all parts of the district. The surveyor said he would not tender his resignation; he would take his discharge. Mr. Harrison gave notice that at the next meeting he will move that the surveyor receive three months' notice.

**DUNDEE.**—At a meeting of the Works Committee of Dundee Town Council on the 2nd inst., the plans, sections, and elevations of offices and warehouses for John Robertson and Son, Limited, on the lot of ground in Seagate recently feued from the Town Council, were submitted for approval. The matter was, however, deferred.

**GARSDALE.**—The Church in the parish of Garsdale is in such a sad state of repair that it is impossible to use it with comfort. Mr. J. F. Curwen, Architect, of Kendal, has examined the fabric, and reports that it is necessary to take down and rebuild the west end and belfry, re-slate the roof, rebuild the buttresses, reseat the church, and replace the plaster destroyed by the wet getting through the walls. The cost is estimated at about £500.

**HARROGATE.**—The new school erected at New Park, Harrogate, by the Harrogate School Board, has been formally opened by the Chairman of the Board. The building, which occupies a position on the south side of Skipton-road, has been erected at a cost of something like £6,000, from the designs of Mr. George Bland, Architect, of Harrogate. It includes five class-rooms, infants' room, and cookery-room; the whole being grouped round a central hall. Accommodation is provided for some 500 scholars, while the central hall will accommodate 300 adults for concerts and public meetings. The contractors are:—Henry Abbott, Harrogate, mason; George H. Carrick, Harrogate, joiner; Laycock Brothers, Harrogate, plasterers; J. Shepherd, Harrogate, slater; F. Barrand, Leeds, plumber; D. E. Hutton, Shipley, painter; J. Child, Harrogate, concreter; and Auty and Son, Leeds, iron-founders. The clerk of works has been Mr. G. Fletcher, of Harrogate.

**KEIGHLEY.**—The infectious diseases hospital at Morton Banks, built by the Keighley and Bingley Joint Hospital Board, was formally declared open on the 2nd inst. by the Chairman of the Board. The hospital is built on rising ground above the main road running between Keighley and Bingley, and is fitted up on the latest and most improved principles. The erections comprise an administrative block, an isolation block, with accommodation for six adult and two child patients; the scarlet fever block, large enough for twelve adults and twelve children; a block containing the laundry machinery and disinfecting apparatus, a mortuary, and a porter's lodge. Although internally, as everything is ready for use, the scheme is not yet by any means completed. The ultimate cost cannot be less than £21,000. The buildings have been erected from the plans of Messrs. J. Judson and Moore, Architects, of Keighley, and Mr. R. Armistead, of Bingley, has acted as the Surveyor to the Hospital Board.



**LANGLEY MILL.**—Mr. E. T. Hooley, of Risley Hall, opened a new Church school at Langley Mill a few days ago. The buildings, which are of a very substantial character, were erected by Mr. George Oldershaw, of Marpool, from the plans of Mr. John Holbrook. Accommodation has been provided for 200 infants, and the scheme has cost about £900 in carrying out. The buildings will be used both as day and Sunday schools. There are now no less than ten schools in the parish, and in enlargements and new buildings considerably over £6,000 has been expended during the past eleven years.

**LEWES.**—The new schools at Lewes constitute a solid and convenient block of buildings situate at the back of St. John's Terrace. There are two separate blocks, the largest being the boys and girls' school, which are under one roof, while the other is for the infants. Externally the new schools harmonise with the ancient character of the town, the style being early English, with red tiled roofs and a bell tower on the roof of the boys' school. The entrance to both schools is by stone porches, and immediately inside of the porches are provided cloak-rooms with every convenience. The accommodation for the girls comprises a room about fifty feet long by twenty wide, and also a class room. Both rooms are match-boarded all round to the height of about five feet, and the school furniture is of pitch pine. The most complete system of ventilation has been provided, and in such a way as to render draughts impossible. The class-room is heated by a large register grate, while the schoolroom is well heated by a large stove. The boys' school is divided from the girls' school by a glass door, and is of the same dimensions as the girls' school. It has also a class-room, and both are fitted with everything up-to-date in the way of school appliances. There is accommodation for about 200 boys and 200 girls. The infants' school is on the south-west side of the main entrance. The cost is estimated at £4,000.

**MATLOCK.**—Mr. Walter Holmes, a Matlock contractor, has commenced building a Church Institute and parish hall on a central site in Matlock Green, right in the middle of the populous district of Matlock, and the cost will not be far short of £2,000. The building will be of substantial local stone, with two storeys, and will contain a large hall on the first floor capable of seating 250 persons, a caretaker's house, billiard and other rooms, and lavatories. The building will measure 80ft. by 26ft., and the assembly room will be 62ft. long.

**MONMOUTH.**—The Monmouth Town Council has accepted the sureties of Messrs. Johnson Bros., Hereford, for £2500 for carrying out their portion of the drainage and electric lighting scheme, and the seal of the Council has been affixed to the contract. It has been decided to postpone the contract for constructing a delivery main between the pumping and purifying stations pending further information as to the septic process of purification.

**NEWPORT.**—Messrs. A. S. Morgan and Co.'s tender for the new Victoria Theatre is the lowest. It amounts to £8,500, but does not include the decorations or furnishing. The total cost is estimated to be £12,000. When completed, the new structure will be practically fire-proof in every way, and the work, when the contract is signed, will be commenced forthwith. Mr. Sprague, Arundel Street, Strand, is the Architect. The syndicate appears anxious to get the whole work completed for £9,000. Tenders for the work were privately sought for, but there were not many sent in.

**RAVENFIELD.**—The new pulpit and font of St. James's Church, Ravenfield, near Rotherham, were dedicated a few days ago. The restoration of this picturesquely situated building is now completed, the whole cost having been over £300. In addition to necessary repairs, etc., the church has been re-seated with pitch pine benches, a carved oak reredos erected, the

centre being filled with a valuable oil painting of the Spanish School, and the walls of the sacrum hung with curtains, the semi-dome above having a colouring of blue, studded with gold stars. In regard to the pulpit, it is of oak, with open panels of tracery, in keeping with the design of the choir stalls, and presents an exceedingly attractive appearance. The font is also of oak. It is octagonal in shape, and has carved panels. The restoration has been carried out from the designs and under the superintendence of Mr. E. Isle Hubbard, M.S.A., of Rotherham, by Mr. J. Wortley, of Rotherham.

**ST. HELENS.**—The proposed extensive alterations to the Central Post Office in Church-street, St. Helens, have just been commenced. The present premises have long been inadequate for the rapidly-increasing business, and the authorities some time ago acquired the adjoining site occupied by the wooden premises of the late Mr. Gee, confectioner. The site has been cleared, and the work of extending the Post Office will now be pushed rapidly forward. The principal alterations to be effected include a considerable extension of the general office for public business, and more satisfactory provision for the transaction of telegraph, postal and money order, and telephone business. A new office will be provided for the postmaster, and improved accommodation will be found for the letter-sorting branch of the office work. The alterations are being carried out by Messrs. Rothwell and Sons, builders and contractors, St. Helens, and will be completed in the course of the present year.

**ST. NICHOLAS.**—A rather elaborate village hall has been erected by Mr. John Cory, J.P., D.L., at a cost of £1,200, at St. Nicholas, on the main road to Cowbridge. Built of Duffryn stone, and covered with red Broseley tiles, the building consists of a hall capable of accommodating 250 persons. A retiring room is provided at the platform end, also a general coffee and reading room, with a private tea room, and a house for resident caretaker. The Architects are Messrs. Lansdowne and Griggs, Newport, and the builders, Messrs. Horton and Co., Chepstow.

**SHAP.**—At a meeting, held in the Board School, the committee appointed at a previous meeting submitted revised plans by Mr. Oliver, Carlisle, for the proposed alterations in the Church as follows: That an extension be made on the south side of the chancel, behind the vicarage pew, so as to take in the path to the south door, the addition being divided by arches from the chancel; and that the organ-chamber be built on the north side of the chancel. The enlargement on the south side will, it is expected, accommodate about seventy persons, chairs being recommended here. Re-flooring, re-roofing, new seats, new windows, heating apparatus, &c., will all be required; and the estimated cost of the whole is about £2000. The plans were adopted.

**SHEFFIELD.**—Under the auspices of the Sheffield Technical School, Mr. F. Boulden is to deliver a course of free lectures on Tuesday evenings in the Attercliffe Vestry Hall, on "The Mechanics of Engineering." The subject is divided under the following heads, each of which will form the basis of a lecture: Force—Effect of Combined Forces; the Mechanics of Pulleys—the Pulley-block and Lever; Transmission of Power; the Arithmetic of Wheel-gearing, Lifting Gear, &c.; Strength of Materials—Method of Testing; Strength of Boilers, Pipes, Riveted Joints, Fly-wheels; and Strength of Beams and Framed Structures.

**SWINDON.**—The new technical schools which have been erected in Victoria Road, Swindon, by the local Technical Committee, were recently opened by the Right Hon. Lord Herschell. The total cost of the school has been £12,000. The style adopted for the building—a phase of English Renaissance—was determined by the requirements of the lighting of the various

departments, and the necessity for strict economy being exercised, to enable a building affording such extensive accommodation to be erected within the limit of cost available. To secure this, the building has been kept free from ornament, with the exception of the enriched dressed stonework emphasizing the principal entrance and the centre gable, and a dignified effect has been obtained by depending entirely upon the proportion and grouping of the various parts. The building is constructed of local bricks with moulded brick cornices and string courses covered with Sedan small grey slates. The centre block is one room deep, with a wide corridor along the back leading to the projecting wing at each end. The building consists of three floors, all of which are lofty and well-lighted. The principal entrance is to the middle floor, and is approached by an embanked roadway and a broad flight of steps with wing walls. The building is designed in such a way as to admit of enlargement, by the extension of the two end wings. The accommodation provided is as follows: on the ground floor, class room for chemistry and physics, chemical and physical laboratory, store room, preparation room, and caretaker's apartments; middle floor, lecture room, class rooms, cookery rooms, master's room, and secretary's and porter's offices; upper floor (Art), life room, model and painting, drawing, machine drawing, geometrical drawing, &c., and master's room. The building is heated throughout by hot-water pipes from a boiler in the sub-basement, and special attention has been given to the ventilation. There was a very large attendance at the opening ceremony, over which Lord Edmond Fitzmaurice presided. Among those present were Lord Herschell, Lord Cork, Viscount Emlyn, Sir Nigel Kingscote, Mr. N. Story Maskelyne, Mr. A. Hopkinson, M.P., Mr. A. Hubbard and Major Dean.

**TEIGNMOUTH.**—A large and convenient hall at Teignmouth is regarded as absolutely necessary. A site has been secured in Station-road running back to Lower Brook-street, and the building is to be so constructed as to be capable of use for theatricals, bazaars, concerts, &c., with lobbies and cloak rooms and separate exits into each street. The length of the hall will be 92ft., and the width 43ft., with height to the roof of 36ft., and seating accommodation for 500 to 600 persons, so arranged that every person will command a view of the stage. Heating and ventilation will be well treated, and the lighting thoroughly gone into by the Architects, Messrs. Watson and Watson, of Torquay. The estimated cost for a substantial, though plain structure, with ornamental frontage, is £3000.

**WOLVERHAMPTON.**—The new Post Office which has been erected in Lichfield Street, Wolverhampton, at a cost of £17,000, is nearing completion, and will be opened by the Mayor about the beginning of March. The structure is a handsome one in the French Renaissance style, and the buildings cover about 1,704 square yards. Externally it is of red brick, with buff terra-cotta dressings. The principal frontage of the building is to Lichfield Street, and extends about 128ft. There is also a frontage to Princess Street, and the rear of the premises are in Berry Street. The offices are spacious, convenient, and comfortable, and, arranged on the best practical lines. Each section of the staff will have their kitchen, retiring rooms, and lavatories. The building will be lighted by electricity, and heated by the low-pressure hot water system. Mr. Henry Tanner, of the Board of Works, was the Architect, and Mr. Henry Crovalt, Wolverhampton, the builder.

Mr. J. GALLOWAY WEIR, M.P., has received an intimation from the First Commissioner of Works that arrangements have been made for the immediate repair of the ancient tapestries at Holyrood Palace.

SIR JOHN PULESTON, Constable of Carnarvon Castle, has offered to give a site, within the walls of Carnarvon Castle, for the offices of the University of Wales.



## SOCIETY MEETINGS.

**Leeds and Yorkshire Architectural Society.**—Under the title of "Two Methods of Architectural Practice and Design," Mr. W. H. Bidlake, M.A., of Birmingham, read a paper before the members of the Leeds and Yorkshire Architectural Society at the Leeds Mechanics' Institute on Tuesday, the 2nd inst. In the course of his paper he remarked that a variety of new forces, such as the introduction of machinery and the spread of the commercial spirit, had destroyed the old traditional method of building, and now we were in a state of flux. It would take some considerable time before anything like a single or definite aim once again actuated architects as a body, and it behoved them to consider how they could best bring about a more satisfactory state of things by eliminating thoughtless architecture, which was simply swayed by passing fashion, and, by being true to first principles, assisting the development of some general evolution towards a new style. In illustration of this point, Mr. Bidlake took two typical instances. On the one hand, the architect who merely satisfied the present thoughtless demand, although he might be perfectly conscious that the popular demand was not the right or the refined one; and on the other hand, the man who had convictions and principles, and who, instead of being willing to sacrifice these for his commission, endeavoured to modify public opinion, and so bring about a period of better taste. Mr. W. Watson, of Wakefield (president of the society), occupied the chair.

**Glasgow Institute of Architects.**—The usual quarterly general meeting of this institute was held in the rooms, 187, Pitt-street, on Thursday, the 28th ult., Mr John James Burnet, A.R.S.A., president, in the chair. It was reported that among other recent additions to the institute's library was the work by Taylor and Cresy on the "Antiquities of Ancient Rome," presented by Mr. David Thomson. The president referred to the fact that two of the members, Messrs. Honeyman and Leiper, formerly associates of the Royal Scottish Academy, had now been elevated to full membership. The secretary reported that the prize-drawings of the Royal Institute of British Architects would be on exhibition in the rooms of this institute during the two weeks commencing 12th April next. It was agreed to hold an informal dinner in the rooms on the 3rd March.

**Glasgow Architectural Association.**—On Tuesday the 2nd February the president, Mr Wm. Tait Conner, A.R.I.B.A., in the chair, Mr Wm. U. Muir read a paper on "Foundation." No part of a building, he said, was beneath the careful consideration of an architect. It was quite possible for an architect to be more interested in the decoration and beautifying of his building than in the study of the best means to secure its durability. The essayist described the best methods of securing foundations suited for different kinds of soil, which latter he divided into two classes, natural and artificial; or made-up. He stated that though concrete was undoubtedly the best material for foundations, good hard, well-burned brick was better than stone. Mr Muir described the different methods of piling. The paper was well illustrated with a number of diagrams.

On Jan. 26th, Professor E. J. Mills, of the Glasgow and West of Scotland Technical College, delivered an address, "On the Application of Photography to Architectural Measurement." He stated at the outset that the architectural capabilities of an ordinary camera, and consequently of an ordinary photographic print, were much greater than usually supposed. It was, however, necessary that the camera should be used with reasonable care, and especially that it should be (1) rigorously upright, and (2) parallel to the plane of a building whose reproduction was desired. A single measurement in the plane itself would then give a scale for any part of the resulting negative or print. But operations were greatly facilitated by the simple graduation of the ground glass into squares and their sub-divisions; thus enabling the observer to obtain the parallelism at once, as well as verticality, and to measure

also the height of an object's image. Professor Mills went on to explain how, by the aid of very simple mathematical formula, the height of a distant object, accessible or not, could be easily ascertained with a camera so provided. Among adjuncts to a measuring camera, a Groulier ball-and-socket support was shown for a half-plate camera, and a three-point screw support for a whole-plate camera. Professor Mills supports his lenses in rising and cross fronts, each provided with scales and venicles and screw motion, which he uses for obtaining very delicate measurements of the dimensions of images on the ground glass. The lenses he prefers are ordinary Goetz and wide-angle Zeiss rectilinears. It was shown that by following very easy rules, the plan of a photograph could be readily drawn; an illustration of this was exhibited. The lecture concluded with the exhibition of a number of architectural lantern slides, illustrating a variety of points referred to in the lecture.

**The Architectural Association of Ireland.**—The ordinary fortnightly meeting of this Association was held on the 2nd inst., at the Grosvenor Hotel, Dublin, Mr. R. Canefield Orpen in the chair. Mr. W. J. Fennell, M.R.I.A.I., Belfast, delivered an interesting lecture on the "Characteristics of Centaur Architecture Remains in the Counties of Down and Antrim." The lecture was illustrated by a large number of lantern slides. Mr. Thos. Drew, R.H.A., President R.I.A.I., moved a vote of thanks, which was seconded by Mr. A. I. McGloughton, and Mr. Walter Doohir. The president and others having spoken in appreciative terms of the value of Mr. Fennell's lecture, the proceedings terminated.

**Bradford Society of Architects and Surveyors.**—The annual meeting of this society was held on Friday, the 29th ult., at the Great Northern Victoria Hotel, the members present being Mr. James Ledingham, president; Mr. B. D. Fairbank, secretary and treasurer; and Messrs. Charles Gott, John Hindle, T. H. Healey, Charles France, Samuel Jackson, W. B. Woodhead, Wheeler Smith, C. H. Hargreaves, T. C. Hope, Richard Horsfall, R. Armistead, Rhodes Calvert, Brian Cowgill, James Young, W. H. H. Marten, Samuel Robinson, John Flew, Thomas Barker, C. E. Milnes, C. H. Gott, A. G. Adkin, John Drake, T. T. Empsall, J. H. Woodhead, Walter Jackson, Alfred Walker, Charles D. Collinson, and H. A. Johnson. Mr. W. B. Woodhead was elected president for the year, and Mr. Fairbank was re-elected secretary and treasurer. After the election of the Council the annual dinner was held. Mr. Gordon ably proposed "Prosperity to the Bradford Society of Architects and Surveyors," and Mr. Charles Gott responded. Six new members have been elected this year, and the health of these was proposed in a characteristic speech by Mr. France. "The Town and Trade of Bradford" was given by Mr. Hope, and Mr. John Maddocks, who responded, dwelt on the state of trade and the outlook for the future. "Our Visitors" was proposed by the president, and "Our Municipal Authorities" by Mr. Hargreaves. Both these toasts were acknowledged by the Town Clerk in interesting speeches. The other toasts were "The President Elect," submitted by Mr. Jackson; "The Retiring President," by Mr. Healey; and "The Secretary," by Mr. Wheeler Smith.

**Society of Engineers.**—The first ordinary meeting of the Society of Engineers for the present year was held on Monday evening, the 1st February, at the Royal United Service Institution, Whitehall. Mr. Samuel Herbert Cox, the President for 1896, occupied the chair, and presented the premiums awarded for papers read during that year, viz.:—The President's Gold Medal to Mr. George Thudichum for his paper on "The Ultimate Purification of Sewage;" the "Bessemer Premium" to Mr. H. B. Butler for his paper on "The Effect of Admixtures of Kentish Ragstone, &c., upon Portland Cement;" the "Rawlinson Premium" to Mr. W. G. Wales for his paper on "Discharging and Storing Grain;" and a "Society Premium" to Mr. M. A. Pollard-Urquhart for his paper on "Examples of Railway Bridges for Branch Lines." Mr. George Maxwell Lawford, the new president, after

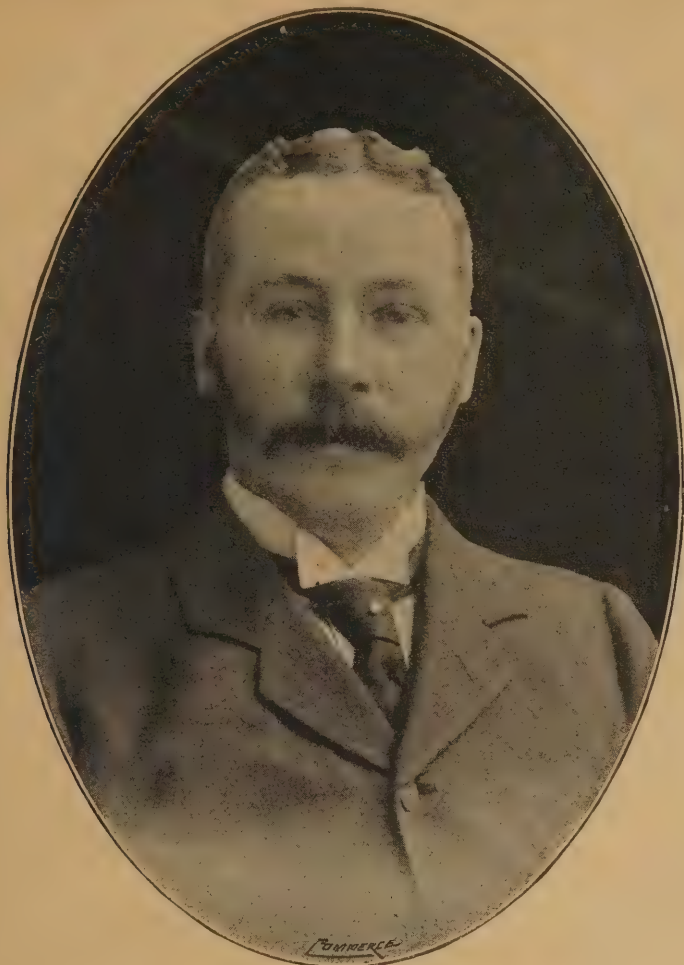
briefly reviewing the work of the Society during the past year, drew attention to the steady reduction in the general death-rate of this country during the last fifty years and the comparative freedom from zymotic diseases, both of which were attributed to the progress of sanitary science and the impetus given to the practice and study of hygiene by the Public Health and River Pollution Prevention Acts. The provision of pure water and efficient drainage was the duty of the engineer, and on these two subjects, which are of such vital importance to all communities, the president based his address.

**Auctioneers' Institute.**—The third meeting of the session of the Auctioneers' Institute of the United Kingdom was held in the lecture hall, Chancery Lane, when a paper was read by Professor Bannister Fletcher upon "The Practice of Compensations." Professor Fletcher dealt with the mistakes which he ventured to think were sometimes made in the matter of compensation. Dealing with the deduction of ground-rent, he said that some surveyors seemed to think that ground-rent should be capitalised in making valuation. He showed the fallacy of this by an example:—If the ground rent was to be capitalised, why should not rates, taxes, and other out-goings? The common-sense view was that the income derived after all deductions was the income to be capitalised. In the matter of valuation of property to be surrendered, he argued that if a man's income was to be taken from him, he should not be compensated on some fanciful basis, but given such a sum of money which, re-invested in the same class of security, would yield him the same income. This surely was the basis of valuations and compensations. The lecturer illustrated his point by several examples of properties held at different ground-rents—one at £100, the other at £50. Capitalised on the principle he advocated, each property, he said, would give the same capital value. The greatest difficulty in compensation was when only a part of an estate or property was taken. A case in point was the widening the road at Streatham. Courtesy should be well recognised, and gentlemanly rules of conduct should guide all in a public position. He was told that one of the leading boards in London required its surveyor to interview tenants and lessees who had made claims against the board, and after they had placed the claim in the hands of their surveyor, had by threats of the costs of an action, and that the board would not pay any surveyors, induced them to settle. This he was told by one of their leading members. Again, the board's surveyor would not serve notice to treat, but endeavoured to force the freeholder, lessee, tenant, or their surveyors to come to terms without; and if at last he could not arrive at a price he wanted to purchase at, he would try and buy some other property, thus putting people to much unnecessary trouble and expense. The question might fairly be asked: Was this the proper course to pursue? Of course the surveyor might urge that he was compelled to carry out the instructions of his board, but should the board impose such unprofessional work on its paid officer?

**The Institution of Civil Engineers.**—At the ordinary meeting on Tuesday, the 2nd inst., Mr. J. Wolfe Barry in the chair, it was announced that seven associate members had been transferred to the class of members, viz.:—Messrs. Robert West Holmes, Albert James Humby, Robert Bridges Molesworth, M.A. (Cantab.), John Mitchell Moncrieff, Howard Devenish Pearsall, Percy Crosland Tempest, and Beresford Graham Wallis; and that 17 candidates had been admitted as students. The monthly ballot resulted in the election of five members and 36 associate members. It was announced that on Tuesday, February 9th, at 8 p.m., a paper would be read with a view to discussion on "Cold Storage at the London and India Docks," by Mr. H. F. Donaldson, and on Friday, February 12th, at 8 p.m., a paper on "Cooling Reservoirs for Condensing Engines," by Mr. Harold W. Barker, Stud. Inst. C.E.

A NEW pavilion is to be erected on Eastbourne Pier, at an estimated cost of £4,000.





the Stratford firm. The secret lies in the men. Mr. Marten looks what he is—a success. Always cool and clear-headed, courteous, concise in opinion, prompt in decision, Mr. Marten may serve for a typical man of affairs. The business is complex enough in all conscience, but that fact does not appear to trouble its proprietor. He knows all about it, as you may quickly discover by conversing with him. In nothing has Mr. Marten exhibited his capacity, as head of a great business, more notably than in his choice of a right-hand man. We maintain that no man can be a distinctly successful controller of vast interests unless there is given to him the faculty of insight and the intuitive judgment which enables him to select fitting collaborateurs. In Mr. E. M. Edwards, the general manager to the firm, Mr. Marten has a fellow-worker worthy of himself. Mr. Edwards has practically spent his business life with the same firm. He has watched its early growth, and aided in fostering its youthful energies, until he has to-day the satisfaction of seeing it in full vigour of life and prosperity. The manager is, in many ways, not unlike the master, equally prompt and business-like, equally courteous and kindly. Like all very busy men of our acquaintance, he seems to have time for a pleasant word amid however great distractions. We do not need to seek further in our neighbourly curiosity as to the secret which underlies the manifest good fortune of this firm. Principal and manager convey the same elucidation. They are men with clear heads and sound hearts, and well-served because they treat their fellow-workers with equal justice and courtesy, well trusted because they have made wide friendships, both personal and business, through years of untiring energy and unflinching rectitude.

THE Government Laboratory now in course of construction at Clement's Inn, Strand, will be ready for occupation in July. The new building is to cost £23,900.

#### FAMOUS FIRMS.

MESSRS. YOUNG AND MARTEN, OF STRATFORD-LE-BOW.

AMONG the many builders' merchants of the day, few are more widely known than the firm of Young and Marten, of Stratford-le-Bow. They are a characteristic product of the time—visible reamplifications of that industrial energy and commercial capacity which we have claimed as among the many qualities of our countrymen. From a quite ordinary little suburban business there has grown into vigorous vitality a vast and complete commercial organism. Beginning with a single shop, whose area was calculable in feet, Young and Marten have extended their business until the dimensions of their various premises are denoted no longer in feet, but in acres. We do not propose to drag our readers over these acres, for they would be wearied before we had told a tithe of the contents, and so should we. It is, we repeat, the personal equation that appeals to us. What manner of men are these who have gained such sure success, and how has it been done. Young and Marten's catalogue can tell us all about the multifarious contents of their warehouses—but we prefer the men to the merchandise at present. Mr. William Young appears to have founded the business some four-and-twenty years ago, in a quiet and modest way. For eight years things developed gradually, the connection steadily growing, and premises being added to now and again. Then came the year 1880 and with it Mr. H. H. Marten. Mr. Young knew his partner's energy, but little thought how far that energy would carry the then unassuming business in Broadway. For two years the partnership continued, when death dissolved it, and Mr. Marten took up the reins as sole proprietor of the concern. We have wandered in and out of the Stratford offices not a few times; have had more than one pleasantly inquisitorial chat with the guiding spirits of the place, and have long ceased to wonder at the success of





## SOCIETY MEETINGS.

**The Edinburgh Architectural Society.**

—At a meeting of this Society held in Dowell's Hall on Wednesday, the 3rd inst., Mr. W. H. Cumming, A.R.I.B.A., vice president in the chair, a lecture was delivered by Mr. Vallance, Curator of the Edinburgh Museum of Science and Art, on "Preconquest Stone Carving in Northumbria," illustrated by limelight views. On the motion of Mr. John Murray the lecturer was accorded a vote of thanks.

**The Dublin Master Builders' Association.**—The annual meeting of the Master Builders' Association was held at the Grosvenor Hotel, Westland-row, when there was a large attendance of members. The chair was occupied by the president, Alderman the Right Hon. Joseph M. Meade, re-elected; hon. secretary, John Good, re-elected; hon. treasurer, James Kiernan, re-elected; committee, James Beckett, Samuel H. Bolton, J.P., James Conolly, James Martin, Thomas Mackey, John Pemberton, Henry Sharpe, J.P., Alderman R. Toole.

**Middlesbrough and District Association of Foremen Engineers and Draughtsmen.**—The members of the Middlesbrough and District Association of Foremen Engineers and Draughtsmen recently held their twenty-seventh annual dinner at the Corporation Hotel. The secretary made a statement as to the position of the association during the past year. He said their total income for the past year was £165, and the total expenditure £127. The expenditure seemed rather heavy, but owing to several of the engineering industries being idle for repairs and alterations, several of their members were placed in the position of having to apply to the association for its benefits, and the sum of £37 had been expended in the out-of-work fund. Leaving out the out-of-work fund, their ordinary fund had increased £54 14s. 11d., while the out-of-work fund had decreased £16 4s. 5d. Their membership during the year had increased, but not so largely as in 1895. In 1895 they elected thirty-two members, while last year they elected fifteen, and he regretted to say that against that fifteen there were for various reasons eleven resignations. During the year there had been a total increase in the funds of the association of £38 10s., as against an increase in the previous year of £42 17s. In conclusion he urged them all to do their best for the association, as its success and usefulness did not depend upon the work of the active officials.

**Plymouth Master Builders' Association.**—The President (Mr. R. G. Jenkin) presided at the annual banquet of the Plymouth, Stonehouse, Devonport, and neighbourhood Master Builders' Association, held at the Royal Hotel, Devonport, on the 3rd inst. Mr. Sowerby gave the toast of "Success to the Master Builders' Association and the Building Trade." Mr. E. Pile replied on behalf of Devonport. Mr. H. Kerswill and Mr. Turpin also acknowledged the toast, and pointed out that it was only by combination and standing shoulder to shoulder, as the men did—(hear, hear)—that they would secure success. He hoped the master builders would come out victorious.

The detailed plans for the construction of a new dock by the Llanelly Harbour Commissioners are now completed, and have been submitted to the consulting engineer, Sir Alexander Rendel. In a short time everything will be ready for giving out the contract, and the commissioners are discussing the best means for raising the necessary money. The boring operations, which have been made on the site of the dock, have been most successful, and results more favourable than had been anticipated.

## Correspondence.

## DECORATIVE PLASTER WORK.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I notice on p. 371 of your issue of January 20th an illustration of a plaster ceiling for a house at Bournemouth, "designed by E. P. Warren." Let anyone compare this with the ceiling in house at Cullompton (1605), illustrated on p. 14 of "Gothic Architecture of the Renaissance in England," and they will at once see that Mr. Warren's design is an exact copy of that ceiling. The modelled foliage is also almost exactly like that illustrated on plate 73 of the same work. This is either a remarkable coincidence or I fail to see how Mr. Warren can claim to have designed the ceiling.

Yours truly,

H. GARNHAM WATKINS.

February 2nd, 1897.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I don't know the ceiling Mr. Watkins refers to, but the ceiling you illustrated was not a copy of anything I have seen. Its lines may be nearly upon the same plan—a semi-geometrical type, not uncommon in 16th and early 17th century work. It was, with all its ornaments, freely modelled for me by Mr. Turner from a small scale sketch and details, very roughly scribbled full size during a hurried visit to the workshop. The ceiling forms part of the decoration of a room not of my design, and a somewhat archaic type, more so than I like myself, was suggested by surroundings. There was, however, no conscious copying of any old example.

Yours faithfully,

E. P. WARREN.

February 4th, 1897.

A NEW wing to the Mayplace Reformatory School, Old Swan, has just been opened.

The fund for the new Queen Victoria Jubilee Hospital in Belfast now exceeds £60,000.

It is reported that the re-building of Winchester Barracks is likely to be commenced in March.

The Local Government Board has sanctioned the borrowing of an additional £9,900 for electric lighting purposes at Croydon.

Strong opposition will be made to the Bill seeking powers to construct an overhead electric railway from Paddington to Willesden.

The shareholders of the Howe Bridge Cotton Spinning Company, Atherton, have decided to erect a fourth mill, with 60,000 spindles. The mill is expected to cost about £80,000.

MISS ELIZABETH HOLROYD has presented a drinking fountain to Starbeck, and has endowed it with £100, the trusteeship of the charity to be vested in the Starbeck Parish Council.

A TRAMWAY to the Pyramids is the latest anachronism. The Cairo Tramways Company is to make it, and the last home of the Pharaohs will soon be accessible from its own metropolitan base.

The opening of the Rustington Convalescent Home at Littlehampton has been fixed for Saturday, March 20th. The total cost of the building will be £50,000, in addition to £20,000 for its endowment.

PETERHEAD harbour is to cost much more than was estimated. The original estimate was £737,520. This has now been increased by the substantial sum of £160,000, making a revised estimate of £897,520.

The Manchester, Sheffield, and Lincolnshire Railway Company's canal has burst its banks between Bollington and Macclesfield. A large gap about a dozen yards square was made in its banks near to Clough Farm, through which the water made its way with terrific force.

ONE of the sections of the forthcoming Victorian Exhibition at Earl's Court is to be devoted to an exposition of women's work, and in this section is to be an Art gallery some 1300ft. long, which will be filled with the productions of women artists of the Victorian Era. This department of feminine Fine Arts is to be under the control of Miss Henrietta Rae.

## Announcements.

## Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

## Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayments.

## Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eightpence.

Three Insertions for the price of Two. Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

## Editorial and Publishing Offices:

Effingham House, Arundel St.,  
Strand, W.C.

## Trade and Craft.

MESSES. JOHN KING, LIMITED.

Considerable improvements have of late years been made in the methods of warming and ventilation of buildings, but hitherto it has not occurred to anyone to set forth a dual system. A new system of combined warming and ventilation has now been introduced, however, by Messrs. John King, Limited, Engineers, Liverpool, which has met with great success. Their system possesses the advantage of continually providing a large volume of fresh air, and in the winter time warming the fresh air as it enters the building. But the novelty of this arrangement is that it is carried out without extra cost for hot air ducts, or shafts, or hot air flues in the floors and walls of the building, and without having recourse to air propellers and engines. The heating surface, or heating power, is not buried in underground chambers, tunnels, or shafts; therefore, the cost of installing King's combined system is less than other systems hitherto used for warming the fresh air necessary for ventilation. Several patents have necessarily been associated with this dual service, and Messrs. King's "Tabular" design is, perhaps, the most noticeable, differing as it does from previous inventions. The point that strikes one as being specially noteworthy is the arrangement by which the four exhaust tubes are made independent of one another. The air passages are so formed and reciprocally arranged that the air must pass, but cannot enter the extract tubes. The appliances have already met with favour both at home and abroad. The railway companies have also employed this company largely warming and ventilating their station buildings, offices, etc.; also for warming the dining and sleeping saloons and railway carriages. For the warming and ventilation of these latter, Messrs. John King, Limited, have special appliances, and at the present time have in hand carriages for all the purposes of the newest and latest improved methods of railway locomotion, and have lately completed the directors' saloon of the L. & N.W. Railway. For one of these railway companies they have fitted up over twenty-five miles of piping for warming purposes.

## A ROAD-PAVING DISPUTE.

Mr. Justice Stirling gave judgment last week in the case of the Mayor and Corporation of West Hartlepool v. Robinson. The Corpora-



tion claimed £27 6s. 6d. and £328 3s. 4d. in respect of the paving and sewerage of two streets. It appeared that in 1878 the defendant was the owner of land forming part of the Lynnfield estate, until quite recently occupied by him for residential purposes. The owners of the adjoining land on the south were Messrs. Callender, Pape, and Wright, who, desirous of developing their property, applied to the West Hartlepool Improvement Commissioners to sanction a scheme for building purposes. A plan was submitted showing a proposed road 36 ft. wide, half on the land of the applicants and half on that of the defendant. The Commissioners sanctioned the proposed scheme, and a road was made, called the Sandringham Road, but in the first instance only 18 ft. wide, there being an agreement between the defendant and the Commissioners that he would thereafter contribute sufficient land on the north to give a street 36 ft. wide. In January, 1892, the Corporation ordered the paving and sewerage of the roads in question, being 18 ft. wide. None of the owners having, after notice, executed any part of the works, the Corporation proceeded to do them themselves. The cost of the works was then apportioned by the Borough Surveyor, and the amounts already mentioned were charged to the defendant, who refused to pay. It appeared that the defendant had afterwards thrown the agreed portion of his land into the road, making it 36 ft. wide, and that he had done the paving for that portion of the road, the claim now made being for the apportioned cost of making up the 18 ft. of road, which was not upon his land at all. The defence was that the order of the Corporation was inoperative against him, as he could not obey it without trespassing on land which did not belong to him. Mr. Justice Stirling, in giving judgment for the plaintiffs, said that the Act of Parliament imposed on persons whose lands abutted on a street certain duties, for the discharge of which they must enter on the street, and those duties were imposed irrespective of the circumstances, whether those persons were or were not owners of the soil of the street.

## THE GOVERNMENT AND FILE CONTRACTS.

A correspondent to the *Ironmonger* of last week writes as follows: "A discussion of a rather warm nature has been going on in the columns of the local Press on the subject of file contracts. The cause was a contract form issued on June 9th last year from the India Office, in which these words occur: 'The whole of the files are to be made of the best refined cast steel, machine-cut, sand-blasted, by the process of Messrs. Tilghman.' A deputation representing the Filecutters' Union waited upon the Right Hon. A. J. Mundella, M.P., on the subject, with the result that that gentleman promised to bring the matter before the officials more immediately concerned, with a view to obtaining a remedy. The statement of the workmen's deputation has since been contradicted; but our representative has himself seen the specifications of the India Office which contain the clause quoted above. They are remarkable as showing that in the space of twelve months the opinion of the officials had veered round from one extreme to the other. A very few months back a soft summer wind was fanning the hand-cutters, now they are assailed with the keenest and most bitter of trade winds. Both sets of specifications entailed hardship upon the file manufacturers and workmen. Some one at the head of the India Office has blundered in one respect. But where, it is asked, can be obtained machine-cut files of the smallest types? Such files have never yet made their appearance in Sheffield. Such a specification as that which was issued from the India Office in June cannot be executed. The matter has been remedied in later specifications, and, so far as can be ascertained, there is now no injustice to any of the parties affected."

## S. E. RAILWAY EXTENSION.

The South-Eastern Railway Company has deposited in the Private Bill Office of the House of Commons an estimate of the capital expenditure which will have to be incurred in the event of their Bill of the present Session

receiving the sanction of Parliament. The total expenditure required is £782,826, of which the proposed relief railway, 1½ mile in length, commencing with the company's railway at Horselydown and passing through Bermondsey and Rotherhithe to a junction with their railway at Deptford, is estimated to cost no less than £438,194. With the exception of £9283, which will be expended upon widenings at Tonbridge, the whole of the balance of £335,349 will be spent upon widenings between Charing Cross, Waterloo, and Cannon Street; and between London Bridge, Bermondsey, and Deptford.

## LOCAL GOVERNMENT ANNUAL, 1897.

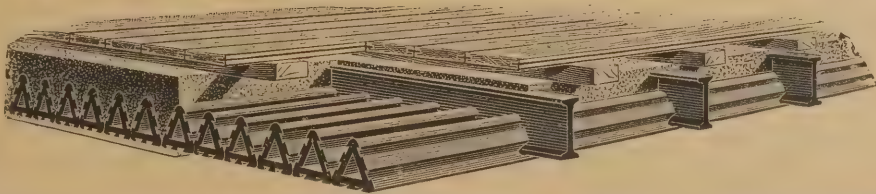
Dorset House has issued a new edition of the Local Government Annual. This is the sixth year of a most useful publication, and Mr. Edgcombe Rogers has signalled the occasion by several careful additions to its former excellencies. The Rural District Councils now appear in alphabetical order, and the name of the local surveyor is given in each case. The same classification is applied to the County Boroughs and Sanitary Authorities. A new feature of practical value is afforded by the insertions of abstracts of the various Acts of Parliament relating to Local Government matters which have been placed on the Statute Book during the past year. The Annual exhibits an improvement also in its outward seeming, being printed in new type, and on a paper of sufficient quality.

## "NO MAN'S LAND."

Before the Croydon County magistrates, Captain Robert William Crow, of Stanley Road, Carsharlington, was summoned by the Carsharlington Urban District Council for allowing a nuisance to exist on certain premises of which he was the owner, viz., "Lyndon," Stanley Road. William Gale, the sanitary inspector for Carsharlington, said the general drainage was very bad indeed. The roof of the house itself was also very leaky and exceedingly filthy, the plaster dropping off the ceilings and the paper

# HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders.

## CONSTRUCTIONAL STEEL AND IRONWORK.

GRANITIC STEPS AND PAVING, ASPHALTE, &c.

## HOMAN & RODGERS, ENGINEERS,

LONDON Offices: 17, GRACECHURCH STREET, E.C.  
Works: RATCLIFF, E.

MANCHESTER

Offices: 10, MARSDEN STREET.  
Works: WEST GORTON.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.

## ECONOMY IN BUILDING.



# B. WARD & CO.,

15, Gt. George St., London, S.W.

And at CARDIFF, etc.

PATENT STABLE PAVING.  
PAVING.

FIREPROOF STAIRCASES.  
ARTIFICIAL STONWORKS.  
FIREPROOF FLOORS.

WOOD BLOCK AND MOSAIC PAVING.

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved, and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, or other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others.



coming off the walls from damp. The house was situated in a part of Carshalton known as "New Jerusalem." There were eleven persons living in the house. Mr Dennis (for the defendant): It is a sort of "No Man's Land," isn't it? Witness: I do not know. Mr Dennis: Do any of them pay any rent? Witness said he did not know. Mr Dennis said the tenant had been living in the house two years without paying a farthing rent. There were about 100 houses there and he did not suppose that two per cent. of them were inhabited. There were no windows, no doors, and no roofs, so what they wanted more ventilation for he did not know. The Bench made an order for the premises to be closed within fourteen days, and to remain so until they were made fit for human habitation, the defendant paying £1 costs.

### CONTRACTS OPEN.

**THE VESTRY of the PARISH of ST. MARY, BATTERSEA.**

TO CONTRACTORS AND OTHERS.

The Vestry of the Parish of St. Mary, Battersea, are prepared to receive TENDERS for the several WORKS and SERVICES, and for the SUPPLY of ARTICLES and MATERIALS as undermentioned, for One, Two, or Three Years, at the option of the Vestry, from the 26th March next:—

Horse Hire, (Road Cleansing, Watering, &c.).  
Circular Bass Brooms for Sweeping Machines.  
Scavengers' Bass Brooms.  
Oils, Soaps, &c.  
Coal and Coke.  
Disinfectants.  
Bricks, Cement, Lime, Slates, &c.  
Gravel and Flints.  
Ironmongery, &c.  
Paints, Oils, &c.  
Special Paints.  
Side Entrance Covers, &c.  
Stoneware Pipes, &c.  
Street Lamp Columns, &c.

Timber and other materials for Carpenters' and Joiners' Work.  
Timber and other materials for Wheelwrights' Work.

Tools, &c.  
Unloading Barges.  
York Paving, &c.  
Iron Bars, &c., for Blacksmiths' Work.  
Horse Hire (Removal of Dust).

Also for the SUPPLY of GUERNSEY and ALDERNEY GRANITE, CORNISH and ENDERBY or NARBOROUGH STONE, the REMOVAL of ROAD GRIT, SLOP, and SWEEPINGS by BARGE or TRUCK, the REMOVAL of MANURE, the REMOVAL of CLINKERS, FINE ASH, FLUE DUST, &c., from the Dust Depot, and SHOEING HORSES for One Year.

Samples of the Granite and Stone (one-third of a yard) and Scavengers' Bass Brooms must be delivered at the Municipal-buildings, Lavender Hill, before FOUR o'clock on WEDNESDAY, the 10th FEBRUARY, at the cost of the persons Tendering.

Specifications and forms of Tender and further particulars may be obtained of the Surveyor to the Vestry, Mr J. T. PILDITCH, at the Municipal-buildings, on and after MONDAY next, the 1st FEBRUARY, between the hours of TEN a.m. and FOUR p.m. (Saturdays between TEN a.m. and ONE p.m.), and no Tender will be considered unless the same be made upon the official form, and samples are forwarded as required.

Tenders, which must be in separate envelopes, sealed, and marked on the outside, "Tender for ——" must be delivered to me at the Municipal-buildings before FOUR o'clock on WEDNESDAY, FEBRUARY 10th, and, with the exception of the Tenders for oils, soaps, &c., paints, &c., the removal of manure and shoeing horses, must contain the names and addresses of two responsible persons who are willing to join the contractor in a Contract for the due execution of the same.

All Contracts will be prepared by and at the expense of the Vestry.

Persons Tendering will be required to declare in their Tender that they pay the Trade Union rate of wages, and must append to the Tender a schedule of the wages paid to the various classes of workmen employed by them at the time of Tendering.

The Vestry do not bind themselves to accept the lowest or any Tender.

By Order,

W. MARCUS WILKINS,

Vestry Clerk.

Municipal-buildings,  
Lavender-hill, S.W.  
January 26th, 1897.

### SHEFFIELD UNITED GAS LIGHT COMPANY.

RETORT HOUSE AND COAL STORES.

TO BUILDERS AND CONTRACTORS.  
The Directors of this Company invite TENDERS for the ERECTION of RETORT HOUSE, COAL STORES, &c., including foundations and drainage work in connection therewith at their Grimesthorpe Station.

The main buildings are 351ft. long by 146ft. wide, and 44ft. high to eaves, and the foundations and drainage will comprise some 7500 cubic yards of excavation, 3400 cubic yards of cement concrete, 1100ft. run of 18in. brick barrel drain, &c.

Drawings and specifications may be seen, and bill of quantities, with form of Tender, obtained on application to the Engineer, Mr. FLETCHER W. STEVENSON, on payment of One Guinea, which will be returned on receipt of a bona-fide Tender. Sealed Tenders, endorsed "Tender for Retort House," must be delivered by post to the undersigned, at the Company's Offices, not later than the first post on SATURDAY, the 27th inst.

The Directors do not bind themselves to accept the lowest or any Tender.

HANBURY THOMAS,

General Manager and Secretary.

Commercial-street,  
Sheffield,  
February 2nd, 1897.

### TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be a caption unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN (N.B.).—For laying granite causeway, Rosemount Viaduct, for the Town Council. Mr. Wm. Dyack, Burgh Surveyor, Town House, Aberdeen:—

Causewaying Rosemount Viaduct. £1,108 11 4

P. Tawse, Birchfield, Kenney Macadamising Rosefield-road. 134 3 0

James Leith, jun., 17, Elmfield Avenue Causewaying Union-terrace. 1,026 6 8

P. Tawse, Birchfield, Kenney Macadamising Balmoral-place, (extension). 29 10 6½

James Fyfe, Westburn, Union-grove [All of Aberdeen.]

ALNWICK.—For the execution of sewerage works, Barneyside, near Alnwick Castle, for the Urban District Council. Mr. Geoffrey Wilson, C.E., Town Surveyor, District Council Offices, Green Bat. Quantities by Town Surveyor (in specification):—  
W. Thompson, jun., £275 R. Hudson, Alnwick and  
D. Tait, 250 Sunderland\* £201  
\* Accepted.

## J. J. ETRIDGE, JR.

SLATE MERCHANT,  
SLATER AND TILER.

ESTIMATES GIVEN FOR

## SLATING AND TILING,

To be Executed by Contract in any part of ENGLAND.

## Penrhyn=Bangor, Oakeley=Portmadoc

And other descriptions of Slates ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to

BETHNAL GREEN SLATE WORKS,  
Bethnal Green, London, E.

## THE BATH STONE FIRMS LTD.

BATH,

FOR ALL THE  
PROVED KINDS OF BATH STONE.  
FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,  
48, HAMMERSMITH ROAD, W.

**IRON FENCING.**  
BAYLISS, JONES  
AND BAYLISS.  
WOLVERHAMPTON.  
LONDON SHOW ROOMS: 113 & 111 CANNON STREET.  
CATALOGUES FREE.



## THOMAS ADAMS & SONS LTD.,

Dry Oak, Mahogany & Teak, Red & Pine Deals, &c.

Large Stock of Floorings and Match Boardings.

BLOCK FLOORING A SPECIALITY.

TIMBER YARDS AND SAW MILLS—

CRESCENT WHARF, CAMBRIDGE STREET, BIRMINGHAM.

Depôt for Bricks, Slates, and Building Material,

BREWERY WHARF, CAMBRIDGE STREET.

FOR PLUMBING, Telephone No. 77 (Hop).

SANITARY AND  
DRAINAGE GOODS.

Builders' Ironmongery, &c.



DO  
YOU

WANT

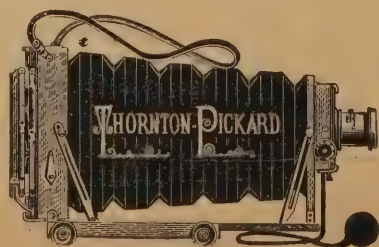
TO BUY

RIGHT?

**GEORGE HYDE & CO**

173 & 175, KENNINGTON CROSS,  
LONDON, S.E.

DO  
YOU WANT  
SPEEDY  
DELIVERY?



THE  
THORNTON-PICKARD  
SIMPLEST AND BEST.

CAMERAS AND  
SHUTTERS.

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.

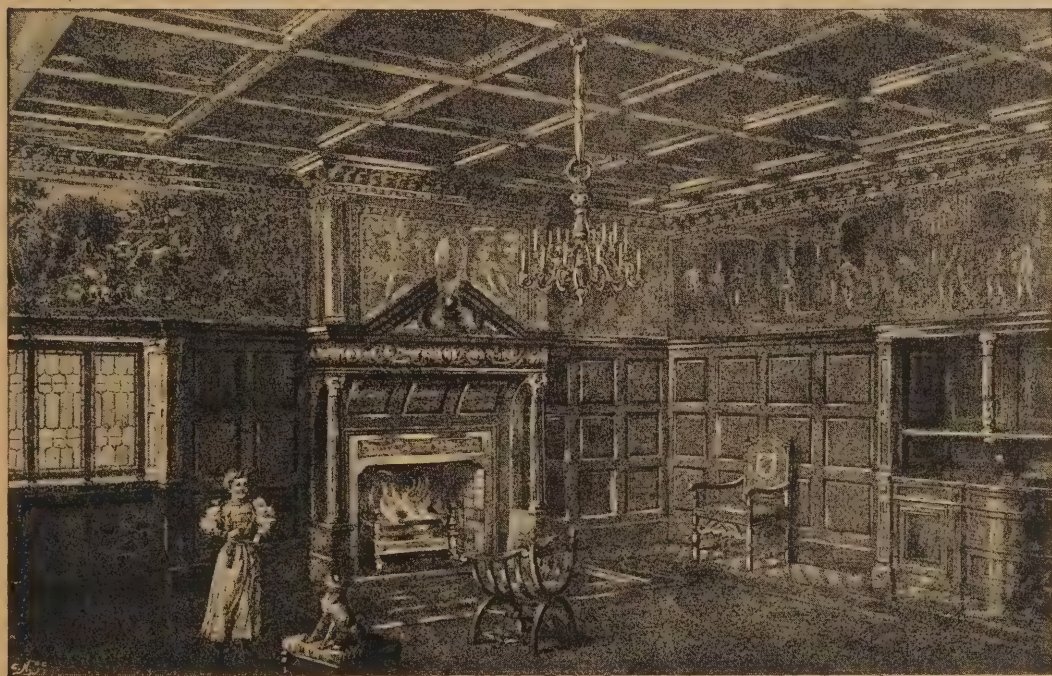




# Waring's

## DECORATORS and

## UPHOLSTERERS.



SCHEMES and ESTIMATES for every class of Furnishing and Decorating Free of Charge.

NEW CATALOGUE JUST PUBLISHED OF

**MANTELS, GRATES, PANELLING  
PARQUETRY, INTERIOR JOINERY, &c.**

*Write for this to*

**181, Oxford Street, London, W.**



**ALTON.**—Accepted for extensions to the iron buildings, The Abbey, Alton, for the Rev. Father C. P. Hopkins:—  
W. Harbrow ... £704 12 0  
**BACUP (Lancs.)**—For the execution of sewerage works, Brandwood-road, &c., for the Corporation. Mr. John Wilson, C.E., Borough Surveyor, Bacup:—  
Enoch Tempest ... £2,622  
J. Sharpley and Co., Accrington (accepted) ... 2,018  
**BOSTON (Lincolnshire).**—For the erection of a shop with a house in Bargate, for Mr. W. H. Robinson. Mr. James Rowell, architect, Borough Offices, Boston:—  
Jno. Lucas ... £572 0  
H. Hinds ... 570 0  
Hill and Son and Pin-der and Son ... 555 0  
W. Greenfield ... £540 0  
H. W. Parker ... 490 10  
S. Sherwin\* ... 495 0  
\* Accepted.

**BROUGHTON ASTLEY.**—For the erection of hosiery factory, boiler-house, cooling-tank, at Broughton Astley, Leicestershire. Mr. T. S. Gordon, architect, Welford-place, Leicester:—

C. Wright ... £3,774  
T. Richardson and Son ... 3,444  
H. Bland ... 3,340  
Hardington and Elliott ... £3,331  
J. O. Jewsbury ... 3,279  
Haycock and Son ... 3,166  
**CONWAY.**—For water-main extension (Sarn Mynach to Llysfaen), for the Conway and Colwyn Bay Joint Water Supply Board. Mr. T. B. Farrington, Engineer, Municipal Offices, Conway:—

Parry, Jones, and Co. ... £11,750 0 0  
Owen Morris ... 9,667 0 0  
J. E. Ewart ... 9,537 10 0  
Hy. Roberts ... 9,132 15 0  
Winard and Western ... 9,074 0 0  
Galt and Farquharson ... 8,948 0 0  
Geo. Bevan ... 8,940 0 0  
Geo. Bugbird ... 8,910 0 0  
Jacob Biggs ... £8,875 0 0  
John Jowett ... 8,827 15 3  
John Roberts ... 8,591 14 10  
Jones and Sons ... 8,479 10 0  
Evan Evans and Co. ... 8,375 0 0  
Jones and Sons ... 8,367 17 6  
Geo. Law ... 8,177 0 0  
Alfred Sheffield ... 7,995 0 0  
Rhyl (accepted) ... 7,995 0 0

**CUPAR (Fife, N.B.).**—For the execution of drainage works, Upper and Lower Largo, for the St. Andrew's District Committee. Mr. Henry Bruce, C.E., County Buildings, Cupar, Fife. Quantities by Engineer:—

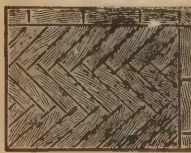
Wm. Pollock ... £3,610 14 11  
T. & S. Crawford ... 2,977 16 7  
James Kirk ... 2,954 6 6  
Chas. McAndrew ... 2,673 10 6  
David White ... 2,638 16 5  
Jas. Strachan and Son ... 2,599 4 8  
John Morris and Sons ... 2,582 8 0  
David Gilmour ... £2,528 7 8  
John Martin ... 2,473 6 0  
Robt. Gilmour ... 2,407 10 4  
Geo. Mackay and Sons, Broughty Ferry\* ... 2,303 2 4  
John Stevens ... 2,241 5 5  
Wilkie and Gill ... 2,079 15 11  
\* Accepted.

## THE SMOKELESS FIRE Co. Ltd.,

Sole Proprietors of Marsh's Patents

### FOR THE COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.



### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.

Estimates and full particulars on application to  
**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM JOINERY WORKS,  
Clapham Junction, S.W.

### MASON'S PATENT UNWEARABLE, NON-SLIPPING STAIR TREADS.

THE SAFETY TREAD SYNDICATE, LTD.,  
15, Barbican, London, E.C.

**HORSHAM (Sussex).**—For the supply of granite to Shoreham Harbour, for the West Sussex County Council. Mr. W. B. Purser, County Surveyor, 31, Bedford-road, Horsham:—

	Per ton.
Granite, Quenash.—C. M. Mahuella, 12, Lime-street, E.C. (accepted)	£11 0 0
Penlee.—J. Kennalls	10 3 0
Guernsey.—A. and F. Mamuelle	11 2 0
Guernsey.—J. Moulew and Co.	12 6 0
Guernsey.—W. Griffiths	11 4 0
Quartzite.—Kent-road Maintenance and Supply, Ltd.	11 6 0
Granite, Guernsey.—W. Hudson	12 0 0
Cherbourg.—W. Hudson	11 6 0
Burghes.—Kaltenbach & Schmitz	11 1 0
Welsh.—Brundit and Co.	11 9 0
Basalt.—Lyon and Co.	10 6 0

**LONDON.**—For pulling down and rebuilding Swan House, Moorgate-street, E.C., for Mr. Robert Whitehead. Messrs. Edmiston and Gabriel, architects. Quantities supplied by Messrs. G. R. Tasker and Sons:—

Cowley and Drake	£3,948	Wm. Shepherd	£3,575
Skinner	3,886	Young	3,485
Porter	3,843	Carmichael	3,400
Roberts	3,724	J. O. Richardson*	3,237

\* Accepted.  
**LONDON.**—For alterations to No. 45, Kirby-street, Hutton-garden, E.C., for Mr. S. R. Boutle and Mrs. Jones, trustees of the property. Mr. Jas. Hardman, architect. No quantities supplied:—  
King and Sons ... £500 | J. O. Richardson\* ... £473  
\* Accepted.

**LONDON.**—For superstructure to warehouses at Ratcliff Cross Wharf, for Messrs. Pinchin, Johnson and Co. Messrs. Bradshaw Brown and Co., architects, Billiter-square-buildings, E.C.:—

	No. of weeks in which to complete.	Amount.
Scrivener and Co.	—	£10,450
Porter	34	10,269
Gammun	—	10,200
Kirk and Randall	28	10,060
Peacock Bros.	—	9,862
H. L. Holloway	22	9,100
W. Gladding	42	8,953
Munday and Son	40	8,831
Chafen and Newman	23	8,724

**NORDEN (Lancs.).**—For the erection of workshop and showroom, Water-street, for Messrs. Meyrick and Holt, Limited. Mr. J. W. Sunderland, architect, Church View, Norden. Quantities by architect:—

Thomas Berry and Son	£1,158 0 0	Cropper and Ho-worth	£1,053 0 0
Ashworth and	—	Enderby and	—
T. Ashworth and Sons	1,080 0 0	Mutch	1,033 11
	1,070 0 0	John Pool, Little-borough*	896 0 0

\* Accepted.  
C. H. Rosher ... £1,952  
J. Potter and Son ... 1,528  
New and Mayne ... 1,450  
Williams Bros. and Co. ... 1,432  
Moorwood, Sons, & Co. ... 1,212  
Harper Twelvetyrees ... £1,105  
C. P. Kinnell and Co. ... 1,100  
Fraser and Fraser ... 1,043  
T. Bradford and Co., Holborn\* ... 8  
\* Recommended for acceptance.

**LONDON.**—For superstructure to warehouses at Ratcliff Cross Wharf, for Messrs. Pinchin, Johnson and Co. Messrs. Bradshaw Brown and Co., architects, Billiter-square-buildings, E.C.:—

	No. of weeks in which to complete.	Amount.
Scrivener and Co.	—	£10,450
Porter	34	10,269
Gammun	—	10,200
Kirk and Randall	28	10,060
Peacock Bros.	—	9,862
H. L. Holloway	22	9,100
W. Gladding	42	8,953
Munday and Son	40	8,831
Chafen and Newman	23	8,724

**PORT TALBOT (Wales).**—For the erection of four shops, &c., for Mr. B. Evans, J.P., of Swansea. Messrs. Margrave and Peacock, architects, 46, Wind-street, Swansea, and 2 High-street, Port Talbot. Quantities by the architect:—

J. and S. Rees	£4,500 0 0	Henry Billings	£3,855 0 0
D. Davies	4,480 0 0	Morgan Cox	3,824 0 0
John Davies	4,256 10 0	Thomas Walters	3,649 0 0
Thomas Watkins and Co.	4,135 0 0	Gustavus Bros.	3,648 1 6
Thomas Davies	4,090 0 0	Walters & Johns	—
W. Williams	4,000 0 0	Morrison*	3,562 0 0
C. and F. Gaen	3,945 0 0	J. and D. Jones	3,489 19 2

\* Accepted.

## SEMI-ENCAUSTIC PAVING TILES.

(Specially suitable for Entrance Halls, Conservatories, &c.)

### BROWN & DRAB GLAZED BRICKS.

White & Coloured Enamelled Bricks.  
Glazed Sinks.

## STANLEY BROS. (LTD.) NUNEATON.

ORNAMENTAL RED CRESTING and FINIALS.  
RED & BUFF CHIMNEY-POTS.  
Roofing and Ridge Tiles,  
Glazed Pipes, Blue Bricks, Quarries, Copings, &c.  
Illustrated List on Application.

## GODWIN'S TILES

For PAVEMENTS  
WALLS HEARTHES &c

AS USED BY THE  
Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, WITHINGTON,**  
Patronised by Royalty. | Established 1848. | Near HEREFORD.

20,000 yards  
FLOOR TILES  
in Stock.

Quick Supply!  
Best Quality!  
Low Price!

BATHS.  
CISTERNS.  
TANKS.  
STOVES.  
KITCHENERS.  
PORTABLE  
RANGES.  
MARBLE  
MANTELS.

## J. YOUNG & CO., Kenton Works, Kennington Cross, London, S E.

Kennington Tel. No. 4712 (Hop.) Private Wire to Brixton. Balham Telephone No. 9219, Balham.

BRANCHES: 44, BRIXTON ROAD, AND 9 & 10, BALHAM HILL, LONDON, S.W.

Everything for the Erection and Maintenance of Buildings and Estates can be obtained at our Warehouses. Have you a copy of our useful little Catalogue? If not, apply at once, enclosing Two Penny Stamps for Postage; it's worth the venture.

NOTE THE ADDRESS.

NOTE THE GOOD PRINCIPLE.

OUR TRADE PRINCIPLE: PERFECT WARES, IMMEDIATE DELIVERY, NOMINAL PRICES.

ROOFING FELTS.  
CORRUGATED  
IRON.  
SHEET ZINC.  
LEAD IN SHEETS  
AND COILS.  
PAPERHANGINGS  
WHOLESALE  
AND FOR EXPORT.  
OILS & COLOURS.



## MEASURES BROTHERS, LTD. LONDON.

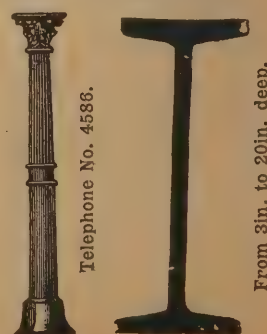
SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

### MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

Have now in their Town Stock 6 500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

### SECTION SHEETS AND ESTIMATES ON APPLICATION.

Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.





LONDON.—For alterations at "The Cooper's Arms" publichouse, St. Luke's, E.C. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—  
W. Hawtrey and Son £763 10 | G. Veale... .. £699 0  
J. H. Pugh ... .. 742 0 | J. J. Thompson ... .. 685 0  
A. Porter ... .. 704 0 | T. Osborn and Sons\* 655 0  
\* Accepted.

LONDON.—For the erection of new dairy stables and offices in Queen's-road, Peckham, for Mr. J. Crutcher. Mr. W. G. Shorbridge, architect. Quantities supplied by Mr. F. J. W. Miller:—  
Simmmonds and Son ... £7,935 | J. O. Richardson ... .. £6,758  
Simpson and Cove ... 7,175 | Smith ... .. 6,747  
Turtle and Appleton ... 7,070 | Carmichael ... .. 6,680  
Balaam Bros. ... .. 6,999 | Parker ... .. 6,539  
Lascelles ... .. 6,985

NORDEN (Lancs).—For the erection of workshop and show-room, Water-street, for Messrs. Meyrick and Holt, Limited. Mr. J. W. Sunderland, architect, Church View, Norden. Quantities by architect:—  
Thomas Berry and Son ... £1,158 0 0 | Cropper and Ho-worth ... £1,053 0 0  
Ashworth and ... .. 1,080 0 0 | Endersby and Mutch ... 1,033 11 3  
T. Ashworth and Sons ... 1,070 0 0 | John Pool, Little-borough\* ... 896 0 0  
\* Accepted.

NORWICH.—For alterations of buildings, to convert same to the purposes of public baths, Norwich. Mr. Arthur E. Collins, City Engineer, architect, Norwich:—  
New and Mayne ... £1,230 | H. C. Greengrass, 58, Downing and Son ... 988 | Pitt-street, Norwich\* £770  
Chapman and Son ... 946  
\* Accepted.

Supplying and fixing boiler, calorifiers, and other engineering work.  
C. H. Rosher ... £1,952 | Harper Twelvotrees ... £1,105  
J. Potter and Son ... 1,528 | C. P. Kinnell and Co. ... 1,100  
New and Mayne ... 1,450 | Fraser and Fraser ... 1,043  
Williams Bros. and Co. 1,432 | T. Bradford and Co. ...  
Moorwood, Sons, and Co. ... 1,212 | Holborn\* ... 840  
\* Recommended for acceptance.

NORWICH.—For additions to the "Queen's Hotel," Great Yarmouth. Mr. A. J. Lacey, architect, 6, Upper King-street, Norwich:—  
S. Chapman and Son ... £299 | W. Cork, Northgate-street, Great Yarmouth\* ... £733  
J. Downing and Sons ... 840  
Carter and Wright ... 824  
G. W. Beech ... 824  
\* Accepted.

PORT TALBOT (Wales).—For the erection of four shops, &c., for Mr. B. Evans, J.P., of Swansea. Messrs. Martyn and Peacock, architects, 46, Wind-street, Swansea, and 2, High-street, Port Talbot. Quantities by the architects:—  
J. and S. Rees ... £4,500 0 0 | Henry Billings ... £3,855 0 0  
D. Davies ... 4,480 0 0 | Morgan Cox ... 3,824 0 0  
John Davies ... 4,256 10 0 | Thomas Waters ... 3,649 0 0  
Thomas, Watkins, and Co. ... 4,135 0 0 | Gustavus Bros. ... 3,648 1 6  
Thomas Davies ... 4,000 0 0 | Walters and Johns, Morrisham\* ... 3,562 0 0  
W. Williams ... 4,000 0 0 | J. and D. Jones ... 3,469 19 2  
C. and F. Gaen ... 3,945 0 0 | \* Accepted.

NEWCASTLE.—For Primitive Methodist New Church, Kingsley-terrace, Newcastle, for the trustees. Messrs. Marshall and Dick, architects, Newcastle:—

	Main building.		Spire and Tower.		Total
	£	s. d.	£	s. d.	
W. Baston ...	£4,790	0 0	£630	0 0	£5,420 0 0
J. Ferguson ...	4,671	0 0	715	0 0	5,386 0 0
J. Jackson ...	5,558	0 0	817	0 0	5,375 0 0
Alex. Pringle* ...	4,536	0 0	754	0 0	5,290 0 0
Middlemiss Bros. ...	4,430	0 0	800	0 0	5,230 0 0
T. Weatherill ...	4,494	0 0	700	0 0	5,194 0 0
Alex. Bruce ...	4,396	18 6	669	10 0	5,066 8 6
S. Easton ...	4,297	0 0	767	0 0	5,064 0 0
G. H. Mauchlen ...	4,106	6 0	613	10 0	4,719 16 0
T. Hutchinson, Elswick-lane† ...	4,129	6 6	561	2 8	4,690 9 2

\* Gateshead. † Rest of Newcastle. \* Accepted.

WATFORD.—For making five roads, Harwood's Farm Estate:—  
Ford ... £1,665 0 0 | Bell ... .. £3,021 0 0  
Wheeler ... 4,342 0 0 | Reed ... .. 3,016 0 0  
Hebburn ... 3,895 0 0 | Hunt ... .. 2,972 0 0  
Hall and Son ... 3,785 0 0 | W. Jenner ... 2,919 2 7  
Tree and Son ... 3,479 0 0 | F. Dupont ... 2,854 11 4  
Brunton ... 3,433 0 0 | Ballard ... 2,797 9 9  
Martin ... 3,396 0 0 | W. Judge ... 2,770 0 0  
Lee ... 3,366 0 0 | Thos. Adams ... 2,677 2 10  
Maim ... 3,267 0 0 | J. Jackson ... 2,645 8 7  
Killingback ... 3,254 0 0 | W. Hollingsworth ... 2,586 0 0  
Winpey and Co. 3,235 0 0 | Parsons & Taylor ... 2,330 0 1  
Coulson & Lofts 3,194 0 0 | Siddons & Free-man ... 2,000 0 0  
J. Hare ... 3,111 0 0

	FOOTWAY KERB.								YORKSHIRE PAVING.			
	12in. by 6in.				6in. by 12in.							
	Aberdeen.		Norway.		Aberdeen.		Norway.					
	Straight.	Circular.	Straight.	Circular.	Straight.	Circular.	Straight.	Circular.				
	Per foot run.	Per foot run.	Per foot run.	Per foot run.	Per foot run.	Per foot run.	Per foot run.	Per foot run.	Squared. 24in. Per Foot sup.	Un-squared. 3in. Per Foot sup.	Squared. 24in. Per Foot sup.	Un-squared. 3in. Per Foot sup.
W. Griffiths	s. d. 2 2	s. d. 2 5	s. d. 1 10	s. d. 2 1	s. d. 1 10	s. d. 2 0	s. d. 1 8	s. d. 1 10	d. 10½	d. 11	d. 9½	d. 10
A. and F. Maruelle	2 1	2 4	1 10	2 0	1 11	2 2	1 8	1 10	10½	11	9½	10
J. Mowlem and Co.	2 2	2 4	1 10	2 0	2 0	2 2	1 8	1 10	10½	11	9½	10
Nowell and Robson*	2 0	2 3	1 10½	2 0½	2 0	2 2	1 8½	1 10½	10½	11½	9½	10½
E. Rogers and Co.	2 3	2 6	1 8	1 11	1 10	2 1	1 6	1 9	9½	10½	8½	9½
Tildesley, Shepherd and Mabson	2 3	2 6	2 0	2 3	2 0	2 3	1 10	2 1	10½	11½	9½	10½
G. Wimpey and Co.	2 2	2 4	1 11	2 1	2 0	2 3	1 9	1 11	10½	11½	9½	10½
	2 2	2 4	2 0	2 2	2 0	2 2	1 9	1 11	11½	11	9	10

\* Accepted.

CONTRACT PRICES, 1896-97.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Nowell and Robson	2 0	2 3	1 6	1 8	1 10	2 1	1 4	1 6	—	—	8	9

NEW GRANITE PAVING BLOCKS OR CUBES.

	Enderby.			Narborough.			Mountsorrel.			Aberdeen.		
	5 by 6in	4 by 4in	3 by 3in	5 by 6in	4 by 4in	3 by 3in	5 by 6in	4 by 4in	3 by 3in	5 by 6in	4 by 4in	3 by 3in
	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per ton.
W. Griffiths	s. d. 27 6	s. d. 29 0	s. d. 31 0	s. d. 27 6	s. d. 29 0	s. d. 31 0	s. d. 28 6	s. d. 30 0	s. d. 32 0	s. d. 30 0	s. d. 36 0	s. d. 36 0
A. and F. Manuelle	27 6	29 0	31 0	27 6	29 0	31 0	28 6	30 0	32 0	30 0	36 0	36 0
J. Mowlem and Co.	27 0	29 0	31 0	27 0	29 0	31 0	28 0	30 0	32 0	30 0	36 0	36 0
Nowell and Robson	27 0	28 6	30 0	27 0	28 6	30 0	28 0	29 6	30 0	29 6	35 0	35 0
E. Rogers and Co.	27 6	29 0	31 0	27 6	29 0	31 0	28 0	30 0	32 0	30 0	36 0	36 0
Tildesley, Shepherd & Mabson	28 0	30 0	33 0	29 0	30 0	33 0	30 0	33 0	33 0	32 0	36 0	37 0
G. Wimpey and Co.	27 6	29 6	32 0	27 6	29 6	32 0	28 6	30 6	32 0	30 0	36 0	36 0

\* Accepted.

CONTRACT PRICES, 1896-97.

	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Nowell and Robson	26 0	27 6	29 0	26 0	27 6	29 0	27 0	28 6	30 0	27 6	35 0	34 0

**M'NEILL'S FELTS** (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)  
**M'NEILL'S SLAG WOOL** (Silicate Cotton), for Fireproofing and Soundproofing.  
AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. M'NEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works, Kirkintilloch, near Glasgow.



**H. A. BALL,**  
12 & 13, Chiswell St., & 26, Finsbury St., E.C.

STOVES, RANGES, KITCHENERS, BATHS,  
RAILINGS, LOCKS, BRASSFOUNDING, &c., &c.  
HEAVY STOCK. PROMPT DELIVERY.

**BUILDERS' IRONMONGERY**

LISTS FREE ON RECEIPT OF TRADE CARD.



## APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**ARCHITECT and SURVEYOR'S ASSISTANT** (21) desires RE-ENGAGEMENT in good office. References, specimens. Salary 30s.—F. P., 61, Manor Park, Lee, S.E.

**CLERK of WORKS and SUPERINTENDENT of Buildings.**—Advertiser is open for PERMANENT ENGAGEMENT, on large estate, as above. Practical and thoroughly acquainted with all trades, and management of workmen. Over 11 years clerk of works for one of largest institutions in the City. Excellent testimonials and references from architect and employers.—A. G., 58, Finsbury Park-road, London, N.

**ARCHITECT'S GENERAL ASSISTANT** desires ENGAGEMENT. Working and detail drawings, perspective, specification, quantities, surveying, levelling, measuring up work, builders' accounts, &c. Moderate salary for permanency.—GRIFFITH, 79, Compton-road, Wolverhampton.

**BUILDER'S ASSISTANT** wants ENGAGEMENT. Accustomed to p.c. abstracting, general and jobbing accounts. Aged 26. References.—X. Y. Z., 11, Seymour-road, Hampton Hill, Middlesex.

**AN ARCHITECT** having leisure would ASSIST the Profession, at his own office, in preparation of drawings, specifications, dilapidations, sanitary work, &c., or act as London Representative for Country Architect.—A. M., Mr. Gills, The Facade, Stroud Green-road, N.

**SURVEYOR'S ASSISTANT** (junior, 21) wants an ENGAGEMENT. Experience on outdoor work. Good Draughtsman; levelling, surveying, office work, &c. Good testimonial.—J. S. RAMSHAY, Oundle.

**BUILDER and DECORATOR'S CLERK.** Well up in jobbing and contract work, quantities, estimating, drawing, tracing, and all clerk's duties. Aged 24. Wages 32s. Town or Country. Highest references from present or past employers.—A. R., 59, High-street, Bloomsbury, London.

## APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**BOROUGH of ACCRINGTON.** REQUIRED in the Office of the Borough Engineer, a fully qualified ARCHITECTURAL ASSISTANT.

He must be accurate, expeditious, and a good Draughtsman and Leveller. The person appointed will be required to prepare plans, drawings, details, estimates, and specifications, and take out quantities for various kinds of work incidental to municipal office.

He will have the supervision of all building plans. Age not to exceed 40 years.

Salary £120 per annum. Applications, endorsed "Architectural Assistant," accompanied by not more than four recent testimonials, stating age, qualifications, and experience, to be sent to me not later than THURSDAY, the 11th FEBRUARY.

WM. J. NEWTON, C.E.,  
Town Hall, Accrington,  
Borough Engineer.  
January 28th, 1897.

**DRAUGHTSMAN WANTED.** Working drawings, specifications, quantities, surveying, levelling, measuring up.—Apply, giving age, references, and salary required, to ARCHITECT, 31, Fordington-hill, Dorchester.

**ARCHITECT'S GENERAL ASSISTANT.** with knowledge of Quantity Surveying, REQUIRED in London.—Reply, with full particulars as to age, salary, and experience, to J. S., 63, Chancery-lane, W.C.

**BRICKS. LIME. CEMENT.**

**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

**PILKINGTON'S**

**WORKS: TILES.**  
CLIFTON JUNCTION,  
NEAR MANCHESTER.

MANUFACTURERS OF HIGH CLASS TILES.  
For Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR  
CHURCHES, PUBLIC BUILDINGS AND  
PRIVATE RESIDENCES.

London Show Rooms:  
Lyric Chambers, 45, Whitcomb Street, W.C.  
Manchester Show Rooms:  
37, Cross Street.

**SOUTH METROPOLITAN DISTRICT SCHOOLS, SUTTON, SURREY.**  
REQUIRED an ASSISTANT SUPERINTENDENT of WORKS (temporary).

Salary £2 per week. Candidates must have had experience in keeping Builder's accounts and stores, also in the management of workmen.

Applications, stating age, qualifications, and previous experience, accompanied by copies of not more than three recent testimonials, to be delivered before the 13th FEBRUARY, 1897, addressed to Mr. HENRY BURGESS, South Metropolitan District School, Brighton-road, Sutton, Surrey, endorsed "Application for Assistant Superintendent of Works."

**COUNTY BOROUGH OF MIDDLESBOROUGH.**

The Streets Committee are prepared to receive APPLICATIONS for the appointment of BUILDING INSPECTOR at a salary of £2 2s. per week.

Candidates must have had some experience in carrying out the Model Bye-laws of the Local Government Board.

Applications, together with three recent testimonials, stating age and present employment, are to be sent in to the Town Clerk's Office, endorsed "Building Inspector," on or before FEBRUARY 20th, 1897.

By order,  
FRANK BAKER, C.E., F.G.S.,  
Borough Engineer.

Municipal Buildings, Middlesbrough.

**BOROUGH OF PADDINGTON.**

WANTED, a Temporary DRAUGHTSMAN in the Surveyor's Department; must be fully competent to prepare Working and other Drawings for Buildings, Sewerage Works, Streets, Bridges, and other Improvement Schemes, and generally the work appertaining to a London Municipal Office.

Salary £3 3s. per week.

Application by letter, stating age, particulars of previous appointments, and accompanied by copies of recent Testimonials, to be addressed to the undersigned not later than the 18th of FEBRUARY, 1897.—GEORGE WESTON, Surveyor, Vestry Hall, Harrow-road, Paddington, W. 3rd February, 1897.



**HOISTING APPLIANCES**

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

**WESTON AND OTHER Pulley Blocks**  
in Stock, with any length of  
**CHAINS.**

Chain Maker on Premises  
for Repairs, &c.

**LONDON HOIST AND CHAIN Co.**  
32, Norton Folgate, E.C.

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

**PERSPECTIVES** (Ink or Colour) executed in best style from 2 Guineas. Designs, plans, practical details, tracings, &c.—PERCY E. STIMPSON, 14, Bedford-street, Norwich.

Price 3s. 6d.

**GLOSSARY OF TECHNICAL TERMS** used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I. Contains explanations of over 2000 terms. London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**ASSISTANT SURVEYORS, R.E. CIVIL STAFF EXAMINATION ANNOUNCED.** For terms for tuition, apply to Mr. G. A. T. MIDDLETON, A.R.I.B.A., 56, Dafforne-road, Upper Tooting, S.W. First place on three occasions.

**R.I.B.A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

NOW READY. Price Four Shillings.

**LAXTON'S BUILDERS' PRICE BOOK FOR 1897.**

"The acknowledged standard work of reference." CONTAINING ABOVE 72,000 PRICES.

Together with many useful and important Memoranda and Tables, and Prices and Descriptions of New Materials and Inventions suited to the Builder, Contractor and Engineer, and all Trades connected therewith.

The whole carefully corrected and revised according to the present Prices of Materials and Labour. Contains:

THE LONDON BUILDING ACT, 1894; also the RULES OF PROCEDURE IN CASES to be brought before the TRIBUNAL OF APPEAL appointed under the LONDON BUILDING ACT, 1894; Bye-laws of the London County Council and the City of London; also Regulations by the Council applying to Theatres and other Places of Public Amusement; List of Aldermen and Councillors of the London County Council; also the District Surveyors, with their respective districts.

Notes of Cases, & Decisions in the Superior Courts.

**KELLY & CO., LTD.,**  
182, 183, & 184, HIGH HOLBORN.  
SIMPSON, MARSHALL, HAMILTON, KENT & CO. Limited, Stationers' Hall Court, E.C.  
AND MAY BE ORDERED OF ALL BOOKSELLERS.



**BLACKMAN VENTILATING CO. LTD.**

Specialists in  
**VENTILATING AND WARMING.**

63, FORE STREET, LONDON, E.C., and Branches.

**R. P. de RIDDER, Heating and Ventilating Engineer, &c.,**

Fairfield Street Fairfield, Liverpool.—TELEGRAPHIC ADDRESS, "DERIDDER, LIVERPOOL."

DE RIDDER'S PATENT "SMALL PIPE SAFETY" Hot Water Heating Apparatus.

For Buildings of every Description.

Patronised by Her Majesty's War Office, The London School Board, The Hanley School Board, The Paignton School Board, The Mersey Docks and Harbour Board, The Leading London and Provincial Architects, &c. Approved by the Principal Insurance Companies. PLANS AND ESTIMATES FURNISHED FREE OF CHARGE ON APPLICATION.



# "The Builders' Journal" Advertisers.

Names and Addresses with the page on which their Announcements appear.

Adams & Co. ....	vii	Couzens, G. and F., Cardiff ....	—	Jones & Attwood, Stourbridge and London ....	i	Rockingham Railway and Jarrahdale Timber Co., Ltd. ....	—
Adams, Robert, London ....	—	Cox, Sons, Buckley & Co., London ....	—	London ....	iv	Safety Tread Syndicate, Ltd. ....	xii
Adams, T., & Sons, Ltd., Birmingham ....	x	Dennis, Henry, Raabon ....	—	Jones and Willis, London ....	—	St. Pancras Iron Co., London ....	vii
Albion Clay Co., Ltd., London and Burton-on-Trent ....	xv	De Ridder, R. P., Liverpool ....	xiv	Kauri Timber Co., Ltd., London ....	—	Self-Lock Roofing Tile Co., Ltd. ....	—
Anaglypta Co., Ltd., Darwen ....	vii	Doulton & Co., Lambeth ....	i, ii	Kaye, Joseph, & Sons, Ltd., London ....	—	Skidmore, Thos., & Son, Wolverhampton ....	i
Ashmore, Benson, Pease & Co., Ltd., Stockton-on-Tees ....	—	Easton, Anderson & Goolden, Ltd., London ....	viii	King, John, Liverpool ....	—	Smokeless Fire Co., Ltd., London ....	xii
Attwood, J., Stourbridge ....	i	Eastwood & Co., London ....	xiv	Lewis, J., London ....	—	Stanley Bros., Ltd., Nuneaton ....	xii
Baill, H. A. ....	xiii	Elis, Partridge & Co., Leicester and London ....	—	London Hoist and Chain Co. ....	xiv	Stiff & Sons, London ....	iii
Barnett, Edward, Walsall ....	—	Elstley, Thomas, London ....	xvi	Macfarlane, Walter, & Co., Glasgow ....	—	Strode & Co., London ....	i
Barrows & Co., Ltd., Banbury ....	—	Elterwater Green Slates ....	—	McLean Bros. & Rigg, Ltd., London ....	xiii	Szerehney & Co., London ....	iv
Bath Stone Firms, Ltd., Bath ....	x	Etridge, J. J., Junr., London ....	x	McNeil I. F., & Co. ....	—	Talbot Co., Leeds ....	vii
Batchelar, J., & Co., London ....	x	Ewart & Sons, London ....	—	Maw & Co., Ltd., Jackfield ....	—	Thornton-Pickard Manufacturing Co., Altrincham ....	x
Bayliss, Jones & Bayliss, Wolverhampton ....	x	Farmiloe, G., & Sons, London ....	—	Mayfield, J. T., & Co. ....	—	Twyford, Ltd., Hanley ....	—
Bennett, John, London ....	—	Farrar, E., & Co., London ....	—	Measures Bros., London ....	xii	Vigers, Bros., London ....	—
Blackman Ventilating Co., Ltd., London ....	xiv	Fawcett, M., & Co., London ....	x	Mellows & Co., Sheffield ....	—	Walton, Frederick & Co., London ....	ix
Blundell, Spence & Co., Hull ....	—	Gibbs Bros., Loughborough ....	—	Minton, Hollins & Co., Stoke-on-Trent ....	i	Ward, B., & Co., London ....	xi
Boote, Ltd., T. & R., Burslem ....	—	Glover, F. A., & Co., London ....	i	N. A. P. Window Co., London ....	iii	Warings, Ltd., London ....	i
Brady, G., Manchester ....	—	Godwin, William, & Son, Withington ....	xii	National Opalite Glazed Brick and Tile Syndicate, Ltd. ....	—	Waygood, R., & Co., Ltd., London ....	—
Briggs, W., Dundee ....	—	Granite Silicon Plaster Co., London ....	—	Oates & Green, Ltd., Halifax ....	—	Webb & Co., London ....	—
Burmantofts, Leeds ....	viii	Gregory, Thomas, & Co., London ....	xii	Parker, Robert, & Co., Liverpool ....	i	Whitfield, F., & Co., Birmingham ....	—
Cakebread, Robey & Co., London ....	—	Grundy, John, Ltd., London ....	—	Patterson, J. & H., Manchester ....	—	Wilkinson, W. B., & Co., Ltd., London ....	—
Candy & Co., Ltd., London and Newton Abbot ....	—	Hartley and Sugden, Ltd., Halifax ....	i	Perkins, A. M., & Sons, Ltd., London ....	xiv	Wilson & Co., London ....	—
Carter & Co., Poole, Dorset ....	—	Heatschel, C., & Co., London ....	i, ix	Pilkington Tile and Pottery Co. ....	—	Woollams, Wm., & Co., London ....	—
Charteris & Longley ....	i	Homan & Rodgers, London ....	—	Poore, G. J., & Co., Liverpool ....	—	Wragge, Geo., Manchester ....	—
Claridge's Asphalt Co., Ltd. ....	—	Hope, Henry, Birmingham ....	x	Pulham & Son, London ....	—	Wright, G., & Co., Rotherham ....	i, ii
Cobbett & Co., London ....	—	Hyde & Co., G., London ....	—	Red Star Glass ....	—	Young & Marten, Stratford ....	—
		Hyde & Co., G., London ....	—	Rendle, W. E., & Co., London ....	—	Young & Co., J., London ....	xii
		Itter, A. W., Peterborough ....	—	Roberts, Adlard & Co. ....	i		
				Robson & Co., Sunderland ....	—		

## THE N.A.P. WINDOWS.



Particulars on application to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.

### CONTRACTS OPEN.

#### ASYLUMS' COMMITTEE of the LONDON COUNTY COUNCIL.

TO BUILDERS AND CONTRACTORS.  
The Asylums Committee are prepared to receive TENDERS for the FOUNDATIONS of the Seventh County Lunatic Asylum, to be erected on the Horton Estate, Surrey.

Instructions for Tender and forms of Tender and contract, with specification and schedule of prices, and other schedules thereto annexed, can be obtained from the Clerk of the Committee, 21, Whitehall-place, S.W., on or after FEBRUARY 1st, 1897, on payment of £5 for each copy, for which a receipt will be given, and the drawings can then be inspected at the office of the Architect, Mr. G. T. Hine, 35, Parliament-street, S.W., between the hours of TEN and FIVE. The amount deposited will, after the Committee have come to a decision upon the Tenders received, but not before, be returned to the tenderer, provided he shall have sent in a bona-fide Tender and shall not have withdrawn the same.

Tenders must be on the printed form, and be accompanied by the forms of contract and schedules thereto and bond.

The Tender and accompanying documents completed in accordance with the instructions, must be enclosed in the authorised sealed cover, endorsed "Horton Asylum Foundations," and be delivered at the office of the Committee, 21, Whitehall-place, S.W., not later than TWELVE o'clock at noon, on MONDAY, FEBRUARY 2nd, 1897, after which no Tender will be received.

Any Tender not made on the printed form or not filled up and complete in every particular in accordance with the instructions will be rejected.

The Committee do not bind themselves to accept the lowest or any Tender.

The contractor will have to enter into a bond in the penal sum of £3000 with two approved securities each in the sum of £1500 as security for the due performance of the contract.

R. W. PARTRIDGE,  
Clerk of the Asylums Committee.

Asylums Committee Office,  
No. 21, Whitehall-place, S.W.  
January 27th, 1897.

## STIFF & SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS,  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS,  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

For Illustrated Price Lists apply to

## JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.

### WALTHAMSTOW SCHOOL BOARD.

TO BUILDERS.

The Walthamstow School Board invite TENDERS for the ERECTION of NEW SCHOOL BUILDINGS in Wood-street, Walthamstow.

Plans and specification may be seen, and bills of quantities obtained, on and after Monday, the 15th inst., at the Offices of the Architect, Mr. W. A. LONGMORE, F.R.I.B.A., 7, Gt. Abbe-street, Whitechapel, between the hours of TEN a.m. and FOUR p.m. except on Saturdays.

A £5 note must be deposited for the quantities, and another £5 note must be inclosed with Tender, both of which will be returned to those sending in bona-fide Tenders.

Tenders, to be endorsed "Tenders for New Schools,"

and addressed to the Clerk of the School Board, "Cleveland," High-street, Walthamstow, and delivered not later than FOUR o'clock p.m. on TUESDAY, the 23rd inst., on which day at HALF-PAST EIGHT o'clock p.m. they will be opened.

The Board do not bind themselves to accept the lowest or any Tender.

N.B.—Any persons or firm Tendering will be required to make a declaration that they will pay all workmen employed by them on the above work for the Board the fully recognised London rate of wages, and will observe such hours of labour as are generally accepted as fair in their trade.

T. W. LIDDIARD,  
School Board Offices, Clerk to the Board  
High-street, Walthamstow,  
February 3rd, 1897.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
Feb. 13	Two Houses, Gorleston	A. C. Jupp	W. B. Cockrill, Gorleston, Great Yarmouth.
" 13	Police Station, Barrowford, near Nelson	Standing Joint Committee	H. Littler, 21, Pitt-street, Preston.
" 13	Stone Wall and Iron Fencing, Farnham	Farnham Burial Board	S. Stapley, West-street, Farnham.
" 13	Wool-combing Works, Shipley (Yorks.)		Walker & Collinson, Swan Arcade, Bradford.
" 13	Three Houses, Cesarea, Wales		R. L. Jones, Architect, 14, Market-street, Carnarvon.
" 13	Additions to Schools, Springfield, Sheffield	School Board	C. J. Innocent, Architect, 17, George-street, Sheffield.
" 13	Hospital, Pinley	Coventry Corporation	G. & J. Steane, Architects, Little Park-street, Coventry.
" 13	School, Fowey (Cornwall)	School Board	S. Trevall, Architect, Truro.
" 13	Two Houses, The Cliffs, Gorleston, Norfolk	A. C. Jupp	W. B. Cockrill, Architect, Gorleston.
" 13	Three Dwelling Houses, Cesarea (Wales)	Committee of Cesarea Chapel	Chapel House, Cesarea.
" 13	Additions to Schools, Sheffield	School Board	C. J. Innocent, 17, George-street, Sheffield.
" 14	Villa Residence, Galval (Cornwall)	Henwood Roberts	O. Caldwell, Architect, Penzance.
" 15	Tar Paving	Woodford Urban District Council	C. Matthew, Council Offices, Woodford.
" 15	Additions to Asylum, Aberdeen	Asylum Corporation	G. Taylor, Clerk of Works, Asylum, Aberdeen.
" 15	Shop Premises, Simmons-street, Blackburn	Blakey Moor Co-op. Society	Simpson & Duckworth, Richmond-chambers, Blackburn.
" 15	School, Cwntillery (Mon.)	Aberystwith School Board	G. Rosser, Architect, Victoria-buildings, Abercorn.
" 15	Club Buildings, Ovenden Ward, Halifax		Medley Hall, Architect, 29, Northgate, Halifax.
" 15	Schools, Selside, near Kendal		J. Hutton, Architect, Kendal.
" 15	Liberal Club, Lee Mount, Halifax		M. Hall, 29, Northgate, Halifax.
" 15	Schoolhouse, Meenatate, near Rameilton (Ireland)		Rev. T. Slevin, Rameilton.
" 15	Farmhouse, Steeple Gidding		Estate Office, Conington.
" 16	Additions to Schools, Orpington	School Board	G. Wall, Offices, Haxtead-road, Bromley, Kent.
" 16	Workhouse Extension, Ashton-under-Lyne	Guardians	B. Seymour, Stamford-street, Ashton.
" 16	Erecting and Fitting-up Exhibition Yard, Exeter	Exeter Horse Show Society	W. S. Croote, 69, Paris-street, Exeter.
" 17	Enlargement of Congregational Chapel, Aberayron, Wales.		Rev. T. G. Evans, at the Chapel.
" 17	Boys' School, Falmouth	School Board	— Swift, Lemon-street, Truro.
" 17	School, Wellington-terrace, Falmouth	School Board	Mr. Swift, Architect, Lemon-street, Truro.
" 17	School, Abertillery, Mon.		Swash & Bain, Architects, 3, Friar's-chambers, Newport.
" 17	Underground Convenience, &c., Deptford	Greenwich Board of Works	Board's Office, 141, Greenwich-road, Greenwich.
" 18	Fifty or more Cottages at Miskin, Mountain Ash	Miskin Building Club	Bailey's Arms Hotel, Mountain Ash.
" 19	Alterations to County Asylum, Rainhill (Lancs.)	Lancs. Asylums Board	G. Gornall, Clerk to the Board, Rainhill.
" 20	Gate Lodge and Museum, Fitz Park, Cockermouth		T. Hodgson, Station-road, Cockermouth.
" 20	Alterations and Additions, The Albert Institute, Windsor.		The Institute.
" 20	New Roof and Alterations to Church, Brentwood	Congregational Church Committee	C. Pertwee, Bank-chambers, Chelmsford.
" 20	Telegraph and Telephone Building, Cannes		Mairie at Cannes (Alpes-Maritimes).
" 22	Foundations of Lunatic Asylum, Horton (Surrey)	London County Council Asylum Committee	The Clerk, 21, Whitehall-place, S.W.
" 22	External Painting of County Asylum, Fareham	Hants County Asylum Visitors	Clerk to the Visitors.
" 23	School Buildings, Walthamstow	School Board	W. A. Longmore, 7, Great Alie-street, Whitechapel, E.
" 23	Restoration of Parish Church, Falmouth		E. Sedding, Architect, Plymouth.
" 24	Hoist and Covered Way, Dewsbury	Industrial Society, Limited	Borough Steward's Office, Dewsbury.
" 24	Dispensary and Residence, Castledermot (Ireland)	Athy Union	T. F. Orford, Workhouse, Athy.
" 26	Isolation Hospital, Richmond	Corporation and Heston and Isleworth Urban District Council Joint Hospital Committee.	W. J. Ancell, 3, Staple Inn.
" 27	Renovation of Reformed Presbyterian Church, Faughan		William Barker, 25, Orchard-street, Londonderry.
Mar. 1	Erection of a Pavilion, Newport	Royal National Eisteddfod of Wales	B. Lawrence, Austin Friars Chambers, Newport.
" 1	Restoration of Church Tower, Culmington, Salop		Rev. D. E. Holland, Culmington, Bromfield.
" 1	Public Conveniences, Taunton	Corporation	J. H. Smith, Municipal Buildings, Corporation-street, Taunton.
No Date.	Additions to Post Office Buildings, Harrogate	Yorks Banking Co.	T. E. Marshall, Architect, Princes-street, Harrogate.
"	Additions to Offices, Tower-lane, Ipswich	W. E. Kersey	J. S. Corder, Architect, Wimborne House.



## JONES &amp; WILLIS,

MANUFACTURERS OF

## Wrought Metal Work, Architectural Carving and Joinery

For Ecclesiastical Purposes, Domestic and Public Buildings,

## Lighting Appliances, &amp;c.

Estimates given to Architects' own Designs.

Work can be inspected during execution.

OFFICES AND SHOWROOMS:—79, Edmund Street, Birmingham; 43, Great Russell Street, London, W.C.  
Concert Street, Bold Street, Liverpool.

WORKS:—Eagle Works, Hornsey, N.; Porchester Street, Birmingham.



## DAMP WALLS CURED. BY MASONRY PRESERVED

## SZERELMEY STONE LIQUID,

Which absolutely Waterproofs and Preserves Bricks, Stone, Plaster, Cement.

IT HAS STOOD THE TEST OF TIME.

Approved and Adopted by Her Majesty's Government for MANY YEARS.

EASILY APPLIED, SMALL COST, RELIABLE.

FORTY YEARS' EXPERIENCE.

## PORCELAIN PAINTS

For Interior and Exterior Decoration.  
Beautiful Glazed Surface.

Do not Chip.

Non-Poisonous.

## SZERELMEY'S

HIGH-CLASS PAINTS.

## IRON PAINTS

For Wood or Iron.

GREAT - - -

- - DURABILITY.

Prevent Corrosion.

Offices and Works: ROTHERHITHE NEW ROAD, S.E.

Telegrams:

"SZERELMEY, LONDON."



# BUILDING TRADES EXHIBITION,

ROYAL AGRICULTURAL HALL.

OPEN FROM SATURDAY, MARCH 20th TO 27th.

CRAFTSMANSHIP COMPETITIONS in the following  
Trades will be held nightly:

BRICKLAYING, CARPENTRY, JOINERY,  
MASONRY, DECORATION, PLUMBING,  
SMITHING, PLASTERING.

*The following Societies, &c., are sending representatives as Judges:*

ROYAL INSTITUTE OF BRITISH ARCHITECTS,  
ARCHITECTURAL ASSOCIATION,  
SURVEYORS' INSTITUTION,  
INSTITUTE OF BUILDERS,  
INSTITUTE OF CERTIFIED CARPENTERS,  
WORSHIPFUL COMPANY OF CARPENTERS,  
WORSHIPFUL COMPANY OF PAINTERS,  
WORSHIPFUL COMPANY OF BLACKSMITHS,  
WORSHIPFUL COMPANY OF TYLERS & BRICKLAYERS.

Full Particulars as to Exhibitors' Space must be addressed to

**The MANAGER,**

**34, Essex Street, Strand, W.C.**

Telegrams, "Clayworker, London."

Telephone, 2739.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>ENGINEERING—</b>			
Feb. 14	Water Supply Works, Allevard (France)	Rural District Council	La Marie, Allevard, Isere, France.
" 16	Cast Iron Watermains, &c., Newton Abbey (Devon)	County Council	S. Segar, Union-street, Newton Abbey.
" 16	Water Works, Kilmaurs and High Fenwick (Scotland)	Brighton West Pier Company	J. Campbell Hart, 32, John Finnie-street, Kilmarlock.
" 19	Reconstructing Pier, Brighton	Belgrade Cattle Market and B.C. Company.	Secretary.
" 20	Engines, Refrigerating Machinery, &c., Belgrade	Inverness County Council	Commercial Department of the Foreign Office.
" 20	Two Piers, Harris		G. W. Brenan, Civil Engineer, Oban.
" 22	Hot Water System, Plumstead		H. J. Fobling, 15, Genesta-road, Plumstead, S.E.
" 24	Machinery for Pumping Station, Charonne		Hotel de Ville, Paris.
" 25	Light Railways, Porto Rico	Spanish Government	Direccion general de Obras Publicas, Madrid.
" 25	Covered Reservoir, Leeds	Corporation	T. Hewson, City Engineer, Leeds.
" 26	Boiler House, Floors, and Machinery Foundations, &c., Walthamstow.	Urban District Council	G. W. Holmes, Town Hall.
" 27	Pumping Machinery, Hamburg	City Authorities	Secretary's Office, Rathaus, 1, Stock Zimmer, No. 34.
" 27	Retort House, Coal Stores, &c., Sheffield	United Gas Light Company	Fletcher W. Stephenson, Offices, Commercial-street, Sheffield.
March 1	Pumping Engine and Boiler, Ipswich	Waterworks Committee	H. Roberts, Manager, Waterworks, Ipswich.
" 1	Heating Apparatus, Cologne		Engineer, Stadtischer Herzungs Ingenieur, Hochbaumut Zim 18 Alter Pothof Kohn a Rh.
<b>ROADS—</b>			
Feb. 13	Construction of Roads, Middlesborough	Asylum Visiting Committee	Town Clerk's Office, Middlesborough.
" 15	Guernsey Granite, &c., Dover	Town Council	E. W. Knocker, Town Clerk.
" 15	Road Material and Labour, Cerne (Dorset)	Rural District Council	G. Durden, District Surveyor, Hermitage.
" 15	Alteration of Footpath, Kingstown (Ireland)	Commissioners	Town Hall, Kingstown.
" 16	Various Services and Supplies, London	Westminster Vestry	G. R. W. Wheeler, Town Hall, Caxton-street, S.W.
" 16	Works and Materials, Tottenham	Urban District Council	712, High-road, Tottenham.
" 16	Making-up Roads, Tottenham	Urban District Council	712, High-road, Tottenham.
" 17	Yorkshire Stone, London	Greenwich Board of Works	141, Greenwich-road, S.E.
" 17	Flags, Granite, &c., Birkenhead	Corporation	C. Brownridge, Town Hall, Birkenhead.
" 17	Street Watering, Birkenhead	Corporation	C. Brownridge, Town Hall, Birkenhead.
" 17	Rawtenstall, Kerbs, &c., Birkenhead	Corporation	C. Brownridge, Civil Engineer, Town Hall.
" 17	Levelling and Paving Playground and Iron Fence, West Ham.	Union	Clerk's Office, Union-road, Leytonstone, E.
" 17	Roadmaking and Paving Works, Greenwich	Board of Works	Board Offices, 141, Greenwich-road, S.E.
" 17	Stone, Greenwich	Board of Works	Board's Office, 141, Greenwich-road, Greenwich.
" 18	Street Works, Newstead Estate, Halifax	Corporation	R. Horsfall, Architect, 15, George-street.
" 19	Works and Materials, Rawtenstall	Rural District Council	Borough Surveyor, Municipal Office, Rawtenstall.
" 20	Granite Slag and Limestone, Spilsby	Town Council	F. J. Dixon, Council Offices, Spilsby.
" 20	Street Works, Trinity-street, &c., Batley	Corporation	H. Dearden, Surveyor, Market-place.
" 20	Levelling, Paving, &c., Batley	East Sussex County Council	H. Dearden, Borough Surveyor, Market-place, Batley.
" 26	Road Material, &c., Lewes		Henry Card, County Hall, Lewes.
<b>SANITARY—</b>			
Feb. 15	Sewerage Works, Brynmawr (Wales)	District Council	G. H. Daniel, Clarence Chambers, Pontypool.
" 15	Removal of Nightsoil, &c., Birkenhead	Corporation	Chief Inspector of Nuisances, Town Hall, Birkenhead.
" 16	Sewage Settling Tanks, Klostrop	Leeds Corporation	T. Hewson, Civil Engineer, Municipal Buildings.
" 16	Drainage Works, Scalebor Park, Burley, Yorks		J. V. Edwards, County Surveyor, Wakefield.
" 20	Sewerage Works	Kettering Urban District Council	T. R. Smith, Engineer, Market Hill, Kettering.
" 22	Carriage Timber	Great Western Railway Co.	Secretary to the Company, Paddington Station.
" 27	Sewerage Works, Midsomer Norton	Urban District Council	W. F. Bird, Market Hill, Midsomer Norton.
" 27	Sewerage, Midsomer Norton	Urban District Council	W. F. Bird, Market Hall, Midsomer Norton.
Mar. 2	Sewer Pipes, Bath	Urban Sanitary Authority	C. R. Fortune, Guildhall, Bath.
July 31	Sanitary Improvement Works, Oporto (Portugal)	Corporation	Municipal Town Hall, Oporto.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 15	Grammar School, Dudley	£50, £20	Governors of the Dudley Grammar School.
Mar. 1	Plans and Estimates for Laying out Cliffs, &c., Felixstowe	£50, £15	Commissioners.
" 20	Designs for Town Hall, Enniskillen (co. Fermanagh, Ireland)	£50, £20, £10	
" 31	Railway Stations, Christiania	Kroner 10,000, 4000, 2000, 1000	Railway Offices, Department of Public Works, Victoria-terrace, No. 6, Christiania.
" 31	Designs for Public Halls and Municipal Offices, Govan		Commissioners of the Burgh.
April 17	Plans and Designs for Assembly Hall, &c., Guernsey	£100, £50	States of Guernsey.
July 1	Designs for Water Supply, Elne (France)		La Mairie, Elne, Pyrénées Orientales.

PRICE 6<sup>d</sup>. NETT.

AT ALL BOOKSTALLS AND NEWSAGENTS.

THE LARGEST ART MAGAZINE IN THE WORLD.

# The Architectural Review

"A miracle of enterprise even in these days."—North British Daily Mail.

## NO. 3, FEBRUARY, CONTENTS:

The Devil of Notre Dame. By JOSEPH PENNELL.

Cartoons at South Kensington. By W. E. F. BRITTEN.

The Complete Work of T. G. JACKSON, R.A.

Special Sketches, Unpublished Plans,

and New Drawings. Selected by Mr. JACKSON.

Architecture in Japan. By Ed. F. STRANGE.

Illustrated by Native Architects and Painters. Architecture and Recent Competitions. By EDWARD ROBERT ROBSON, F.S.A.



# Surveying and Sanitary SUPPLEMENT.

FEBRUARY 10TH, 1897.

## PLANNING OF SMALL HOUSES.

By H. V. LANCHESTER, A.R.I.B.A.

### No. 1.—A TERRACE HOUSE AT £70.

IT may often appear strange that though by far the larger proportion of small houses are erected by builders acting on their own initiative, so little has been done outside the architectural world in the development of these towards really good arrangement and design. On consideration, however, it may easily be accounted for by the fact that the speculative builder, depending, as he does, on the suffrages of the general public, is not likely to depart from the recognised type of plan without considerable hesitation. Nevertheless, it is evident that of late years there has been a preference for houses varying from the regulation model, even if the latter represented the best possible arrangement, which is open to doubt.

Many of the more enterprising builders have taken advantage of the modern spirit to put up buildings widely varying in type, but I fear that in most cases the variations can hardly meet with unqualified commendation, resulting, as they too often do, in ill-considered arrangements and trivial design.

In the small house, the problems involved in the proper distribution and relative placing of the various rooms are fortunately simple; they may be divided into two classes, viz., those common to all house-planning, and those incidental to special cases.

Under the first of these one may place such matters as the comfortable arrangement of entrances, convenience in access from one part to another, reasonable privacy for the various rooms; and, as regards each, a satisfactory correlation between door, window, and fireplace.

Under the second come the questions of aspect, levels, the various outlooks, the proportionate amount of space to be given to various purposes (differing, for instance, in town and country), and all those depending on the form of the buildings, whether detached, semi-detached, or in terraces, involving special consideration as to lighting, &c.

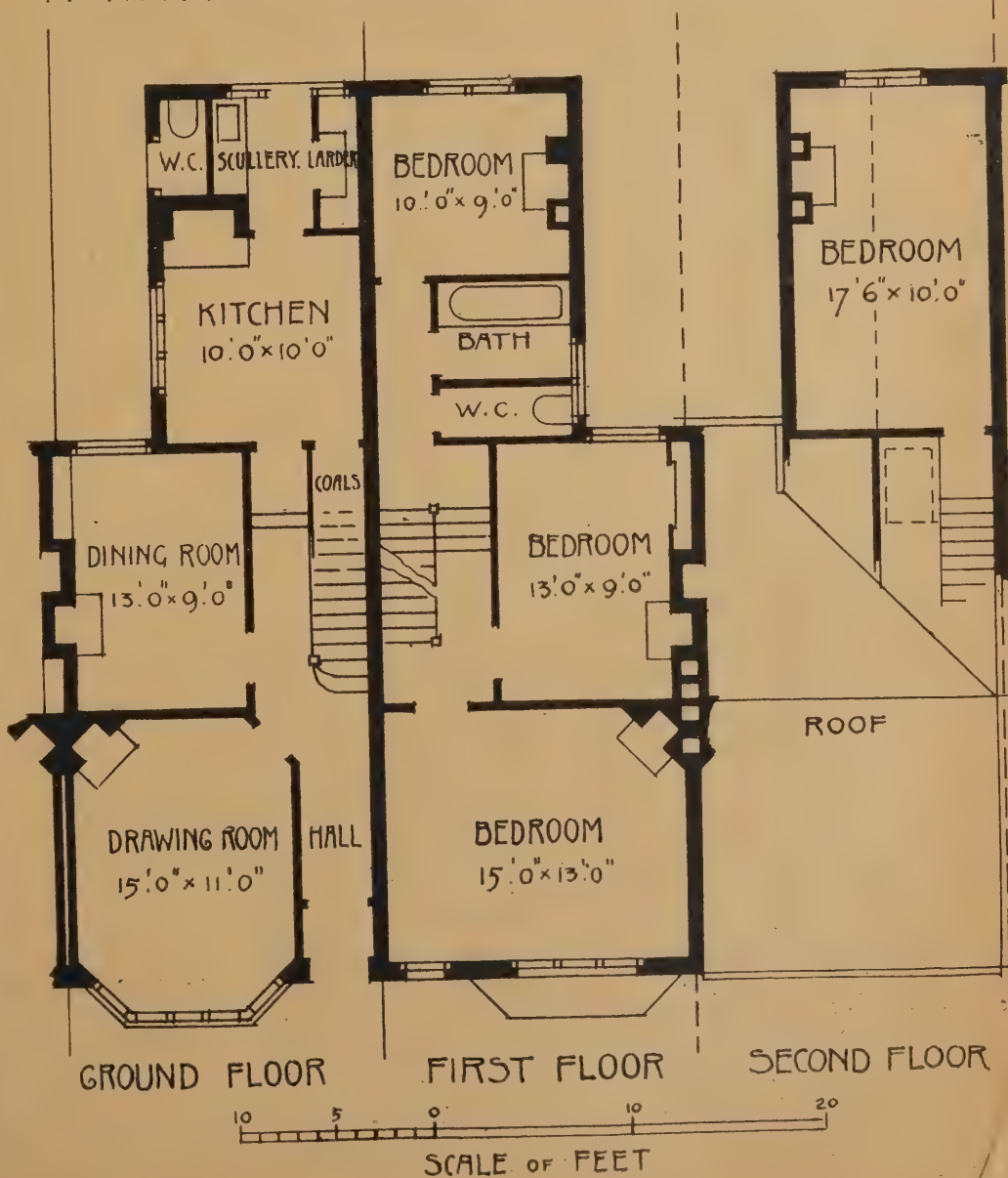
There are naturally but few cases in which some compromise has not to be made by sacrificing the lesser good to the greater, and particularly in the case of building on commercial lines is it imperative to subordinate one's ideal arrangements to economy

of space and simplicity of construction, as the public for which the ready-made house caters is too apt to judge its bargain by the primitive standard of absolute accommodation, and to find out the comforts of well-considered detail only after the practical test of occupation. That such economy and simplicity are, however, compatible with better and more interesting plans than many of those in

general use, it shall be my endeavour to show.

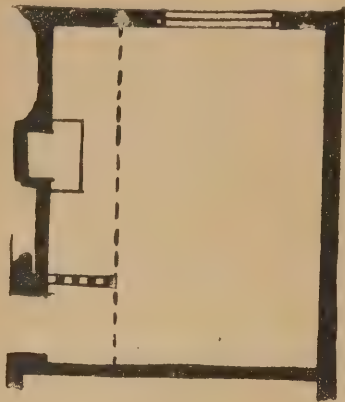
The series of plans for small houses, heralded by this short article, will not present any features of exceptional originality, but will suggest such modifications on the conventional types as would give a greater degree of comfort, without increasing the size beyond the minimum required for the accommodation provided.

NO. 1 TERRACE HOUSE — 16 FT. FRONTAGE — CUBE AT 10 = £70





It would be as well to note a few of the most important practical points to be considered in designing domestic work. The sitting-rooms should be grouped together, and while easily accessible from the principal entrance, should be, if possible, screened to some extent from it, particularly if it faces the north or east. The dining-room naturally falls on the side adjoining the kitchen offices, and the line of service should avoid the route between the



sitting-rooms and entrance, and also, if practicable, that between sitting-rooms and staircase. Where a small service pantry between kitchen and dining-room (with a hatch into the latter) is admissible, it should certainly be provided, as it has the additional advantage of forming a lobby to the kitchen, and preventing the smell of cooking from passing into the rest of the house. A degree of privacy in the bedrooms is desirable, but where these are, as is usual, on a separate floor or floors, this requires less consideration. The most noticeable necessity of the upper floor is the placing of the bathroom, &c., over or near the kitchen offices, so that all supplies should have as short a run as possible. It seems hardly necessary to mention the fact that doors should not be placed in the same wall as the fireplace, and should, if possible, be kept at a distance from it. If the former arrangement is unavoidable, the best way to deal with it is by forming a recess to the fireplace by a short screen between it and the door, as in sketch. The clashing of doorways and fireplaces is a fruitful source of difficulty in planning, as chimneys are always more satisfactory and less liable to smoke when on the inner walls of a house, and the doors naturally open from a more or less central part. It will be found that in all detached houses they seem to have an innate tendency to come together; in semi-detached or terrace houses the difficulty is less.

The best position of window with regard to the fireplace is also shown in the small sketch. This enables one to sit near the fire, and obtain left-hand light for writing, &c. If this is not practicable, the window should be on the other side of fireplace rather than directly opposite.

The relation of door and fireplace is slightly less important in the bedrooms, but the former should be hung so as to screen the bed. Some of the bedrooms should always be arranged with the side of the bed towards the window, as many cannot sleep in any other position.

With houses placed close together, as in suburban streets, there are not many alternatives as to the placing of the various sitting-rooms, one almost invariably looks towards the road and the other one over the garden; where there is a third, it will usually be best placed on the more sunny side, as we get little enough sun in this climate, especially in the proximity of large towns. An exception may be made to this rule in favour of the garden front, where there is a liberal amount of ground, or the outlook is a good one. On a site of an acre or so it is best that all sitting-rooms should face somewhat away from the entrance, and that all should have a fair amount of sun unless they are required to be used for any special purpose, as that of studio for instance. The room used for dining should receive the morning sun in preference to other

aspects. The suburban house will, however, be more attractive if one sitting-room, at least, overlook the road, so that the monotony of existence may be broken by the critical inspection of Mrs. A.'s new mantle, or Mr. B.'s latest acquisition in the equine or canine world.

Other considerations crowd in on one, such as the adaptation of plan to sites of irregular shape and varying level. These special circumstances may offer substantial advantages if carefully studied, but far too often a stock design is dropped on to the site where a little thought would have produced a more satisfactory result at a reduction in the expenditure. In most cases these differences are not of sufficiently uniform a character to enable one to make any general suggestions towards meeting them, but in one or two cases plans will be given adapted to a position where the surface of the ground is inclined. Each plan will be accompanied by a note of the amount obtained by calculating the cubic contents of the building at one penny per foot, so that the cost can be almost instantly arrived at by the multiplication of this sum by the price per foot cube that the reader's experience dictates. This would vary from 4½d. to 8d., according to the class of building and the locality.

The plan No. 1 accompanying these notes is one in very general use in the suburbs of London, with a few modifications that somewhat improve it in respect of comfort and compactness, such, for instance, as the form of drawing-room, and the increased width gained by interlocking the dining-room fireplaces. At the best, however, the rooms of a house built on a sixteen-foot plot must be somewhat cramped and inadequate.

H. V. LANCHESTER.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.

BY ALEXANDER DREW.

### INTRODUCTION.

THE introduction of iron and steel into roof-framing is of comparatively recent origin, and, did time permit, it might form an interesting study to gradually trace its progress from that of a few bolts and connection plates, employed to strengthen the various joints of the timber trussing, upwards through the several stages where it came to replace first the minor tension bars, then all tension members, till we finally reach the complete transformation stage where all timber has gone; iron or steel bars of various sections and strengths taking its place throughout. Most of the large and complex structures we see covering large railway stations, and in such like situations, could not have been formed in timber, so that for this class of work iron and steel has no rivals; but in the smaller and simpler forms of roof framing to be met with in ordinary practice, timber is yet used to a considerable extent, though I feel sure that even this will in time be set aside for iron or steel. And it is only natural that it should be so, since these latter materials possess so many advantages in strength, lightness, economy, and freedom from risk of fire.

Iron and steel are in reality but modifications of the same material, the chemical difference being very slight, though the mechanical difference is considerable; and it will prevent some repetition if I merely refer to iron throughout this paper, it being understood by this that, unless distinctly stated otherwise, both iron and steel are included in the one name.

But iron, when applied to roof framework, or in fact to any other use, must be treated on the lines best adapted to bring out its good qualities, if we are to get the fullest benefit therefrom; and as its nature and properties differ materially from timber in many respects, the lines or rules governing the application of timber require considerable modification to make them fully applicable to iron. If we compare these two materials with one another in their capacity to resist compression and tension, we find that good timber acts fairly well in compression, but is prac-

tically useless as a tie; not so much on account of its weakness in tension, as from the great difficulty of forming an economical junction at its ends, its shearing strength in the direction of the fibre being extremely small. Iron bars can be employed in many different forms of cross-section as efficient struts, while as ties the ends can be shaped to meet any requirement of the stress at these points.

Sir F. J. Bramwell, in his presidential address to the members of the Institute of Civil Engineers in 1885, very happily expressed the advantages iron possessed over timber, both in this respect and as regards its less liability to decay, and greater freedom from fire-risk; when he said:—"The engineer of to-day, in a country like England, refrains from using wood. He can't cast it into form, he can't weld it; glue (even if marine) would hardly be looked upon as an efficient substitute for a weld, and the fact is, that it is practically impossible to lay hold of timber, when employed for tensile purposes, so as to obtain anything approaching to the full tensile strength. If it be desired to utilise metals for such a purpose, they may be swelled out into appropriate 'eyes' to receive the needed connections; but this cannot be done with wood, for the only way of making an enlarged eye in wood is by taking a piece that is big enough to form the eye, and then cutting away the superfluous portions of the body. Moreover, when too much exposed to the weather, and when too much covered up, wood has an evil habit of rotting, compared with the rapidity of which mode of decay, the oxidizing of metals is unimportant. Further, our daily experience of the way in which a housemaid prepares a fire for lighting is suggestive of the undesirability of the introduction of resinous sticks of timber, even although they may be large sticks, into our buildings."

This inherent weakness of timber as a tension member was well known in the past, and the types of framework then utilized were chosen with the object of keeping the tensile strains as low as possible, to suit the material then in use. But with the advent of iron the necessity for this limitation ceased, and as a result the number of available types of trussing was considerably increased; but this, in turn, called for greater care and experience to determine the best possible type to suit any given condition.

With timber, the several members of the truss were almost invariably rectangular in section, and usually ran in stock or standard sizes; but in iron we have now a large variety of sections in round, flat, angle, &c., channel, and other shapes, each of these being available through a large range of sizes; and the choice of the most suitable section for the particular purpose still further increases the difficulty in designing a thoroughly practical truss. If, then, the use of iron as a substitute for timber in roof-framing introduces these special difficulties in the way of choosing, not only the type of truss, but also the particular section best suited for the several members of that truss, it necessarily follows that the designer must be specially trained to enable him to produce a thoroughly practical and economical result.

But while this is, strictly speaking, true for all conditions, I believe that in the case of small span trusses of ordinary type, say up to 40ft. or 45ft., sufficient knowledge might be acquired by careful attention given throughout a suitable course of lectures, or even by hard book study (if the right book or books could be got) so that the designer need not fall into serious error, and which would ensure the result being at least practical and safe, if not the best and most economical. But unfortunately the majority of the lecture courses at Universities or Science Colleges, while eminently suitable for one who desires to make a special study of the subject, always embraces much more than is sufficient for the Architect's requirements, and demands a much larger amount of time and attention than he can profitably give to it. And I fear the same unfortunate and unsatisfactory condition exists if we turn to books, for I feel sure that anyone who may have had occasion to refer to so-called text-books on the subject



steel and iron roofing must have been truck with the fact that what I would call *useful and reliable practical information* is rarely to be found anywhere. The theoretical side of the subject is comparatively little dealt with—though I think considerable improvement might be introduced even here—t if the anxious inquirer expects his book to enable him to readily determine the most suitable type or design of roof truss for any given span and loading; the best practical method and scantling for the several members of that truss; or how these members can be joined and best connected together at their junction; I fear he is doomed to disappointment.

I believe it is the want of this reliable, practical information, and the consequent natural hesitation to tackle a subject he is not fully acquainted with, which forces many Architects to ask contractors to design their roofs as well as to quote prices for supplying them. Up till quite recently I had been for a considerable number of years connected with several of the leading instructional engineers both in Scotland and England, and my experience has all along been that a very considerable share of the time and attention of the office staff is taken up in designing roofs to suit the special requirements of different Architects. Numerous contractors are quite willing to do this work, free of charge, hoping thereby to get some advantage over their competitors; but a little consideration will, I think, show that such a course is not to be commended. In the first place, the contractor must cut his scantlings as fine as he can, and keep down the cost of manufacture to its lowest point, if he is to have a chance against his opponents, who have no doubt also been approached by the Architect; then again, as his work is of a very speculative nature, and is often productive of no return to him, it is not to be expected that any more time will be spent on it than is absolutely necessary; the consequence is that his design is frequently not the best for the given conditions, and the scantlings may be badly proportioned. These results are often due to the thoughtless use of some previously made design, or standard drawing, so as to save time and expense; this design having probably been produced to suit some different requirement from that to which it is later on applied. Of course, you may say, the Architect can check all this, but does he always do so? Very few, if any, contractors will supply sufficiently full scantlings and details to allow their designs to be thoroughly checked; and if he be one of some standing, who might be held responsible should trouble arise, there is thought to be less need of worrying over, or watching such details.

Roofs may be roughly divided into two classes, temporary and permanent structures, the former being required only for a comparatively short space of time, while the latter is expected to remain in use for a more or less indefinitely long period. With the former class, the design and scantlings may be rightly kept light and cheap, if I may so express it; but as by far the greater number of roofs designed and erected are meant to be permanent, it must be kept in mind that it is not only defective material and bad workmanship which limits the life of any structure, particularly one of iron. Thus an iron roof frame or truss may be correctly proportioned for certain conditions, and be of good workmanship, but if these conditions be not what it is called upon to resist, there is considerable risk of a breakdown. The mistake is frequently made of assuming that if the total load to be carried be approximately the same, the type or design of truss is more or less a matter of taste, but this is far from being so—or, the correctly proportioned truss may have its scantlings cut so fine that the natural deterioration due to rusting will so weaken the originally sufficiently strong structure as to render it dangerous in the course of a comparatively few years. I am far from arguing in favour of excess in material, as such is equally indefensible; but let all the conditions or influences acting in the present, and likely to act in the future, be carefully considered, and

allowed for as far as our knowledge permits, and we have done our best.

Let us now go briefly over the various points which must be considered to enable us to correctly design a roof truss, and having noted these, we shall be in a position to see how far existing books or lectures will help us in acquiring sufficient knowledge and experience to justify our undertaking to design any ordinary roof truss, of a size up to about the limit previously noted, say 40ft. to 45ft. span. I shall do little more than mention the several points at present, as each will be taken up in turn and carefully considered later on in the course.

Beginning then with the roof covering, this is a matter which is generally settled for us. It may be tiles, or slates, with an under covering of timber purlins and sarking, or it may be corrugated sheet-iron carried on iron purlins, but whatever it be there need be no great difficulty in determining the area of covering which each roof-truss supports, and the total weight of this. It may happen that a particular rise or slope of roof is determined by some architectural or other requirement; or this may be left for us to settle. In this latter case the nature of the covering must be taken into account; for what would suit say for corrugated sheets is likely to be quite unsuitable for tiles or slates; and even a difference of locality—particularly if that be to some foreign, and it may be tropical, country—may entail an alteration in the slope of the same covering, to suit particular local conditions.

Then the lower member of the truss may be utilised to carry a ceiling, or such like; and the dead weight of this must be calculated. When all this has been done, we may guess at the weight of the truss itself; checking this guess, and, if necessary, correcting our work afterwards; and thus we arrive at the total *steady or dead load*.

The *live loads* are those due to snow and to wind. Snow is not a very heavy or important item in itself, for it is very rare indeed that it is not blown completely off the roof when a high wind arises; and unless there be some formation or arrangement of the roof which would allow it to accumulate to a dangerous extent—as in the valley of double span buildings—a load of a few pounds per square foot of roof surface is sufficient allowance for it. The wind pressure is an item of considerable importance, but its real value is very uncertain, and authorities differ vastly on this point. For the time being let us assume that we have settled this item, and with the complete dead and live loads calculated, are ready to advance a stage further. I should note here, that I have assumed there are no other *moving or live loads* on the roof we are considering than those due to snow and wind, though it is possible the ties may be further loaded by swings, as in a gymnasium, or by shafting or hoists, as is likely to be the case in a workshop; should this be so, these extra live loads would be simply added to the previous list.

The outline, or type of truss, has now to be settled on, the special points to be kept in view here being that each member should as far as possible be subjected to only one kind of stress, that is to say to either tension, compression, or shearing, and not to a combination of these stresses; and that each should be placed in as advantageous a position as is practicable to withstand the stress which it is called upon to sustain. The two special points to remember in determining the arrangement of the bracing for our truss, is first, that the scantling or required cross-section of a tie is for all practical purposes proportionate to the stress it has to sustain, and is not affected by any variation in its length; while the scantling of a strut or compression member increases rapidly with any increase in its length. Thus it should be our aim, where practicable, to keep the struts as short as possible, little or no attention being necessary in this respect with the ties.

There is one other point of equal importance, which refers, however, to the two principal members of the truss, the rafter and the main tie; I allude to the angle formed by the

junction of the rafter and tie at the shoe. This angle very largely governs the maximum stress in these two members; the larger the angle the less the stress, and the more acute the angle is made, the greater does the stress become. I fear that some Architects are at times liable to overlook this point, as I can recall many instances where the skeleton outline of some required roof-truss has been filled in on the drawings, and has been worked to by the contractor, where this angle has been needlessly, or perhaps I should rather say heedlessly curtailed, it may be by unnecessarily raising the main tie in the centre, with what I may call a corresponding loss in the efficiency, and possible increase in the cost of the roof. With the outline or type determined on, and the dead and live loads worked out, the stresses on the several members of the truss may be next got at; and till a considerable amount of experience has been acquired, and what I may almost call the practical instinct has been developed, it may be necessary to test two or three different types of truss, calculating the stresses on the several members of each, and comparing them with one another, if it is desired to conscientiously arrive at the best and most economical truss.

Up till now the work has been mainly theoretical, but beyond this the need of practical guidance will be most felt. With the large variety of sections and sizes of iron and steel bars now available, considerable difficulty is likely to be experienced in settling on the most suitable. Rafters, though generally made tee-shaped, might occasionally be of angles, particularly in small spans; or again for large or very heavy roofs, or where considerable width on top of rafter is desired, double angle, or even double channel shaped bars have been used. Struts may be of single or double bars, either of flat, angle, tee, or channel section, or it may be of solid or hollow round section, or they may even be of cast iron. Ties may be of round or flat section, or if they have to resist transverse bending, as when the main tie is called upon to support a ceiling, the section may be flat, angle, tee, channel, or even H section, as used for rolled joists.

The methods by which the several bars may be connected together at their meeting-points can be varied almost indefinitely, and here particularly the practical element comes into play. The best junction is that which achieves its object in the most direct way, and which entails the use of the least amount of material and work, particularly of skilled work; but this saving in material and work must not be got at the expense of the efficiency of the joint; for as the strength of a chain is that of its weakest link, so the strength of a roof truss is that of its weakest point, whether that be one of the members itself, or some connection of one member with another. This question of the reduction as far as possible in the amount of skilled labour involved in the making of a roof truss, is one of vital importance, not only as a means of bringing down the cost, but also in some ways of raising the efficiency of the truss. I allude mainly to the benefit to be got by reducing as far as possible the forging and welding necessary on the ties. In many cases the roof trussing is covered up altogether, or it may be placed in such a position as to be quite invisible as regards the details of its construction; yet how often do we see, in conditions like this, elaborately designed eyes and jaws to the ties, which entail a large amount of expensive and difficult forging and welding. No matter how skilful the workman is, he himself cannot be absolutely sure of always producing a perfect weld; and as the only proof that is often to be had of the weld being defective is got when it gives way, the great desirability of keeping clear as much as possible from such things is self-evident.

I would define a *thoroughly practical roof truss* as one in which the type or outline has been carefully chosen with reference to the dead and live loads it has to support, and is such that the various members of the framework are each at their best position to resist the several strains they have to bear; the form or cross-section of each member should be such as will not only give the greatest resistance per unit of section to the particular



strain to which it is subjected—the total section being of course proportionate to the maximum total strain—but the section should also be such as will best lend itself to forming practical connections with its neighbours; and in all this the details should be as simple as is consistent with thorough efficiency, so that the cost of manufacture may be reduced to a minimum.

Thus efficiency is got by carefully considering the type of framework, the form of the section for the several members, and the practical jointing of these latter together; while sufficiency is secured by taking specially into account the external influences which tend to deteriorate or weaken the structure—as rusting, and the effects of repeatedly applied stresses, &c.—and knowing the life, or length of time the structure is desired to remain in use, making the strength of the whole sufficient to resist these various actions or effects for the desired length of time. Thus the value or amount of this sufficiency determines whether the structure is likely to be a permanent or a temporary one.

How far then will books help us to settle the several points just noted? As I have already said, the theoretical side of the subject is comparatively fully dealt with. I would say, that from the Architect or practical engineer's point of view, it is too fully dealt with, for what business or practical man could find time to plod laboriously through page after page of elaborate and complex formulae and methods of determining the exact stresses on the various members of his truss, perhaps to 3 or 4 decimal places of figures; and who is it who could find time or patience to use such elaboration in practice.

The iron or steel employed to make a roof truss is by no means of an absolutely uniform nature, and in specifying its desired strength, a maximum and minimum value of say 24 and 20 tons per square inch for the breaking tensile strength of wrought iron, or 32 and 28 tons for steel, is quite common, thus giving a permissible variation of say 15 to 20 per cent. in the strength. Then the factor of safety should not be less than 3, and is usually 4 or 5. With such a wide variation in the quality of the material, and such a substantial factor of safety, where is the value to the busy practical designer of the elaboration so often seen in text books? As a species of mental gymnastics to the individual who has the time and inclination to indulge in such, it no doubt has its attractions, but what is wanted in the business world is a few simple and easily applied formulae or methods which will quickly give the desired answers with moderate exactness. I have no wish to belittle the value of a thoroughly theoretical knowledge, but such is quite unnecessary to the practical designer who has to deal with materials the qualities of which are far from perfect and uniform, and who consequently has no inducement to seek after great exactness in his calculations, particularly if this exactness is only to be got by increased labour and loss of time to himself; he has much more need to devote his spare time to the development of his practical knowledge and common sense, if he desires to produce good work.

To emphasize the necessity of practice going along with theory, I shall very briefly quote from the utterances of two well-known engineers.

In his presidential address to the Institute of Electrical Engineers about three years ago, Mr. Alexander Siemens said: "In most cases the conclusions of pure science have to be modified by practical considerations before a useful application of science can be produced." To apply this statement to what I have just been saying, I might venture to freely translate it thus: *Complex and unnecessarily exact theoretical formulæ must be simplified and made easy of application, if they are to be of real use to the practical engineer.* The second quotation I wish to make is from the address given by Professor A. B. W. Kennedy to the Mechanical Science Section (G) of the British Association at their meeting in Oxford in 1894. He said: "The determination of the stresses is in nearly every case by far the easiest part of the designing; a large amount of practical experience

and common sense is necessary to translate the formulae of text-books or class-rooms into satisfactory structures."

It is just at this point, where practical experience and common sense is most wanted, that text-books break down. I may take the opportunity further on in the course, when we are considering the several points previously referred to, of pointing out how imperfect, and often misleading, some of the so-called practical details given in different text-books are, as I can then compare them with what I consider good examples, and thus enable you the better to understand the objectionable points. It is not by studying good examples only that we are likely to derive benefit, for even bad examples, when we can clearly recognise them as such, are often very instructive in what I would call a negative, or how-not-to-do-it manner; the difficulty and danger to the learner however, in a case like this, lies mainly in his possible inability to recognise and profit by the good and bad examples he is likely to meet with in his study.

I will not waste time here in further emphasising the great difficulty likely to be experienced in any attempt to get at good practical information, but would recommend all who may possess text-books likely to treat of the designing of iron and steel roofing to refer to these, and note how many pages are given over to the practical considerations of this subject; in the majority of cases, I think, they will find that such information is conspicuous by its absence. Even what little is given, particularly if it be in the form of tables of stresses or scantlings, is often of but limited use. Thus take the four tables of scantlings for iron roofs given on page 68 and 69 of Hurst's Pocket-book, 13th edition, and we find that all are for one definite slope of covering ( $=\frac{1}{4}$ th rise), but for varying distances apart of trusses (6, 8, and 10 feet); and, as the general note preceding the tables says, they give the usually adopted proportions "when the roofs are covered with slates." Is it necessary to point out to any one present the vagueness of this last statement? You are all aware that the weight of a slate covering depends both on the quality and lapping of the slates, and that a variation of from 30 to 40 per cent. may be got by altering these particulars; and, looking at this one point alone, it follows that if the given scantlings are right for one particular quality and style of slating, they must be considerably out for many other equally permissible styles. Again, the rise throughout being fixed at  $\frac{1}{4}$ th of the span, implies that the information is not reliable for any variation in this particular.

Of course, I am aware there are one or two books published which confine themselves largely to practical details and information, but little or no effort is made to classify these details, or give reasons for their use; and as the learner is likely to find one detail apparently contradicting another, where he very naturally expects there should be an agreement, the actual help he is likely to derive from such books is, I fear, small. Afterwards, when the student has acquired a fair grasp of the subject, and can more or less readily pick out the good from the bad, and maybe even work out by himself the reasons for the employment of a certain detail, then it is that such books may be profitably made use of for reference, or as a means of extending his practical grasp of this subject.

I may here also refer to the number of books brought out, which elaborately describe and illustrate certain existing structures; or to the illustrated engineering and architectural magazines, which from time to time publish such information. Unless the student be well advanced, I fear but little real instruction is to be got by an exhaustive study of such designs; for to fully appreciate the details given, all the data and calculations employed in the working out of these would require to be gone through, and such particulars are very rarely given. Again, very great care would require to be taken if an attempt were made to utilise such designs for some new structures; for a comparatively small change of dimensions or condition from that illustrated may so alter the stresses coming on the members of the

structure as will make the given details and scantlings quite inapplicable. The only safe course, assuming that the original designer was thoroughly competent, would be to exactly copy his work; and even if the circumstances permitted, few would, I think, care to blindly do this. In comparing the details and scantlings of actual structures with one another, even when these structures seem to be identical, rather disquieting irregularities are apt to be discovered. If the designs have been prepared by independent individuals, the differences are likely as much as anything to be due to the ideas each have of the safe stress which should be allowed to come on the material, and to the allowance which should be made for wind pressure. But it must also be remembered that an apparently insignificant alteration in design or condition may cause the same individual to considerably vary the scantlings, and this in a perfectly legitimate and justifiable manner. Unless, therefore, we can, as it were, go through exactly the same calculations and considerations as the original designer did, we are not in a position to accurately judge as the value of the design, or to fully profit by the good points it may contain.

To show how considerable may be the apparent discrepancy in scantlings between two designs, I will mention only one case, and that is taken from a publication which gives some particulars of a large number of iron structures built for various clients by the same firm of engineers. In comparing a 30ft. and a 46ft. span roof together, the type of trussing in each case being identical, and the other conditions fairly similar, we find that, while the scantlings of the rafters are proportioned much as we should expect, the main ties are in both cases of the same diameter! This may, or may not, admit of explanation, but it certainly appears sufficiently doubtful to warrant its being looked upon with considerable suspicion.

It will be noticed that up till now I have confined my remarks to iron roof principals or trusses only, those being by far the most important parts of the complete roofing.

If the covering be of any material other than iron or steel, the limitations imposed by the title of this article precludes me from considering that point further than is necessary to get at the weight of such covering, and any special requirements it may impose as to the slope of the rafters. Should the desired covering take the form of corrugated iron or steel sheets, I should be quite entitled to consider it fully.

With reference to the succeeding articles, the following is a general synopsis which will serve to show what points I propose considering:—Dead and Live Loads coming on Roofing, and how to allow for these; practical methods of determining stresses on Roof Members, Graphic Method, and Method of Moments, briefly touched on, with hints on their application; types of Roofs, good and bad; points to avoid, if possible, when outlining roof framework; simple members of framework—Struts, Ties, Beams, Beam-struts, Beam-ties, Bolts, and Rivets—their strengths, and practical values; practical forms of Rafters, Struts, and Ties; also Shoes, Junction, and Connection Plates, &c.; corrugated Sheets as used for Roof Covering; how they are laid and fixed; and the probable life of Sheets under different circumstances.

I think I need hardly point out how impossible it would be for me, in the course of five articles, to touch on all the points which should be gone over. I shall endeavour, however, to take up at least the vital points somewhat in detail, and touch on as many of the others as space will allow.

Preference will be given throughout to the simpler formulae and methods of calculation, even though the results thus arrived at be only approximate; and, wherever necessary, diagrams and tables will be given, so as to simplify my explanations, or help in the calculations.

ALEXANDER DREW.

It has been resolved to make considerable additions to the Portsmouth Hospital.





**Mr. Spier's Works  
at the Royal Water  
Colour Society Art  
Club.**

ARCHITECTURALLY the principal interest of this small Exhibition, which was open last week from Wednesday to Saturday, is the collection of drawings of Paris after the Commune, made by Mr. Phené Spiers, the well-known Master of the Royal Academy Architectural Schools. They number sixteen all told, and give a very graphic and realistic idea of the ruin wrought at that unhappy time. As they were all drawn

picture as a whole. This is an artistic result seldom met with, and could only exist in the work of an artist like Mr. Spiers. As we have said, all these drawings are worth seeing; but those that especially appealed to us for the reasons we have just given were No. 109, "Salle des Pas Perdus, Palais de Justice from the South-West," where the air of desolation is excellently given; the whole of the foreground is just a mass of ruined stone, broken ironwork, and bent girders. The huge twisted and charred girder, fallen from the floor above, and shown on the right-hand side of the drawing, is quite dramatic in effect. The colour-scheme, especially in the portions shown in reflected light, is very pleasant and luminous as a whole. No. 116, "Tuileries, West or Garden Front," is finely drawn in perspective and a most attractive picture. Delicate and sensitive in colour and in its pictorial and Architectural qualities. The effects of the fire here again is most cleverly indicated. Drawing No. 110, "Salle des Pas Perdus, Palais de Justice from North-East," is particularly good in its well-

drawings so valuable to a practical Architect. You can be as sure of his construction being right as of Mr. Wyllie's detail in the rigging of a vessel. Through the courtesy of Mr. Spiers, we have arranged for the reproduction of these drawings to appear in the "Architectural Review."

**An Election Farce  
at Beccles.**

THERE has just been played out at Beccles, in Norfolk, a pleasant little farce by the Town Council in the appointment of their Local Surveyor, which is worth more than a passing note. The ways of Town Councils are proverbially passing strange, and their methods at times are peculiar. It is quite clear, from a reading of the bare facts of the case, that there were certain members of the Council, evidently a majority too, who had a strong desire to see a son of a very particular friend of theirs appointed to the vacancy. But, being the "guardians of the public purse," and with



DESIGN FOR CHURCH DECORATION AT HAMPSTEAD. BY T. G. JACKSON, R.A.

on the spot, and, we believe, since untouched in any way, they form most valuable historical records, and convey in a manner no words could, the grim reality and the desolation of it all. They are by far the most interesting drawings in the Exhibition, and one returned to them again and again, fascinated in much the same manner as one would be by the buildings themselves at the time of their destruction. Each one of the drawings is worth careful attention, they all contain points of considerable interest, not only to the Artist, as regards the light and shade, composition, and so forth, admirable as it all is, but more especially to the Architect, who will notice that the points of construction and Architectural detail are excellently indicated, although in a properly subdued manner, so that the records of the construction rarely interfere with the artistic nature of the

balanced scheme of light and shade and colour, probably one of the best drawings in the set. No. 118 seems to suggest at once the awful destruction, and the brilliance and gaiety that have gone, although a certain other kind of brilliance is there still. Perhaps the most interesting drawing from a practical point of view is No. 119, "Hotel de Ville Paris Salle des Fetes," where the construction of the iron roof is most carefully recorded, together with the action of the fire upon it. Shown here and there by the ties and struts doubled up, bent in halves, or hanging down. These details are always shown in such a manner that if the ties and struts were straightened out they would fit again their proper places, even, so it looks, and we examined them pretty carefully, to the position of a bolt hole. It is this quality in Mr. Spiers' work, which always makes his

their eyes to the coming elections, they were anxious, of course, to pose as quite disinterested persons, men who would be the very last in the world to consent to any arrangement by which that aforesaid public purse should not be appealed in any way but that dictated by the most rigid economic principles, or by which the town should reap the greatest possible benefit. Now it is a very obvious thing that the Surveyorship in a county town like Beccles, with its proposed improvements, should be filled by a tried and experienced man, a man who not only has an irreproachable past record as a Surveyor, but one who should also be up-to-date in all the latest improvements in sanitary science, and, moreover, should bring to bear a mature and tried judgment upon them. In a word, he should be a man from whom there would be no danger of the town being mulcted

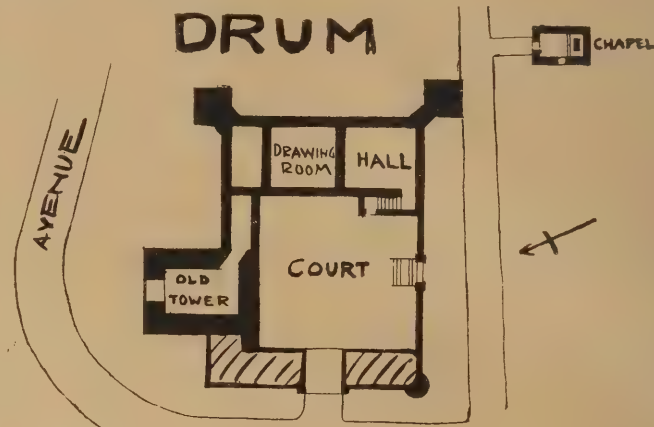


in unwise and rash experiments just because they happen to be "new." This is just the sort of thing one would expect would happen from youth and inexperience. The Town Council, however, know well how to guard against such a danger as this—externally at least—what the "inside" of the matter is is quite another thing, as will be seen soon. They advertised in all the leading building papers and in nearly all the important local ones for a competent man to fill the post at a salary of £100 a year, with the privilege of a private practice. This, for a small town, would be not at all a bad position, for he would doubtless have an Architectural connection as well. So far so good. In reply, they get no less than sixty-eight applications, many of them from tried and trusted servants, some of them Assistant-Surveyors, some Assistant-Engineers of important local towns, men of considerable and varied experience. One would naturally suppose that having these applications the Council would at least consider each one of them on their merits and elect the best qualified man. But they do nothing of the kind. To the amazement and bewilderment of their townsmen, they proceed forthwith to put up the names of three local candidates, and, without considering for a moment their merits, each man votes for his friend, with the result that the young and inexperienced son of a fellow Councillor is elected. They do this secretly and by ballot, but some too candid friend has been unkind enough to publish the "division list" in a local paper, which reveals the curious fact that the father, in a moment, of course, of absolute forgetfulness, in an absent-minded manner voted for his own son and afterwards coolly told the Council that he was quite sure they could not have done better, and hoped that what he did not know he hoped he would soon learn. We do not envy the ratepayers of this particular town at such a silly waste of their money, and under such a thin pretence of righteousness. We advise them to keep carefully this voting list, and remember all the names at the next elections. Seeing that the appointment has been duly made, we suppose it cannot now be altered. One thing the ratepayers can do, however: they can prevent these gentlemen playing such a trick upon them again, and they can do that by keeping them out of the Council.

King Leopold is going to Villefranche in March to lay the foundation-stone of his new villa.

#### GLASGOW SCHOOL OF ART.

A SECTION of last year's work of the students of the Glasgow School of Art is now on exhibition in the Corporation Galleries. It is plainly evident that a high standard of tuition in Art has been attained, even under the disadvantages of the unsuitable premises in which the school has been so long located. It seems, however, that the possession of a new building is within measurable distance of being at last realised. Besides the show



SKETCH PLAN.

of students' works of the year, there is to be seen in the galleries an exhibition of competitive designs for a new school.

It may be remembered that when the Art Gallery and Museum scheme for a building in Kelvingrove was proposed, a School of Art was also projected as part of the undertaking, and Architects were asked to include the necessary accommodation in their drawings. The accepted designs contained provision for a School of Art. The Parks and Galleries Trustees, however, found that administrative difficulties might arise between the Corporation and governors of the School of Art as joint but independent occupiers of the same building, and matters thus remained from 1892 to the present time. They have now, however, assumed a new complexion. The Bellahouston trustees have, conditionally, granted a bequest of £10,000, and the Town Council has allowed a grant of £5000, provided the necessary funds could be raised to build a suitable school. Other money also being forthcoming. Twelve Architects were invited to compete on conditions carefully drawn up, and Sir James King,

Bart., and Sir Renny Watson were appointed assessors, with powers to call in such professional aid as they might think necessary. The result was that the design of Messrs. John Honeyman and Kepple was chosen with the complete approval of the expert authorities at South Kensington. Consultation has been had by the Building Committee with the Architects, and building operations are to be at once commenced. The site purchased by the Bellahouston Trustees is that piece of land lying immediately to the north of the Panorama buildings

in Sauchiehall Street, between Dalhousie Street on the east and Scott Street on the west, and having a frontage to Renfrew Street. The building itself will face due north, with a length of 250ft. and a depth of 77ft. Owing to the conformation of the ground, the building at its south-west angle will have to be carried by a retaining wall. The plans selected show a three-storied building—a basement and two floors—the ground to the north being excavated to form an area for lighting the lowest floor. The entrance is in Renfrew Street, the main door being situated in the centre of the façade. A service door has also been made in Dalhousie Street for access to a janitor's house and for the reception of material. The staircase of the building is situated in the rear centre, and access to all floors is gained from and by it. The upper floor contains the life rooms (male and female), antique rooms (elementary and advanced), a school museum, and a board-room. The middle floor is occupied by ornament, still-life, and design rooms, and the school library and lecture theatre. The basement holds the accommodation for modelling (large antique and ornament), architectural rooms, and the technical rooms. In these will be placed a forge, a kiln, and a muffle. The basement also contains a house for a resident janitor, the heating apparatus, and various store rooms. The administration is situated in the centre of the building and on the first floor. The elevation presents the appearance of a plain business-looking edifice. The upper floor is lighted by large square-headed windows, and every care has been taken to secure a sufficiency of light for every room in the school. All rooms in which instruction is to be given are lighted from the north, the only light taken from the south being that available for the corridors, which on each floor run from one end of the building to the other, at the southern side of the edifice. The light from the south is obtained by the use of wells, there being no reservation in favour of windows in the southern wall. The whole of the plans will be on view in the Corporation Galleries till February 16th. The governors are at present contemplating building such portion of the plans as can be erected at a cost of £14,000, but they are hopeful that the whole of the sum necessary for the full consummation of the work will be raised in time to make the building operations a complete piece of work.

SWINDON Technical School, which has been erected at a cost of £12,000, was formally opened a few days ago.



SOME SCOTTISH HOUSES. SKETCH MAP.



## Some Scottish Houses.\*

By W. J. BLAIN.

**A**LTHOUGH it has been said Scottish people were devoid of wit, I have never heard the opinion ventured that they are devoid of the instinct of beauty. That the Celt was possessed of the Art feeling, and that in no small degree, is sufficiently evident from the beauty of his music, the picturesqueness of his costume, and the strange subtlety of his work in silver and brass ornaments, and it is only to the vicissitudes of a hard life that he owes the obscurity under which he labours with regard to the larger and more lasting Art of Architecture. On the other hand the Lowland Scot has produced works which, although comparatively small and plain in character, contain those elements of design which in the buildings of England and the Continent are often found wanting, and for which richness of detail and lavishness of Sculpture are often mistaken. But who would expect to find in the North-Eastern Counties of Scotland, a district devoid of all natural beauty, with its barren square-topped hills, stunted vegetation, and dearth of either the picturesque outline of the Highlands or the smooth expansive valleys of the Lowlands, nurtured by a people like the landscape—low-browed, square-faced, and who to the outsider would appear hard and unsympathetic—an Architecture the richest, most picturesque in the whole kingdom, native in its growth, original in its form, and manly in its conception, and yet in the valleys of the Dee and Don there remain houses of the 16th century equal to any on the Loire, and of a type not to be found in any other district of

Scotland. It is to these houses I purpose devoting my attention, the more so as they are comparatively unfamiliar to the Western student.

The Houses of Drum and Crathes are situated within a few miles of each other, on the rising ground on the north bank of the Dee, and about two miles from that river. They are easily reached from Aberdeen by the Ballater Railway, Drum Station being within one mile, and Crathes Station within two miles of the house; and as this two miles is through the most beautifully-wooded policies of the castle, there is no hardship in the walk. The valley of the Dee opens up, a few miles above Aberdeen, into a fertile strath extending for fifteen miles to the bend of the railway at Banchory. Here, a piece of rising ground closes in the head of the strath, and the bed of the river narrows in to the left, the railway making a detour to the right, to join the river again, ten miles further on, at Aboyne. The scenery here is of the most commonplace type, and has nothing of that picturesque grandeur which the river presents looking from Aboyne in the direction of Ballater, and the dark blue background of Lochnagar. The right bank of the river rises rather abruptly into those squat low-browed hills of Kincardineshire, covered with Scotch fir, which are so characteristic of the district. The bed of the valley, though fairly wooded, and prettily dotted with mansions along its course, is sadly marred by the broken, abrupt undulation of its contour, as if nature had placed these little eminences as a direct burlesque on the surrounding ugliness of the hills. The left bank rises rather slowly and smoothly, ascending gradually, until it finishes in the high hill of Fare, at the foot of which stand the houses of Drum and Crathes. The Castle of Drum consists of an old tower or keep of the 14th century, to which was added in 1619 the present house, consisting of a central hall with two square wings, and

grouping with the old tower to form a courtyard with boundary wall and entrance portico. There is nothing unusual about the old tower. It is the usual grim old keep of its period, with narrow slit windows, and finished with a square parapet and flat roof. The old hall, on the ground floor, is now turned into the library, and the walls are of such an extraordinary

### \* CRATHES:



SKETCH PLAN.

thickness that the ingoing of the solitary window to the north appears like a small room. The 17th century house has not the abiding strength of the old tower; the walls are comparatively thin, the rooms large and airy, the window openings big, and the modern doorway to the garden, with its fine flight of steps, large and inviting. It was built in more light-hearted times, and laughs and gambols round the old tower, like a child playing around the knees of an old warrior. A curious feature of this house is the connection of the side wings. These are merely pinned on to the corner of the main block, and are seemingly held together by an octagonal piece of walling containing a corkscrew stair, and finished with a round turret and cone roof. This forms a most pleasing piece of grouping—altogether this house shows a decided departure from the traditional Scottish type and a leaning towards the Renaissance, and, were it not for the beauty of its dormers, which are the finest I have seen, and the choice elaboration of the corbelling under the angle-pieces, it might easily be an English Baronial mansion. These dormers, five in number, of similar outline but varied design, show how the Scottish detail may be applied to modern uses, and therein the value of Drum consists. Anyone visiting Drum should not fail to see the Chapel. This is a little cell among the trees, a few yards from the house. Whether it was originally a Chapel in connection with the old tower I do not know, but it is used as such now. The charm of this little place, scarce half the size of this room, is beyond description; and as one enters by the tiny end door, scarce 6ft. high and Scotch pointed, nearly semi-circular, and feels the diffused light breaking its way through the small windows on one side, with the priest's door to the right, and the miniature altar raised two steps in front, with its altar-cloths, coloured dado, and tiny kneeling stools, one's cap instinctively comes off, and one feels as he has not for a long time. As you leave Drum you will feel sad, and at the end of the long avenue you will turn to have a last look at the house, with its fine old tower standing out square against the sky, and its pointed roofs blending harmoniously with the tree-tops, and you will say to yourself the new house may be prettier than the old tower, but the old tower is nobler than the new house. It is the combination of these principles of nobility and beauty which we will see developed in houses of Crathes, Craigievar, Midmar, and Castle Frazer.

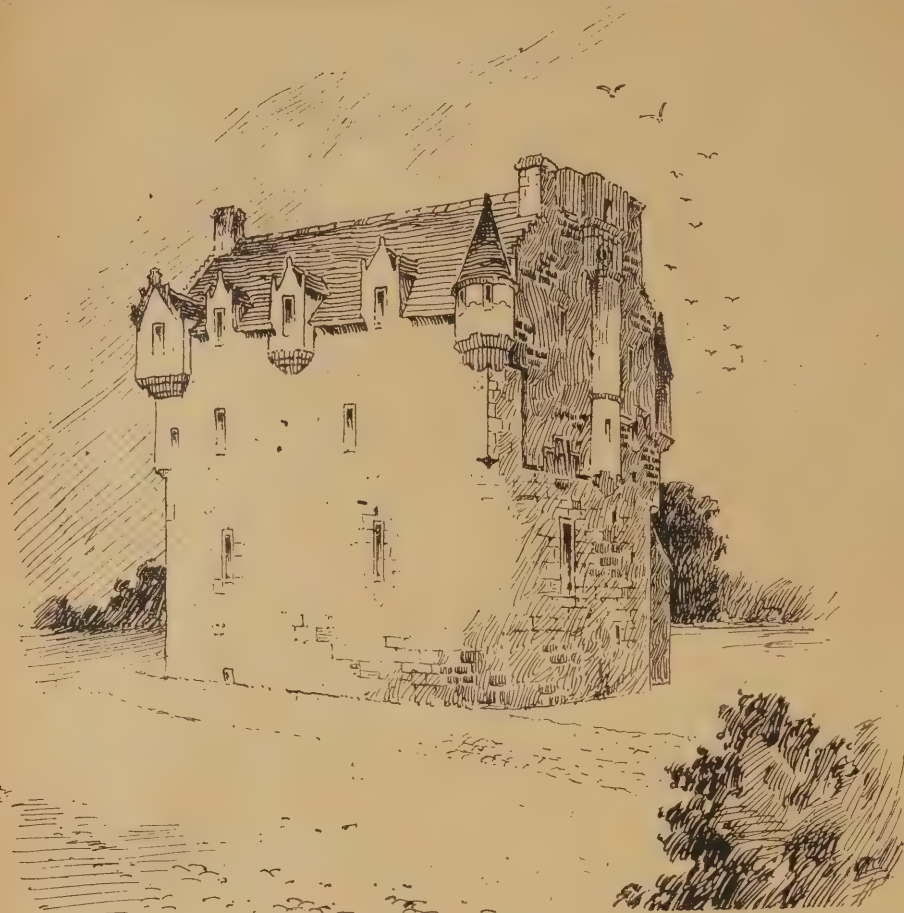
The Castle of Crathes was built between the years 1553 and 1596 by Alexander Burnet, of Leyis, whose family had possessed the lands from the time of Bruce, and is now occupied by Sir Thos. Burnet of that family, with the additional comfort of a modern wing. The Burnets of that date, according to Billings, were men of refined taste and some literary ability, connected closely to the College of Aberdeen, and this is borne out by the charac-



CRATHES. SKETCHED FROM THE S.E.

\* A paper read before the Glasgow Architectural Association.





SKETCH OF CRATHES FROM THE S.W.

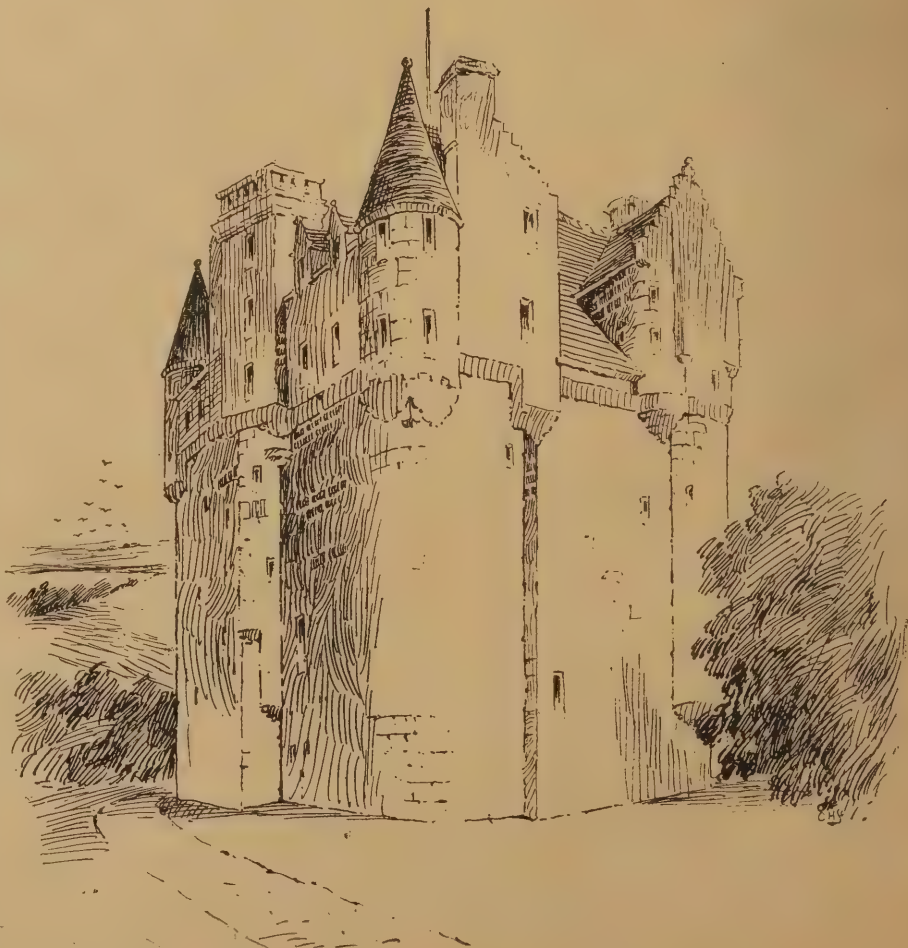
ter of their mansion, which, while retaining the strength and solidity necessary to protect it from the fierce marauding Lairds of the upper reaches of the Dee, is designed with such taste as to show that they either practised the Art of Architecture themselves, or had a fine discrimination in the choice of their builders. The house is built on the hillside, the ground being cut back to give it a level rest, and is of the usual form with staircase in the re-entering angle, the open angle facing down the valley, an arrangement which gives it a good grip of the ground and affords a fine view from the end window of the Great Hall. The plan in this case is rather difficult to follow, the staircase tower being extended to finish flush with the front gable, which is of an uncommon breadth, and is in reality a double gable filled in between in the most original fashion with a battlemented parapet. The plan consists of the usual kitchen and offices on the ground floor, the Great Hall occupying the main block on the first floor, with its barrel-vaulted roof, carved stone pendants and rich plaster panelling, and the tail of the L occupied as the customary drawing-room; above, the floors are used as bedrooms, and in the attic there is a fine long gallery with camceiled roof richly panelled and carved in oak, and extending the full length of the house. The most interesting feature in Crathes is the painting on the ceilings of the bedrooms. These are constructed of squarish timbers, say about 7in. by 5in., with the flooring above exposed. The timbers are finely axed, and are covered with the most delicate geometric ornament in light tones, tending to emphasize the long lines of the timbers, while the flooring is covered with full-size figures running through the joists, and representing historical and Biblical subjects, painted in strong dark colours, and brought into fine tone by the dark colour of the wood background, the emphatic line of the timbers counterbalancing that tendency to fall which is so much felt in painted plaster ceilings of the Classic Revival period. These paintings have been restored by the present occupier, who cannot be too much praised for the interest he takes in his house. The oak-

ceiling of the long gallery is also finely painted, but during my visit was being washed down previous to a similar restoration proposed by Sir Thomas Burnet. These paintings give one a very good impression of one of the forms of decoration of the period, and tend to disabuse one's mind of the ideas of savagery with which we generally associate the old nobility of Scotland. Externally, the building consists of four plain storeys, with fairly large openings and rounded corners with richly corbelled angle turrets in the attic storey, and dormer windows which, although not so refined in detail as those at Drum, are so designed that the building presents a most picturesque skyline while retaining that unity of mass which is so characteristic of Crathes.

To the poor Architectural student who is not in the habit of spending his superfluous money recklessly, the best way of getting to Craigievar is by taking the train from Crathes to Lumphanan, staying overnight in the hotel there, and walking in the morning to Craigievar, a distance of some five or six miles. Lumphanan is a pretty little village, situated on a small ravine, which breaks into the country on the far side of the hill of Fair.

Leaving Lumphanan and the valley of the Dee, and proceeding towards the Don at Alford, the country, as you ascend, assumes a barren, wild, and monotonous aspect, and the road winds in and out among these lonely hills and glens, until, suddenly turning the corner of a mound, a stream crosses your path, and you get the first glimpse of Craigievar Castle, surrounded by fine artificial wooding, and presenting, with its yellow, rough-cast surface and broken outline, an imposing picture amid the surrounding gloom.

Craigievar Castle is the seat of the Forbes family. It was purchased in a half-finished condition by William Forbes, a rich merchant, in 1611, and completed by him in 1626. The brother of William Forbes was Patrick Forbes, Bishop of Aberdeen at that time, a man of letters, and an ardent champion of Presby-

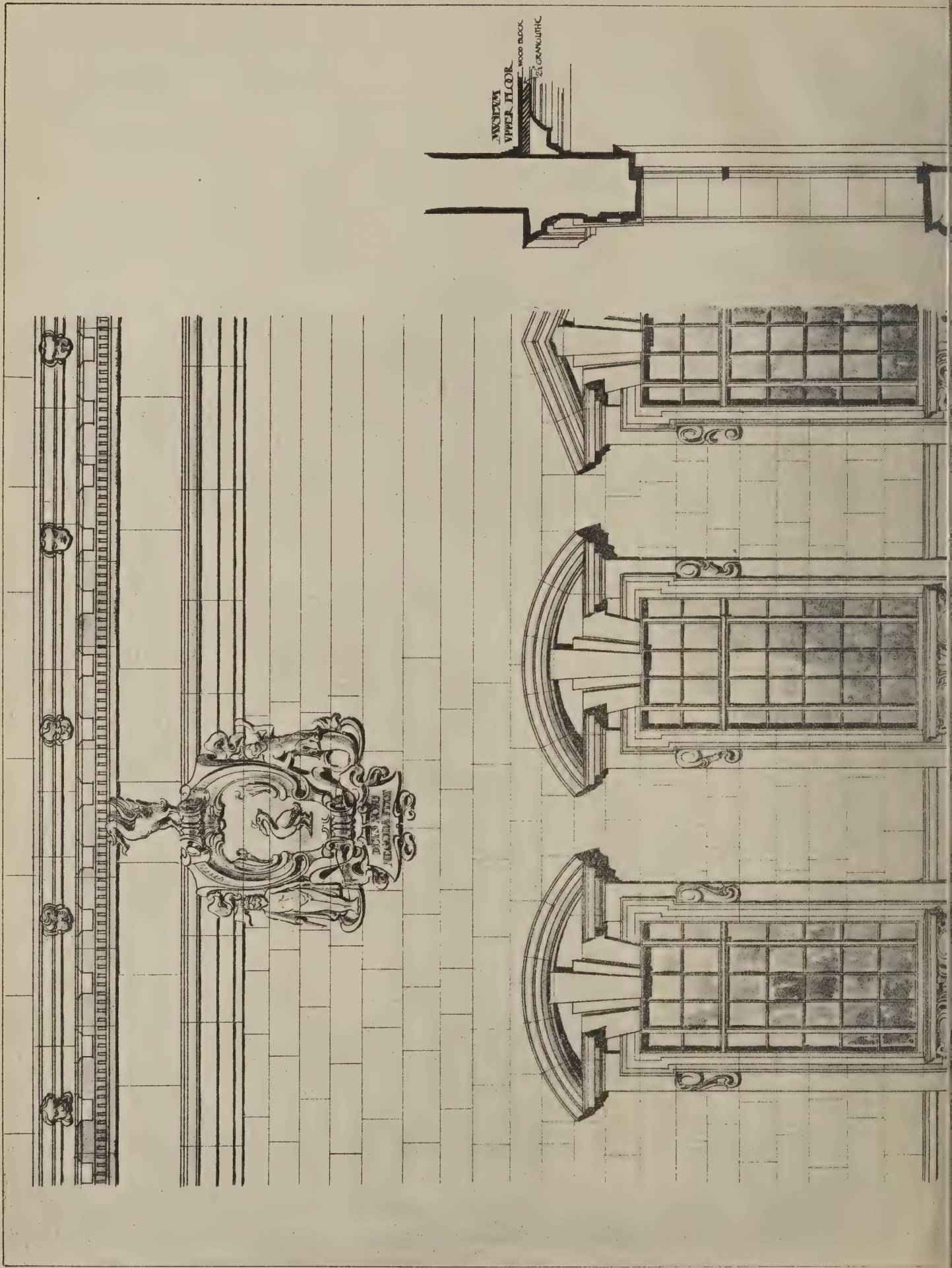


CRAIGIEVAR FROM THE N.E.

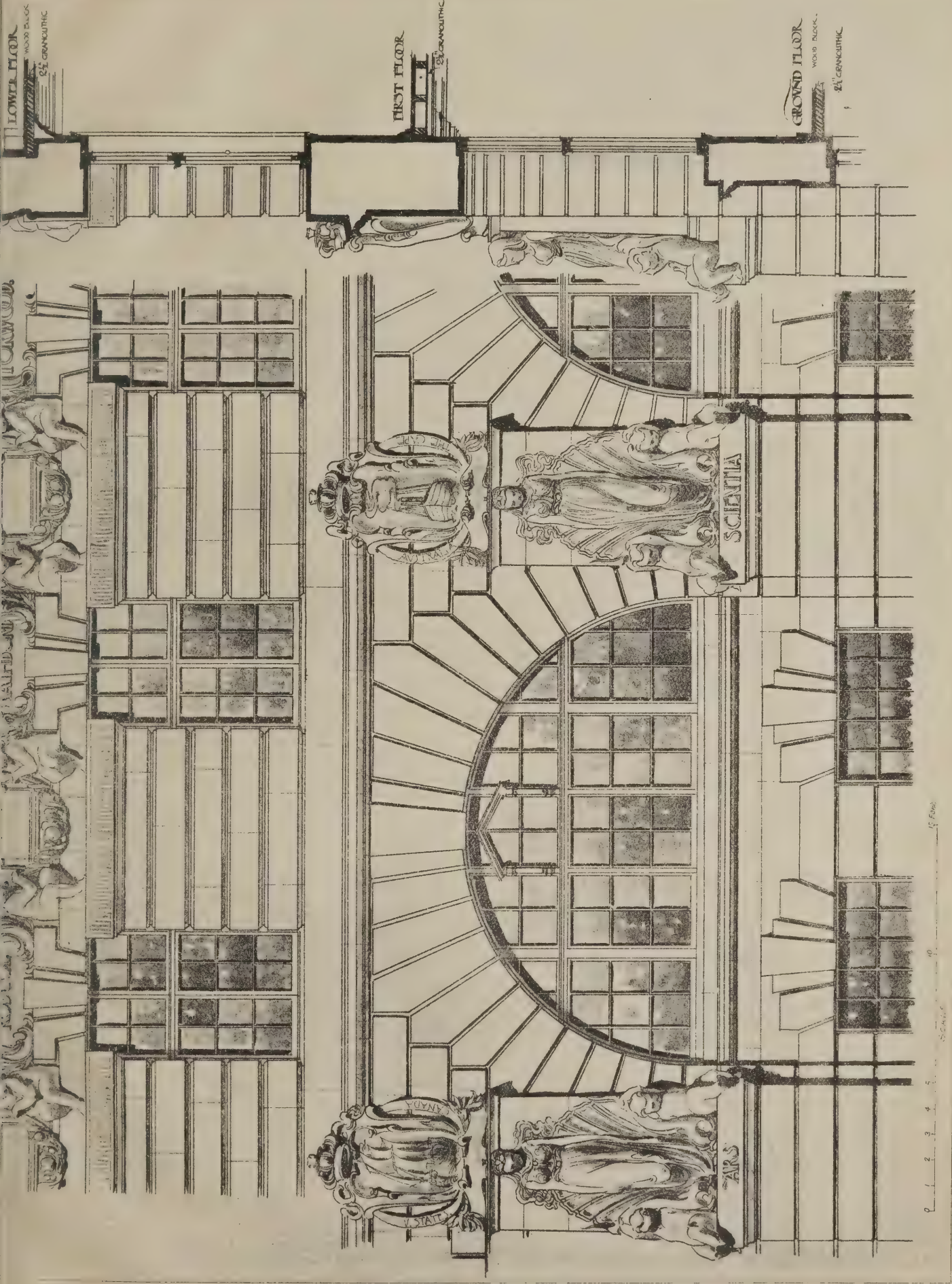


LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS









LIVERPOOL MUSEUM EXTENSION. DETAIL OF FRONT TO WILLIAM BROWN STREET.

DESIGNED BY F. R. L. B. A. ARCHT.



THE BILHARDS' JOURNAL: A RECONSTRUCTION

LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



erianism. It is now occupied by Lord Semple, who is very careful to have the house remain in its original state, and it is thus one of the best preserved examples of its period.

Although now situated far from the general highway, the old road to the north was

## CRAIGIEVAR:



SKETCH PLAN.

through this district, past the Edwardian Fortress of Kildrumie, and must have been within measurable distance of Craigievar.

The plan, like Crathes, is L-shaped, clearly enough defined at the base, but corbelled out in such an extraordinary manner as to be almost lost in the upper storeys. The arrangement is also similar to Crathes, that is, the kitchen offices in the basement, great hall, and withdrawing room on the first floor, and bedrooms above; but in this case the re-entering tower is smaller, being occupied as an entrance vestibule on the ground floor with private room above, the staircase being situated in the main block between the hall and withdrawing room. The plan, too, is turned completely round, so that the open angle faces upwards, and the end windows of the great hall look into the hillside, a defect in planning which neutralizes the view from the hall, and does away with that grip of the ground which was so beneficial to Crathes, and which I will again refer to; originally the house was surrounded by a wall and courtyard, part of which with an angle-tower and pointed arched doorway still remains. The most interesting feature in Craigievar is the Great Hall, which still retains its original arrangements undisturbed. It consists of a plain oak dado, with tone frieze and cornice supporting a barrel vault richly panelled in plaster, with carved tone pendants, and having a central groined bay over the fireplace. The dado returns across the hall a few feet from the end walls, forming a vestibule and service-room at the entrance with a musicians' gallery above. A new view of this hall is shown in Billings. What strikes you about this hall is its unity of design, every line tending to emphasize this idea. The ceiling is one mass of rich ornament, which, apart altogether from the beauty of its detail, is in such perfect scale that it never loses its singleness of motive. The frieze line rises round the chimney-vault and end walls, forming a binding line to the whole, and the dado is sufficiently carved in its upper parts so that the ceiling gets a connection to it and grows out of the wall, and again plain in its lower part, so that it in its turn grows out of the floor.

The fireplace breaks up into the vault in an abrupt fashion, and you will observe the artist has been careful to alter the scale of his work here, so that, without attracting the eye harshly, it forms what we call a feature, and combines the opposing scales of the plain dado and frieze and the rich ceiling. The bedrooms are panelled with wood on the walls, and mainly plaster-panelled on the ceilings. Together these rooms show that first of all, and beyond everything else, they are designed and then ornamented, the Designer, whoever he was, shows himself an Artist.

Exteriorly Craigievar consists of a plain square basement of four storeys with rounded corners, the opening of which are comparatively small, with a corbelled out-attic in this case rising to the height of two storeys. Although not better than the most Architecture one sees, it is slightly disappointing, principally because its features are too much emphasized and too easily recognised. The turrets stand out too prominently on the skyline, and rise too abruptly from the angles. The dormers are

too small and crushed-like, and are killed by the coarseness of the tower parapets, while the largeness of their own detail does not tend to minimize this defect.

Looking into the open angle the building seems divided into three separate parts, which the continuous line of corbelling only help to emphasize, and the turrets are so large that the gable is lost.

The builder seems to feel this last somewhat, for on the other side the turrets are run up in the most curious way, and are finished in one case with a half gable and turret, and in the other with one gable over two turrets.

The best view is from the N.E. The Designer here seems more of the dilettant than the Artist, the man who sees keenly but does not understand, and this is borne out by the ugly Renaissance tower ballustrade, which is not native to the building, and might easily have been coarsely copied from a book.

Notwithstanding all its defects, however, Craigievar is a fine, manly structure, and the student will realise on leaving it that although it is neither so grand or so beautiful as Crathes, yet it possesses elements which he has utterly failed to observe in the small-minded work of the present day. The distance from Craigievar to Alford is about four miles, and as you come within a mile of the town the view from the top of the hill is one of the loveliest to be seen. To the left the valley of the Don creeps out from among the hills at the bridge of Alford, and suddenly sweeping round into an expansive plain, nearly circular in form, and about three miles long and three miles broad, gradually gathers itself together again and

is lost among the hills to the right, where the fine peak of Benachie stands out clear against the sky. This bright little oasis, through which the Don slowly finds its course, is covered with the most beautiful woods, with mansions dotted here and there, and in the centre stands the little town of Alford, famous in the district for its markets and its annual cattle show.

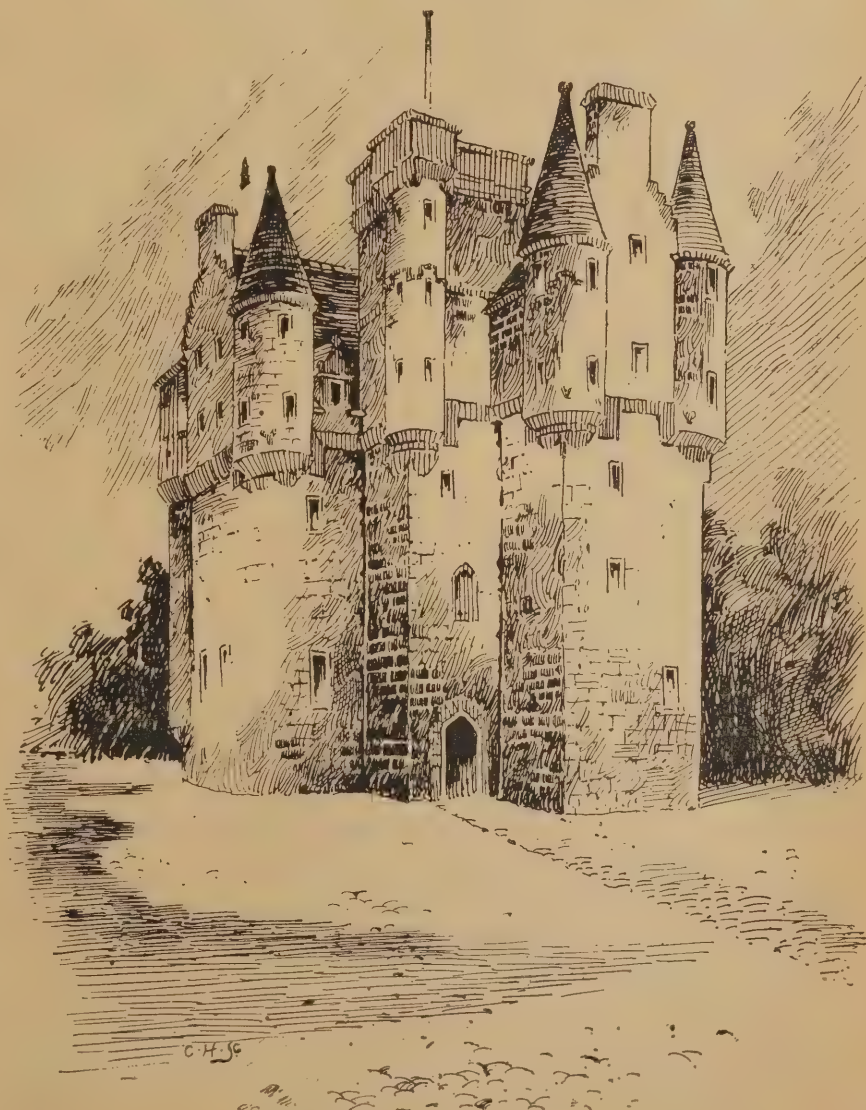
(To be continued.)

## W. AUMONIER.

IN our article on Mr. W. Aumonier in last week's issue it was stated that Lady Margaret Hall, Oxford, and the New Baths and Winter Gardens, Harrogate, were by Mr. J. M. Brydon. We learn that Mr. Reginald Blomfield was the Architect of the former, and Messrs. Baggallay and Bristowe were the Architects for the latter.

MR. PASSMORE EDWARDS has offered to contribute £2000 towards the erection of a Victoria Cottage Hospital at Acton in commemoration of the Queen's Diamond Jubilee.

ON Saturday, the 30th ult., Mr. John Barber (Chairman of the Bilton and Starbeck Board School) opened a new school at New Park, Harrogate. The schools have been erected on a site containing 4840 square yards, with a frontage to Ripon Road of 188ft. The building will give accommodation for over 500 scholars, and consists of large central hall, class rooms, infants' room, cookery room, etc. The cost (including master's house) is £6100.



CRAIGIEVAR. SKETCH FROM THE S.W.



# ARCHITECTURAL ASSOCIATION. DISCUSSION ON MR. A. S. FLOWER'S PAPER.

(Continued from page 8).

THE Chairman, in opening the discussion, said he had expressed to one or two of his friends regret that Mr. Flower had not defined his paper a little more fully, believing that it was easier to attract an audience to such a meeting with some definite object or study in view. But he was now quite convinced that Mr. Flower had done the right thing. His paper had been so suggestive, and he almost feared it was of such a nature that it would be difficult to discuss it. The line he had adopted was new, and there was something about it which, to the speaker's mind, carried a conviction of its truthfulness. He had no resources upon which he could turn to show why he thought it was truthful; he was quite unable to prove the suggestion that it was, but it did seem to him to be extremely probable. It seemed that a link was missing, which Mr. Flower had described so daintily and so characteristically, in our history books. They had for some time been accustomed to talk about mediæval Architecture as a sort of

## SANCTIFIED ENGINEERING.

Mr. Flower had certainly carried the question to a very practical point, as his studies had convinced him (the speaker) that the whole of our Art up to the time of the Renaissance was the result of particular study. He expected that an engineer would give them practically the same definition of the motive underlying any modern work of engineering. He proceeded upon geometry, mathematics, and certain scientific factors which he found mainly in his material; but it seemed to him that his method was practically the same. A more interesting prospect was open to them in the prospect of a barren geometrical investigation, which was to them works of sentiment or romance, in the singularly beautiful way in which the æsthetic sense was combined with the engineering geometric sense of the evolution of Architecture. Oh! that they might learn the lesson and be more geometrical, and, oh! that engineers might learn the lesson and be more æsthetic. He had listened carefully to Mr. Flower's opening sentences, and he remarked how gingerly he touched upon Architecturally historical books and their critics; but it certainly seemed he would have to write the new history of English Architecture, for in arriving at the conclusions he had laid before the Association he had already got together—well at all events, sufficient material for an efficient handbook on the proper and efficient study of our

## DEVELOPED ARCHITECTURE.

The portrait of the mediæval Architect which he had discovered and laid before the Association would no doubt make that meeting historical. It might be he thought he was magnifying his office as president of the Association. But such was not the case. They did not lack memories, and this point, owing to the publicity it would receive in the journals, would no doubt claim considerable attention. This thirteenth-century Architect, unearthed in the British Museum, had not a two-foot rule or a five-foot rod or bill of quantities in his hand, but simply a revolving caniper, a pair of compasses fixed in a direction and turned and repeated throughout the building consistently. This was a point which wanted developing; to him it carried an almost indefinable sense of truthfulness and conviction which was very encouraging. Similar testimony to that afforded by this illustration was borne by the celebrated album in the library of Notre Dame at Paris. It had been produced in *fac simile* in a book, the English edition of which was edited by Professor Willis. This book proved that Architects existed as artists and draughtsmen, and as draughtsmen they were geometrical even to the extent of applying it to human figures and to matters which made them titter in their pure innocence. The mediæval Architect was a suggestive Designer, also because he

sketched in a wiser way than the Architects of to-day. We sketched what we saw. The Architect of the thirteenth century sketched as he thought things ought to be, and that was vastly interesting. He made improvements in his design which were suggested to his mind when executing those designs. Another point raised by Mr. Flower's paper was the way in which the Black Death cleared off the tenderness of our national Architecture. When this point was touched upon, it went home to one, for after it they had the deluge, the perpendicular and the no life, no nothing until the Renaissance. He was sure they would all join in their thanks to Mr. Flower. —Mr. Paul Waterhouse proposed the customary vote of thanks. He congratulated both the Association and Mr. Flower on such an excellent paper, and agreed with the Chairman that discussion was difficult, because, he said, it was the paper of a specialist. He supposed Mr. Flower was a man who had given most

## CAREFUL AND STUDIOUS ATTENTION

to Gothic Architecture. Insuggesting increased system in the study of Gothic Architecture he was doing students a great service. They had long been accustomed to complain that the chronological conditions of Gothic Architecture were misleading; in fact, that they hindered as much as they helped. One great difficulty in the study of Gothic Architecture arose in the fact that Gothic Architecture when they first came up to it was chaos, and they could not expect a young person to swim under such conditions. The only way was, as had been said, to divide and rule it. It had unfortunately happened that the first divisions had been made by persons with only a partial view of the subject. These divisions had been taken up and hardened by following antiquarians, but had they been of the best description they could never for a time have thoroughly served their purpose. Even if the

## ANALYSIS AND DISSECTION

of Gothic Architecture was good, it was so complex that these divisions would tend to obscure it. In fact, it would be impossible to divide Gothic Architecture in such a manner that the divisions would not become, after increased study, the cause of obscurity. Persons had imagined that purposes of Gothic Architecture cut the subject up into so many non-interchangeable divisions, which existed as clearly in actual fact as they did in textbooks! No one, therefore, could do a greater service to the student of Gothic Architecture than by pointing out to him a higher standard which would enable him to pursue his studies with clearer views. It had been, and still was, a matter of astonishment to him that they were so afraid to criticise Gothic buildings. He scarcely knew anyone who had the courage of his opinions, and dare tell you that such and such a building, earlier than the fourteenth century, was beastly. Now, it was inevitable that some of the earlier buildings were inexcusable. For his own part he thought many of them were beastly—though, of course, it would not do to say so—and it was highly desirable that they should cultivate the power to criticise buildings, and this led him to another point—the way in which first principles were laid before

## YOUNG ARCHITECTS.

He believed that the process of true growth of an Architect began with the study of anything he could lay his hands upon in the way of Architecture. And, in acquiring the power to criticise, it was important that they should include their own designs in their criticisms. He had one fault to find with the Architect whom they had seen upon the screen, and that was that he had no india-rubber. He would always forgive him the loss of a pencil if he had an india-rubber, for, in his opinion, india-rubber was an important factor in the production of their designs. He was not then prepared to discuss with Mr. Flower the question of whether the geometric principle was the great secret of Gothic design. He was very much inclined to think then—although he did not think so half-an-hour previously—that it was. He was not quite sure whether a sense of equilibrium was a thing

they had to take into consideration in Architecture.—Mr. W. H. Seth Smith seconded the vote of thanks to Mr. Flower. Some of the ideas he had suggested were so fresh—they came as a revelation—that one was hardly prepared to say much on the subject. The paper might be described briefly as a scientific paper. It was scientific in its historical method; it had quite the style of historical criticism which was now in vogue, and it followed a general course of education. They should test everything; everything should be proved as far as possible by such data as Mr. Flower could give them. The illustration he had produced from the British Museum was something new; it marked an epoch, so far as their information on mediæval Architects went, and rather shattered the views they heard so frequently expressed that there was no Architect in the Middle Ages—the idea which, as they all knew, was just now influencing very much the course of instruction in Architecture, and had threatened, and threatened still, to do great harm to young Architects in their training. Of course, they might ride all these hobbies too fast and too far, but he thought that was the tendency now. The idea of the geometric origin of Gothic Architecture was excellent, and brought into prominence a matter which always appeared to have great weight—viz., that they as Architects required very much more training in the direction of engineering science, for they needed not only the artistic power, but also thorough training in those principles which underlie such a structural Art as theirs. He did not know what Mr. Ruskin would say to such a paper as they had listened to, but they could all imagine from his past writings that he would controvert the idea rather energetically. In seconding the vote of thanks he could only hope that that night's paper was only an instalment of other productions by Mr. Flower, which would still further elucidate the subject, and which would lead them into more

## SCIENTIFIC SECTIONS OF STUDY.

—Mr. A. H. Hart said he did not clearly follow Mr. Flower in the meaning of his paper. He had told them that geometry entered very largely into the mediæval designs. But he would like to see the point carried on a little further and see the principles developed. He was looking forward eagerly to the book which had been spoken of, and he presumed he would have to wait to see what Mr. Flower had to say on the subject further. Draughtsmen of the Middle Ages had been referred to, and he might therefore mention that he had had the opportunity of inspecting the original drawing of a Cathedral made on parchment in brown ink. Nothing had been filled in beyond what was absolutely necessary for the guidance of the workmen. Some of the parts were omitted; the absence of the metal work which added so much to the beauty of the building being particularly noticeable.—Mr. Banister F. Fletcher, the Hon. Sec., continued the discussion. He had, he said, been much interested with the paper, but had not yet got to the bottom of it. He thought he had at one time, but further suggestions by Mr. Flower had rather confused him. This suggestion of the geometric idea in connection with Gothic work had already been thrashed out, and any one who wanted to know what had been done on the subject had only to refer to Billings's "Infinity of Geometrical Design," a work which plainly showed the extent to which geometry entered into Gothic structures. Mr. Flower very naturally took objection to Billings's formidable list of dates and so on, but they must remember that they could not very well write a history of Architectural matters without introducing numerous dates, which, although very objectionable, were still asked for by the examiners at the Institute. If Mr. Flower could get dates, &c., eliminated from the syllabus he would no doubt have a considerable following of students who would thank him very much. And, proceeding to deal with Mr. Flower's suggestions, it seemed to the speaker that they must follow the history of Architecture in the Gothic ages as the history of construction if they were going to understand the different forms which were evolved,



and nearly all of which could be traced to constructive principles. Then Mr. Flower had suggested a system which this new history should accept, and there was no doubt he had those thoughts in his mind which, if introduced into this history, would enable them to follow him more closely. He had emphasized the question of design, but it was not so much a question of design as a question of construction that Architectural students ought to follow. Mr. Flower thought that would destroy interest in design. Well, the speaker thought so, too, until last Easter. He was at Canterbury, looking upon the west front of the Cathedral, when a young gentleman, accompanied by a young lady, approached, and, after gazing in rapt admiration at the front for some little time, the young lady remarked: "How like that of the west front of St. Paul's!" So that he did not think the general public understood Architecture, even as Mr. Flower put it, "as a species of superficial adornment." Then Mr. Flower had gone strongly against the division in Gothic Architecture. The speaker quite agreed with him, but what were they to do? They must draw the line somewhere! They could not talk to a student of Gothic Architecture as a general whole. They could tell him, of course, that the sub-divisions were absurd, but they must put the divisions into books, and that was why he objected to Sharpe's division so much. He took one feature—the window—and based the whole of his system on it, whereas, as a matter of fact, the system of window tracery was largely brought about by the system of vaulting. If Sharpe had taken a vault or buttress, he would have been very much nearer the division of Gothic Architecture. Again, Mr. Flower had spoken strongly on the

#### IMPORTATION OF EASTERN GEOMETRY,

but they must not overlook the fact that the Crusaders were intelligent men, who were the engineers of the army. But for a really intelligent study of English Architecture they had got to read very carefully some good English history at the same time, and he would strongly recommend Green's "Short History of the English People," which he had personally found most interesting. He believed that engineering was really a part of Architecture. In the Gothic Ages the men who erected the buildings were practical men; they were not paper draughtsmen, and that appeared to him to be the true secret of all Architecture. The true modern Architect he regarded more or less as an engineer. And as to the triangulation of English Cathedrals, well, Mr. Flower had not proposed to put anything in its place. He went for Geometry pure and simple, and one of the only men to put it down on paper was put out of court. Mr. Flower's objection to text books would, he thought, be overcome by an article written by Viollet-le-duc in the *Dictionnaire Raisonné* on Construction. This was a most admirable scientific discourse on the development of Gothic Architecture, and as far as he could remember there was no division. It was an article which every Architect ought to read. And in closing one could not help thinking that Gothic was the best style of Architecture for the student to study, whether he was going to design in Gothic or not. It was a study in construction. To anyone who measured up Gothic structures, and reasoned it out as he put it down on paper, it was an Architectural education in itself, and although he might not agree with the principles of the style, yet he was sure to derive great benefit.—The vote of thanks was carried with acclamation, and in returning thanks Mr. Flower answered the criticism at some length. As to Mr. Seth Smith's suggestion that further instalments on the same subject should be given to the Association, it was a difficult question as to how far vague ideas in one's mind could be made to assume definite form. He would not like to say for one moment that Geometry was a Royal road to design, and he did not suppose either that any of the mediæval Architects were originally inspired by it—the Englishman, at all events; the Frenchman was more logical. The Englishman did not attempt to carry anything out to a logical conclusion. If they could get the feeling of the

old Architects into their heads, they could tell, despite all text books, who the men were if they had only a bit of a moulding or any part of a building. It was not a matter of any hard and fast rule; it was a subtle influence which they could only feel. But, of course, they could not expect him to bring drawings of every building in England and point out where he thought he could detect this influence. But he could assure anyone who cared to try it that it would be a new amusement, when going about looking at old buildings, to try and find this geometrical influence. He agreed with Mr. Fletcher in his comments as to divisions. But this was a thing they could not illustrate without pulling up some of these text-books which told them that the flowing line began after the middle of the fourteenth century, where, as they knew, that all the men who did it were killed off by them. As to the Crusaders, well, when a captain who had seen every part of the world settled down in his country parish he did not want to knock down the Church and build it like a Hindoo temple, or build his house like an Afghan fort. The Crusaders certainly had a good deal to do with the matter, but he did not think their crusades were all-important. Mr. Green went on to speak of the depopulation, particularly in large centres, brought about by plague, in the Middle Ages, mentioning that the only building carried on for some years afterwards was at Windsor. He admired a good deal of Mr. Pellan's triangulation of Cathedrals, but setting-out did not cover the whole question. Divisions, as Mr. Fletcher said, must be, and the question therefore was how they would make them, whether according to facts or according to the Antiquarians of the last half century. Mr. Flower concluded by joining Mr. Fletcher in commending Viollet-le-duc's article on Construction.

Numerous illustrations of Mediæval Architecture were thrown upon the screen.

#### SALISBURY CATHEDRAL.

If the "restoration" of Peterborough Cathedral had not become a matter of public controversy, the work now being done on the famous tower and spire of Salisbury Cathedral would have attracted more attention than it has done. It is undoubtedly of considerable importance. If the Dean and his advisers are to be trusted, the result will be to preserve for many ages the beautiful spire that is the chief glory of this noble church, but has always been a source of anxiety to its guardians.

The peculiar merit of Salisbury Cathedral is its unity of design. It was built upon a new site according to a definite plan, and was practically finished within forty years of the day when the first stone was laid. Various additions were afterwards made, but these were all swept away a century ago by the remorseless Wyatt, the father of the modern "restorer," so that the Cathedral as it stands to-day is precisely the same, in all essentials, as when it left the builder's hands. Just as St. Paul's was the creation of the great Wren, so Salisbury Cathedral, as we know it, was conceived by the master-mind of one great thirteenth-century Architect, who may be identified, perhaps, with Elias of Dereham. The history of the edifice is well known. When Old Sarum was deserted by its bishops in the early part of the thirteenth century, Bishop Richard Poore sought and found a site for his new cathedral on the banks of the Avon. Here, at a spot called Maerfield, where three hundreds meet, the Bishop laid the foundation-stone on the 28th April, 1220. The building progressed so rapidly that in 1225 the Bishop was able to celebrate divine service in the east end, while in 1226 William Longespée, Earl of Salisbury, was buried in the church. Robert Bingham, William of York, and Giles of Bridport, who succeeded in turn to the See, pushed on the work with untiring energy, and in 1258 Bishop Giles was able to invite Archbishop Boniface to consecrate the Cathedral, attracting vast crowds of spectators by the promise of indulgences of a year and forty days to all who were present during the octave of the dedication. However, the workmen did not actually

leave the building till 1266. The spire was an afterthought.

#### THE ORIGINAL ARCHITECT

no doubt contemplated the possibility of erecting a lofty central tower, but he seems to have abandoned the idea for fear lest the substruction might prove too weak. The fall of the Winchester spire in 1107 may well have deterred him from making the attempt. However, after his time a more daring genius completed his plan, in or about the year 1300. The result has fully justified his boldness. The incomparably graceful spire, rising to the height of 404ft., is one of the wonders of the world. The Strasburg spire, which is 488ft. high, and the spire at Amiens, which is 422ft. high, are taller but less beautiful and less effective than this triumph of English Gothic Architecture. Besides, although it was built on very insecure foundations, and although it has certainly proved too heavy for the pillars on which it rests, the spire still stands, and is likely to stand for many generations yet. At various times the spire has given the dean and chapter much cause for anxiety. In the reign of Charles II. Wren was once summoned to report upon it. He was so impressed with the audacity of the builder that he could not believe that the original Architect intended to have any spire at all. But it did not fall, as the dean of those days seems to have expected.

#### TWO CENTURIES LATER

Sir Gilbert Scott began to strengthen the spire with iron ties invented by Mr. Shields, the engineer, and to secure the foundations of the tower. The work began by him in the sixties is now being brought to a conclusion. Unhappily, it has been thought necessary to replace many of the old stones, but in other respects the proceedings of the Architect in charge, Sir Arthur Blomfield, seem to have been less open to criticism than the rough treatment accorded by Mr. Pearson to the unhappy west front of Peterborough Cathedral. It may be hoped that the work will be successfully completed, for the Cathedral which even Pepys admired and that Constable loved is one of our most sacred and beautiful possessions.

The third section of the restoration of St. Mary's Church, Chesham, viz., the re-building and extension of the chancel, has just been accomplished. The new east window (presented by Baron de Ferriers in memory of his father, who for twenty years resided in the parish) was unveiled a few days ago.

A USEFUL map of London, showing the schemes now before Parliament for metropolitan improvements, and also indicating the extensions, &c., for which the various railway and tramway companies are seeking powers, has been issued by Mr. Edward Stanford, 26 and 27, Cockspur-street. In all, the schemes are twenty-four in number.

The Great Western terminus at Paddington is undergoing alterations necessitated by the increase of traffic resulting from the augmented service to the West of England. There will be an additional platform to the six already existing when the new arrangements are completed. The new platform will occupy a portion of the broad space between Nos. 4 and 5.

The proposal to extend the Bradford Town Hall on land at the rear in Nelson Street and Chapel Lane, owned by the Corporation, was discussed by a special sub-committee of the Town Council last week. The proposal is to erect a new Art gallery and extra municipal offices on the site, connecting them with the Town Hall by means of a bridge. The committee decided to prepare plans to be submitted to the Finance Committee of the Corporation.

An unusual occurrence recently happened at Stoke Newington. More than a year ago a builder put up a house at a less depth than is required by the Metropolitan Building Act. Proceedings were taken by the London County Council against the builder and the owner, and an order was made that the building should be set back. This order was not obeyed; and the London Council workmen have now started the work of demolition.



## THE GARDEN IN RELATION TO THE HOUSE.\*

By H. E. MILNER ASSOC. M. INST. C.E.

MR. H. E. MILNER said that he proposed to speak of the treatment adopted in laying out grounds, in their more immediate relation to the house, and to indicate generally a practical application of the theories advanced. The formal treatment of gardens reached a high state of perfection under Elizabeth, when the Architect who designed the house also laid out the garden, with its forecourt and broad terrace, its straight walks leading from it encompassing the flower beds, and all harmonising with the building. Little thought, however, was devoted to the treatment of the country outside beyond the planting of avenues. Towards the end of the eighteenth century, fashion ruled the destruction of most of the old formal gardens, to be replaced in very many instances by a no less artificial and formal imitation of nature. The designers were not content with amalgamating with whatever was good of the old work a natural treatment of the outlying ground, or of giving greater breadth to the existing formal work, but swept away all this and replaced it by meaningless walks, by clumps of trees and shrubs dotted irregularly on the lawn and park, by a boundary of planting, by imitation of bits of natural scenery, by the introduction of artificial ruins and such-like objects, with the desire of making a picturesque landscape. The author differentiated greatly between the treatment of terraces, walls, steps, balustrades, &c., in stone and verdure. Architects should extend their work in the garden in connection with the building; but this work should go hand-in-hand with the composition of the greater picture, which the art of landscape-gardening should produce. The increased

### RESOURCES OF MODERN HORTICULTURE

should be taken into account: not merely the eye but the mind should be appealed to by the beauty of composition of line, colour, perspective, and grandeur; a liberal Art should not degenerate into a mechanical one. Places differed in the conformation of the ground, in climate, in soil, in the requirements of the owner, in the amount to be expended, and in the possibility of an extension beyond the immediate precincts. It was therefore futile to lay down any hard-and-fast rules for design. The author then proceeded to treat in detail of the site, the approach, the terrace, and the garden formation and planting. The approach to a house should always appear to be direct, and any deviation from such directness should not only arise from, but should also be made to arise from, some decided obstacle. By direct was not meant straight. A straight approach required careful treatment. It was artificial in character, it could appropriately be used when an imposing or somewhat pretentious building was at the end of it, or when the distance was short, and when the country was flat. In sloping ground it should, if possible, be made against the slope of a hill. The gradient should be even and flat, or very slightly and continuously curved, otherwise it would appear not straight. If the ground be very undulating, a straight road is out of character with its surroundings. A curved line of road was generally to be preferred, as being more easy of construction, more varied views could be obtained, its gradient could be varied, following within limitations the

### NATURAL UNDULATION OF THE GROUND,

and the side slopes could be more easily and freely dealt with than the sides of a straight drive. Gradients, width of walks and drives, entrances, were here discussed in considerable detail by the author. The lodge and entrance gates belong to the drive, and should be parallel with, and at right angles to it, as distinguished from the highway. The face line of lodge should be at least ten feet from the edge of the drive, and its windows should be able to command the entrance and a

certain length of drive. On entering by the drive it was advisable to create a good impression, and therefore to mark distinctly the difference between the dusty highway and the shaded, well-trimmed drive within the gates. Planting might be introduced on either side of the entrance, but once well inside a view should be given of the outlying grounds, or stretch of park, or distant wood. A curved drive should not be planted continuously, but broad masses of planting introduced, at first to shut off the highway, at turns in the drive, and on the top or slopes of knolls round which the drive may wind. The direction and level of the approach, and the character of the Architectural features, ruled greatly the plan to be adopted for the treatment next the house. The treatment of the terrace also depended very much on the Architectural character of the building. By "terrace" was meant not only the narrow strip of level ground placed parallel with the house, or the more stately portion—often with Architectural adornments—laid out along the face of the structure, but the whole of the ground that formed the base or setting of the building. Having next discussed the various forms of terraces, the author passed on to the treatment of the garden proper, quoting partly from his book on the subject, which defined the system he advocated. So many considerations press in to vary design in

### THE GENERAL PLAN OF A GARDEN,

that arbitrary dealing by imposition of what may be termed paper designs, however ingenious, was ill-advised. The detailed plan should spring from the site as an adaptation of its natural, or created natural, features, and should not be forced upon the position, crushing it to an artificial scheme. To copy simply the design of another place is inadmissible. Considerations that rule in this connection were almost infinite—extent, geological formation, soil, existing natural formation or features, climate and aspect, the display of distant beauty, conformity to outside influences, particularly to the requirements of the possessor, and the expenditure of money that may be made. There were points of similitude between the painter's Art and landscape-gardening; but the landscape-gardener must consider that his colours change and grow; he must realise as he creates his picture that in a few years what now seems like a light green stroke of pigment to the painter may have become a tall tree, beautiful in itself, but of altered beauty, either helping or marring the landscape. He must follow nature by adapting or garnering her beauties, and tutoring her, so to speak, to a display of them. But by following nature was not meant a slavish imitation or reproduction of any of her particular scenes. Some were unattractive, some very inappropriate—all were subject to dissimilar conditions, and imitation in nature as well as in Art produced pettiness. But the spirit of the beauty of nature, embodied as it were in those of her works or features that express her majesty, simplicity, peacefulness, sweetness, repose, refinement, strength, and variety in form, colour, abundance, or any of her modifications as parts of loveliness, should be included and brought into juxtaposition in an ideal scene so far as it was possible to promote its natural development. The terrace, the region immediately next the house, and the general arrangement of the walks and gardens having been discussed, the author next dealt with the most suitable positions for planting trees and shrubs, principles of grouping, the effect of colour on distance, character of foliage, &c. He maintained that they should carry out in the parts surrounding the house the Architectural feeling of the design in terraces, walls, steps, basins, beds, and so form a base; that they could still have the dignified and quiet delight of formal work—not a narrow curtailment of the whole design. This Art gardening was far beyond the limitations of formal work only, for it could apply the balance and proportion of the latter, and, in addition, present a noble conception of Art-work, and draw into his picture the greater, broader, varied landscape.

## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

February 17th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

EIGHT sets of plans were sent in last December for a large new asylum for Belfast, but the Governors have adjourned the matter until the 22nd inst. A letter, dated Feb. 3rd, from the Board of Control with reference to the competition of plans for the new asylum, was recently placed before the Governors. The Board of Control stated that after receiving the assessor's report they found it necessary to get the estimates prepared for two of the designs which they had selected. These estimates will be supplied on Monday next, and the matter will be considered by the Board at their meeting the following day, and should no further cause for delay arise the plans and documents in connection with the competition will be forwarded for the information of the Governors on the following day.—Mr. Lawther asked would all plans sent in for competition, including those selected by the Board of Control, be sent, or only the two selected.—Dr. Merrick intimated that he understood Dr. O'Farrell had said that the Board would have every single plan sent in.—Sir William McCammond said that the Board of Control had no power to select plans.—Dr. Merrick did not know what the powers of the Board were, but he said that any recommendation from the governors would be attended to.—Sir William McCammond expressed the opinion that the governors should have some control over the estimates.—Mr. Lawther, J.P., said that, according to the letter, their hands were perfectly tied to the two plans, and the estimates of the two plans. He did not think that that should be so, and moved that the Board of Control be requested to send down with their recommendations all the plans. He had no doubt the recommendations would receive every attention at the hands of the governors.

ALTHOUGH passengers in the streets of London see little trace on the surface of excavations going on far beneath them, the fact remains that the metropolis is now either pierced, or is being pierced, in all directions with subterranean communications which will soon be open for the transport of the public from the City to the suburbs and vice versa. Some interesting particulars were given by Mr. Wyndham Portal recently to the shareholders of the Waterloo and City Railway regarding the new tunnel under the Thames which will connect the South-Western system with the centre of the City. The work was commenced in June, 1894, and has gone on uninterruptedly ever since. And, what is really an astonishing fact, there has not been a single accident notwithstanding the difficulties of the work which had to be done. One tunnel is now completed, and the other will be finished by the end of this month. The subway had to be carried right underneath the foundations of Waterloo Station. In the City underground work is also progressing as speedily as possible, and nearing completion. Mr. Portal paid genuine tribute to the skill of Mr. Greathead, the engineer, whose loss they all greatly deplored.

\* A paper read at the Institute on Monday night. The discussion is held over until next issue.



THERE has just appeared what may be described as a thoroughly competent, as well as comprehensive, manual on "Pottery; Ancient, Mediæval, and Modern." It is true that there is no lack of literature on the subject, but the charm of this volume consists in the fact that it deals with the craftsman himself, quite as much as with the plastic material with which he works. There is truth in the assertion that the Art of the potter is essentially human, since no other material records as faithfully as burnt clay the minutest touch and individual feeling, and even caprice of the man who gave it form and impressed it with his own ideas of beauty. Potters, ancient and modern, seem always to have taken a keen interest in their work, and to have been jealous of their own claims in regard to it. There are Greek cups in existence which were fashioned when the world was young, with scrawls across the base of them which record the name of the man who designed them, and in some cases even the name of his assistant. Little, stealthy marks and modest monograms lurk in ambush in much fine modern work of the same description, and those who know how to read contemporary hieroglyphics of the kind are able at a glance to state what workmen were responsible for the graceful result. The greatest English potter was probably Josiah Wedgwood, and he was somewhat of a stern taskmaster, who repressed the individuality of the men who worked under him, and yet though they knew—to borrow a homely phrase—that it was as much as their place was worth to leave their own personal token on the splendid vases which their master produced, they sometimes contrived with sly ingenuity to entangle in the design a mark which experts can still identify.

It is suggested that, as in the ceremonial of the commemoration of the sixtieth year of the Queen's reign one main incident will be a long procession through the streets of London, every householder or occupier of business premises along the line of the procession should clean the exterior of his house; in the case of stone houses, scrape down the exterior; in the case of brick, clean and repaint; in the case of plaster, repaint. The dirtiest capital of Europe, with its smoke-poisoned atmosphere, London is probably the only European capital where all buildings, public and private, are not subjected to periodical scraping and cleaning. In Paris, on all great occasions, "La Toilette de Paris" is a recognised item in the programme.

ARRANGEMENTS are contemplated for providing a system of artificial lighting in the National Gallery and the National Portrait Gallery. If proper precautions are taken against fire such a provision would be an un-mixed advantage. On foggy days, and after an early hour on winter afternoons, study in either building is quite impracticable; and many opportunities of examining the pictures are lost to workers, whose daily occupation prevents frequent visits to Trafalgar Square. The installation of the electric light would go a long way towards counteracting the inconveniences of our variable climate. It would be as well to consider whether some way could not be found of lighting the galleries from outside. Both as a means of reducing the danger of fire, and for the sake of securing as nearly as possible the same incidence of light upon the pictures as is given during the daytime by the existing skylights, such a device would have much to recommend it.

THE representatives of the National Association of the Master Builders of Great Britain, who have been holding their 38th half-yearly meeting at Blackburn, are apparently experiencing troubles common to most other occupations. The troubles with which they are assailed were stated by Mr. T. F. Rider, who presided, to be due partly to what he termed "cutting each other's throats," and partly also to the desire on the part of the British workman to get the largest wages he could for the smallest amount of work. The only remedy he could suggest for the

latter was that of reverting to the old system of payment by piece. "In the occupation with which I am associated, piecework has always been the rule, and is ever preferred by the operatives, and I have never yet been able to understand why the building trades should have such a strong aversion to it. Apart from that, however, the complaint of the Chairman about the British workman getting as much money as he can for as little work as his employer will accept, is quite in consonance with the principles upon which the employers themselves act. I have never yet heard tell of a master builder taking less for a job than he could get, or of one who supplied more timber or more bricks than he contracted to give for a certain price. Under such circumstances these sneers at the British workman's fondness for high wages are altogether out of place, and make the men who utter them appear as if they had yet to learn the elementary principles of economic science."

It has just transpired that the President of the Royal Academy was on the verge of having his two contributions to the Exhibition of the Royal Glasgow Institute of the Fine Arts (which opened on Monday week) rejected by the unconscious Hanging Committee. It was discovered when a photographer arrived at the Galleries to photograph Sir E. J. Poynter's pictures. The photographer hunted all over the rooms, but could not find the works in question. Then he appealed to the authorities. They at first could give him no information, but the result of an energetic search was that the President's pictures were discovered among the great Rejected. The fatal chalk-marks were on the pictures, but both have since been hung. It should interest the Academy to hear how near it was to a snubbing from the Glasgow School.

APROPOS of the vote for public works and buildings, says the *Chronicle*, proposals for parks and pleasure grounds include the sum of £500 for doubling the Bushey Park entrances at Hampton Court and Teddington, £500 improvements in Greenwich Park, £1000 on the erection of a north wing of the temperate house at Kew Gardens (the total estimate for this purpose being £7600), and £400 on a new greenhouse; £550 on a new hothouse at Regent's Park, £500 on further improvements in lighting the footpaths in Hyde Park. At the Houses of Parliament £2350 is to be spent in new works, among the items being £750 for the completion of the decorations of the panels in the central lobby. The warming, ventilating, lighting, and drainage expenses of the two Houses for the ensuing year are estimated to cost £15,800. The total sum to be expended in 1897-98 on the Admiralty extension buildings is £40,000. The revised estimate for these buildings is £340,000, exclusive of furniture, and up to Nov. 30, 1896, £183,247 of this had been disbursed.

THE Galician Diet has passed a resolution for the restoration of the Royal Castle on the Wawel, the idea being to make it a Royal residence. The castle, which is now used as a barrack, has interesting associations. Up to 1610 it was inhabited by Polish Kings, the Polish national saint, Stanislaus, being buried in the Cathedral inclosed within its walls. The Emperor visited the castle in 1889, and then expressed a wish for its restoration. The expense stood in the way, but that difficulty has been overcome, and there is reasonable prospect of the castle becoming the residence of the Austrian Emperor, who will no doubt appreciate the Diet's gift.

A CORRESPONDENT throws out to the City authorities the suggestion that they shall help to beautify London by removing the unsightly buildings which obscure the Guildhall on its south-west side, preventing its full beauty from being seen. The houses which obscure it are absolutely commonplace and occupied by offices, for which some neighbouring quarters would do equally well.

A GREAT deal of local interest has been excited at Wexford by the discovery of a large

number of skeletons and human remains at a place known as the Old Pound. For some time past the Corporation had in contemplation the levelling of a large mound of earth at that part of the town, as it was a great obstacle to traffic, and caused much inconvenience to pedestrians. The workmen had no sooner begun to remove the earth than they discovered numerous skeletons and human bones, some old coins and old pipes. The foundation-stones of an old Church were also discovered, and pieces of a stone holy-water font, which was evidently of exquisite workmanship from the elaborate carving to be found on the broken parts. Some very old coins were also discovered. In the sanctuary of the Church, as outlined by the foundation, a skeleton was found, supposed to be that of a priest. A vault was unearthed in which three skeletons (one of them in a very perfect condition) were found, and two very peculiar coffins were discovered. They are very similar to the old stone coffins to be found in many of the Norman Churches throughout Ireland. A Church formerly stood on the site, and was known as St. Peter's. It stood outside the town wall, but according to Sir William Petty's survey, made in 1670, it was then in ruins.

WHAT is occurring or what will occur to the metallic portions of the many tall buildings that are in process of erection at the present time, under great dissimilarity as regards temperature, humidity, and other climatic conditions, but of one characteristic sameness, viz., being sealed in solid masonry or other coverings beyond the ken of inspection? Probably no engineering question to-day is entitled to more serious consideration than this one. In discussing it recently before the American Society of Mechanical Engineers, Mr. M. P. Wood maintained that while inspection of some of the buildings now in progress, as well as some of those lately erected, reveals possibly a slight improvement in the means of preservation adopted over those apparent a short time ago, yet the improvement is a hollow mockery, and will bear fruit for repentance before many years have passed. These structures, though more carefully painted than those erected before, with more and heavier coatings of some kind of stuff called paint, do not appear in a single case to have received any attention or consideration as to the condition of the metallic surfaces, before applying the protective coating beyond a possible sweep with a dirty broom to get rid of the rough dirt from the workshop yard, and a possible wipe with a piece of old sacking to remove the grease due to machinery processes. There has been nothing like a washing-down of the parts with soda-ash or lye-water to remove the grease, and then pickling with weak acid to remove the mill scale, and a subsequent washing with lime-water to neutralise the acid bath, warming the work before painting it, and taking care to apply the paint only on clear, bright days, when no sweating can occur, or applying the paint in warm paint rooms. It is safe to say that not in a single case out of the many skeleton structures of modern sky-scrapers can this be found to have been the procedure. There would seem to be no better possible assurance than all this of trouble ahead for coming generations.

WRITING on the subject of waterfall and electric-lighting, a correspondent in a Liverpool contemporary says: "In recent years, side by side with electric light and power, the phonograph, the telephone, and photography, improvements have been made in the turbine, a machine as far superior to the water-wheel as electric light is to a tallow-candle. The turbine, as now designed, takes the utmost power out of a waterfall, whether that fall be only eight or nine feet or 200 feet in height. The Americans and the Swiss are fully alive to the force attainable from waterfalls, and towns and villages are lit up in both the United States and Switzerland by these means. The villagers at Acton Bridge and Weaverham, wishing to keep pace with the times, recently approached the trustees of the Weaverham Navigation for permission to



utilise at these falls (the falls of the river Weaver situated within a few miles of Liverpool) this waste-power of the river, by putting down a turbine, and connecting the same with a dynamo to supply electricity for their houses, farms, churches and chapels. Such a request made to municipal authorities in Switzerland, or the United States, would have met with a ready acquiescence, but in this case has been met with a refusal. The navigation would not have been injured, because all the parish council of Acton Bridge asked permission for and wished to do was to utilise the vertical fall of the river (a height of 8ft. 6in.) which no ship could sail up, and which, at present, is being wasted.

MR. E. G. KIBBLEWHITE, writing on the subject of electric lighting in London, says: "It is a disgrace to the local authorities charged with the administration of the long line of thoroughfare embracing the Strand and Fleet Street that we should be asked to pay a private monopoly 6d. per unit when Brighton gets its electric light for 2½d. Not only is the Charing Cross and Strand Electricity Supply Corporation demanding more than twice the price that Brighton pays, but it saddles acceptance with a two years' agreement, and its general conditions are irritatingly onerous. Nor is this all. If the local authorities served us we should not have our roadways broken up, communication with our premises interrupted, gas and water communications broken, and the general annoyance and loss inflicted on us which we have endured here in the Strand since August last.

To those who desire to understand the *raison d'être* of Thames floods—and the social economics of their mitigation—the present aspect of the Thames valley is instructive. Much has been said and written by interested and afflicted parties as to the causes of these inconveniences; and in most cases such sufferers have not been slow to lay the blame upon the Thames Conservancy, by the allegation that if there were more weir accommodation there would be no such serious inundations as those of November, 1894. These grumblers allege that weirs should be more capacious, and be more freely opened in advance of floods, so as to clear the channel before the great pressure arrives. This last contention is sound enough; but it is precisely what the Conservancy have been doing. There is an old-standing difficulty as regards mill-owners, who claim a prescriptive right to the maintenance of a "good head" of water; and the maintenance of this "head," if strictly carried out to the last hour before flood arrives, will mean a congested instead of a free channel when the pressure begins. But the bulk of millers now realise that what they may gain by use of the full head for a few hours before a flood may be more than lost by cessation of power for "undershot" wheels when, later on, flood rises too high for such wheels to run (as is the case with many mills recently). We may look on the mill difficulty as one which can be, and is, now practically overcome under Conservancy arrangements.

EVERYBODY is suggesting "memorials" for the Queen's Commemoration. Lord Playfair proposes one. Let us, he says, in this auspicious year, make one mighty effort to finish the South Kensington Museum. Let us house the collection in something better than a number of sheds which would disgrace a fourth-class country railway station. Let us erect a noble building, and call the whole the "Victorian Museum." We would add, says the *St. James's Gazette*, the suggestion that somewhere on the site of the present sheds might be placed a memorial tablet inscribed as follows:—"To the memory of the Brompton Boilers, which, after remaining a monument of official ineptitude and national tolerance for over thirty years, were finally swept away in a spasm of indignant common-sense to commemorate the sixtieth year of the reign of Queen Victoria."

In the Queen's Hall of the People's Palace, Mile End Road, Mr. J. Wolfe Barry recently

distributed the certificates in engineering and general subjects to students of the East London Technical College. The report showed that the students in the engineering classes during the past session numbered 756. The entries in all the evening classes of the college had been 6387, and the college had gained twenty-two London County Council exhibitions, fourteen of which were for engineering. Mr. Wolfe Barry delivered an address, in which he said he was not one of those who believed that England would necessarily be worsted by foreign competition in their engineering productions. But no doubt they would have to fight hard to maintain their position. The technical school at Berlin, apart from its equipment, cost £450,000, and other nations were equally forward in the work of technical education. In this country the best of theory and of practice should be enlisted; they should have no half measures; and the nation which would win in the end would be that which was best instructed.

At the annual meeting of the members of the Derbyshire Archaeological and Natural History Society, held on Monday week at the School of Art, Derby, the hon. secretary, in the course of his annual report, stated that it was intended to hold a general meeting of the society after Easter, when Mr. St. John Hope had promised an address upon "Derby as it was." The report went on to state that the restoration of the old font at Wirksworth had now been most successfully carried out, and the font was again in use. There had been a rumour of a scheme for restoring to use another old font in the county, and it was to be hoped that this rumour was correct. The council had been consulted as to the best means of preserving from further demolition the old cross at Pleasley, and this matter was now under consideration. The council was glad to be able to report no act of special vandalism in the county, and whilst hoping that this really meant that nothing of the kind had been perpetrated, they would still strongly urge upon individual members the importance of keeping careful watch in their own neighbourhoods with a view to the possible suggestion of counsels wiser than those which sometimes prevailed.—The report was unanimously adopted.

IN St. John's Cathedral at Malta the tapestries are some of the finest in the world, and perhaps the most interesting thing that Malta can show. No one can fail to notice (says the *Times of India*) the number of tropical animals that figure in them, such as the elephant, the tapir, and the ostrich, and in connection with this it might strike even the most casual sightseer that the human figures are all dark, some with a distinctly negro, others with a Red Indian, type of countenance. But it requires a closer examination to discover that each tapestry is evidently intended to depict the inhabitants and animal and vegetable products of some distant part of those new regions of the world, the discovery and conquest of which were exciting the minds of all Europe three centuries ago. In one we see a black prince, under a gorgeous umbrella, being carried by two stout men in a sort of hammock slung on a pole. This is the "munchil" in which the wealthy natives of Canara and Malabar travel to this day. Over this group rise two palm trees, one a cocoanut, the other a brab or talibot. In the cocoanut tree there sits a langoor, or blackfaced monkey, most faithfully executed, and on another branch the little owl which is such a distinctive feature of Indian bird life. In the foreground crawls a fine specimen of the common land tortoise, recognisable at once by the peculiar markings of its shell, while in the water close by we see the swordfish, one of the most striking of the monsters of the deep on our west coast. In another tapestry the principal figure is an elephant. In the background is a tree laden with fruit, which no one who has ever seen the original can mistake. It is the cashew-nut. This tree is a native of South America, and was introduced into India by the Portuguese. The elephant, shows, however,

that the tapestry represents India, not America, and the rest of the picture bears this out. There are South American tapestries, too. In one of them, about which a beautifully-executed toucan (not the Indian hornbill, which is often miscalled a toucan) leaves us in no doubt, two savages are represented hunting with bows and arrows, and the arrows are longer than the savages.

THE Whitechapel Board of Guardians, at its last meeting, further considered proposals for housing the children. In the first place, the dissolution of the Forest Gate District School came up, and it was decided that the present schools, which are situated at Forest Gate on a site of twelve acres in extent, shall be offered to the Poplar Guardians on the following terms, i.e., the price to be paid to be fixed by valuers mutually appointed, who shall determine the present market value of the ground as a vacant site for a parochial school. As, however, portions of the buildings require alterations to bring them up to modern requirements, a deduction of one-third is to be made from the valuers' estimate, in order to arrive at their sale value. The Guardians next dealt with the arrangements to be made for the accommodation of the Whitechapel children who are to be brought from Forest Gate, and the scheme to erect country cottages for their reception was adopted.

AFTER all, the Metropolitan Water Question is likely to be dealt with during the current session of Parliament. It is understood that the Government has decided to support the second reading of the County Council Bills, which is an important step, as it commits it to the principle of purchase and sets aside Sir John Lubbock's scheme of control. The further intentions of the Government will be explained in due course; but it is to be presumed that the Bills will go to a select Committee in the usual manner with the object of modifying them in accordance with the views of the Government on the subject—especially with respect to the terms of purchase and the composition of the body by whom the companies' undertakings are to be taken over.

To the London or North-country traveller, accustomed to solid stone viaducts and iron or steel bridges, the spider-like wooden viaducts of the trunk railway in Cornwall are a never-ending source of wonder. They have stood stress and storm for many a long year, and are apparently almost as sound now as the day on which they were first constructed. But they were built in an age when the mineral and passenger traffic were in their infancy, and when a single line worked by the staff system was sufficient to bear all the demands made upon it. Season by season the army of invading tourists in one of the most charming of western counties has increased, and the doubling of the metals has become a matter of prime necessity, which the managers of the railway have not been slow to recognise. The artistic wood structures are giving place to those built of stone, and the glories of Menheniot, Ponsanooth, and Treliever, as our forefathers once knew them, will, with a future generation, become but a memory.

OLD Bow Street Police Station is being demolished fast. Its grim old porticos and dust-covered windows still present a stern front to the modern and sprightly-looking Floral Hall on the other side of the road, but it is being attacked in the rear by demolishers, and stone by stone the front is being reached, and will meet the same fate as the building at the rear. A large warehouse will be erected on its site, which belongs to the Duke of Bedford.

THE Central Society of Belgian Architecture announces that an international congress of Architects will be held, under Government auspices, during the Currency Exhibition, to celebrate the twenty-fifth anniversary of the society's foundation. It is anticipated that the leading countries of Europe, as well as the United States, will send delegates.



## Professional Items.

**ABERDEEN.**—The Syndicate which is promoting the erection of a new theatre in Aberdeen have selected Mr. Verity, London, as consulting Architect of the building. A site for the theatre has been secured on the Rosemount Viaduct, in the north-western district of the city.

**BLAIRGOWRIE.**—Ardblair Castle, Blairgowrie, which is of more historic interest than any other in the district, has only recently had extensive improvements effected upon it in a manner in keeping with its ancient character, and from plans by Mr. Sidney Mitchell, Architect, Edinburgh, who was the designer, amongst other things, of "Old Edinburgh" in the first Edinburgh Exhibition. Long before Ardblair came into the possession of the Oliphants of Gask, to a branch of which family it belongs at the present time, it was the seat of the Blairs, a branch of the Blairs of Balthayock, the first of whom was contemporary with David II. (1329–1371). It is not without interest to note also that Nigel Oliphant, who figures in Scott's "Fortunes of Nigel," was of the family connected with Ardblair. The extensions, which consist chiefly of a large entrance hall and a number of new rooms, were begun over a year ago, the contractors for which were: Mason, Charles Farquharson, Clayquhat; joiner, T. Doig, Rattray; slater, A. Duncan, Rattray; plumber, R. Kidd; plasterer, J. Bell; painter, P. K. Donald—all of Blairgowrie. Commodious stables have also been erected, the contractors of which were: Mason, Bailie Hill; joiner, T. Steven; cement work, J. Bell; slater, W. Craigie; plumber, R. Kidd; and painter, P. K. Donald—all of Blairgowrie. Mr. G. Cunnison was Clerk of Works.

**BOLSOVER.**—The committee of the building fund has received the sum of £4553 towards the cost of erecting the new Church at Bolsover. The Architect, Mr. Ambler, of London, has inspected the ruins for the purpose of ascertaining whether the outside walls and tower are safe, and his report is expected in a few days. He has also been instructed to prepare plans for all the work required to be done. The committee is hopeful of obtaining the Duke of Portland's consent to extend the wall on the south side so as to provide greater seating accommodation, and to bring the Memorial Chapel inside the Church.

**CONISBRO.**—Detailed estimates have been prepared of the cost of constructing the proposed railway from a junction with the Manchester, Sheffield, and Lincolnshire Railway in Handsworth, passing from thence through Treeton to a junction with the South Yorkshire Railway of the Manchester, Sheffield, and Lincolnshire Railway at Conisbro'. The estimated cost of this line is no less than £400,000, of which cuttings and embankments will absorb £118,120; viaducts, £13,600; tunnels, £20,700; stations, £25,000; and land purchases, £28,850. The railway will be constructed as a double line throughout its whole length. The engineer to the scheme is Mr. W. B. Myers, Beswick.

**DUNDALK, IRELAND.**—It will interest many to learn that the Church of St. Brigid, begun last winter, is now well in hand, and is rising all round to a height of five or six feet above ground. The style is Romanesque, with rounded arches, doors, and windows, and the Church will consist of nave and transepts, with a circular apse to receive the altar. The total length inside is 110ft., 70ft. across the transepts, and width of nave 30ft. Outside the stone will show all rockfaced granite, with limestone dressings, rounded doors and windows, and in the angle of the east transept and nave will rise a Romanesque tower, when we are able to build it. The contract is £5700, and £700 more if we could go on with the tower. Altogether the design shows a very beautiful little Church. Mr. Byrne, of Suffolk Street, is the Architect, and Mr. M'Adorey, Dundalk, the builder.

**EBBW VALE, MON.**—Mr. J. H. Phillips, St. John's Chambers, Cardiff, and Mr. Frank Baldwin, Brecon, have been appointed joint Architects for the erection of an Intermediate School for the Ebbw Vale and Brynmawr districts.

**HACKNEY, N.**—On Sunday last the foundation stone of the South Hackney Synagogue and class rooms about to be erected in Devonshire Road, Mare Street, Hackney, was laid by the Hon. W. Rothschild. The new buildings, of which Mr. Delissa Joseph is the architect, and Messrs. Brown, Son, and Bloomfield are the builders, will occupy a frontage of about 93ft. to Devonshire Road, and will comprise a lower ground-floor consisting of nine spacious class rooms and an assembly hall, accommodating 400 children simultaneously, and lavatory and cloak room accommodation for boys and girls. The upper ground-floor will be the main floor of the synagogue, and will be approached by a separate entrance from the street. It will contain accommodation for 340 males; the whole of the seats will be placed crossways, and the ark, pulpit, and reading platform will be grouped together at the eastern end of the building. Two self-inclosed staircases will lead direct from the street to the gallery, which will contain accommodation for 210 ladies and two sets of cloak rooms. The total cost will be £7350.

**HALIFAX.**—The Watch Committee of the Halifax Corporation has decided that competitive plans for a new building should be invited, that two prizes of £50 and £25 respectively should be offered, and that the successful plans should be compared as to cost, &c., with the adaptation plans submitted by the Borough Engineer (Mr. E. R. S. Escott), and, if favourable, that the premiated competitive plans should be adopted. There was a divergence of opinion on the Committee as to whether the competition should be limited to the borough architects, but ultimately it was resolved, by eight votes to four, that the competition shall be an open one. The question of having a 54ft. street frontage on Harrison Road was not decided by the Committee, but it is understood that the Council will insist on this as a part of the scheme.

**HARTLEPOOL.**—At the last meeting of the Hartlepool Town Council Councillor Gilooly moved: "That a portion of the market be set apart for public baths to be supplied with fresh and salt water." He said a tank might be constructed near the Fairy Cove Battery, from which pipes could be laid direct to the market, the tank being kept perpetually filled by means of a gas engine. Possibly it might cost £2000 or £3000. The matter was referred to the Improvement Committee.

**IRVINE, N.B.**—The Irvine Parish Church, after being closed for several months for alterations, &c., was reopened a few days ago. The church has undergone a total internal renovation. The reseating of the galleries and area is all new, and the old-fashioned staircases have been inclosed. The church is of the square type, but relieved by a spire worthy of its elevated situation. Mr. John Armour, Irvine, was the architect.

**JOHNSTONE.**—The new part of the Combination Hospital, situated on the Linwood Road, was formally open for public inspection on the 6th inst. The extensions just completed have been executed to the plans of Mr. J. L. Cowan, of Wellington Street, Glasgow, and have cost over £4000, to which will require to be added another £1000 for alterations and improvements on the present hospital, so as to bring it into line with the newest and most up-to-date systems of sanitation and ventilation. Special attention has been directed to the drainage, and when the present extensions were decided upon an additional acre of ground was taken in. The contractors were: For building, Keanie, Lochwinnoch; joiners, Purdon and Cuthbertson, Kilbarchan; plastering, M'Queeny, Glasgow; heating, M'Cormack and Son, Glasgow; painting, J. M'Connell, Johnstone; engineering and laundry work, Tullis and Co., Clydebank; slating, Marshall, Kilbarchan.

**KIRKMICHAEL.**—Mr. Frank Balfour, of Kirdrogan, proposes to erect a large shooting lodge at Pitcarmick and an office connected therewith, also gamekeeper and coachman's house. The lodge will be situated in a beautiful spot in a field near to the road leading to Pitcarmick. The following are the contractors for the lodge:—Mason, Mr. James M'Leish, Rattray; joiner, Mr. D. Morrison, Ballinluig; plumber, Mr. R. Kidd, Blairgowrie; plasterer, Mr. J. Bell, Blairgowrie; slater, Mr. J. Buchan, Perth. The tradesmen for the offices are:—Mason, Mr. James, Easson, Kirkmichael; joiner, Mr. James Small, Kirkmichael; slater, Mr. Joseph M'Gregor, Kirkmichael; plasterer, Mr. J. Bell, Blairgowrie. The plans and specifications are by Mr. Leonard, Architect, Pitlochry.

**NEWCASTLE.**—The new recreation hall which has been built at the Royal Victoria School for the Blind, Benwell Dene, Newcastle, was opened on the 12th inst. The designs for the hall were prepared by Mr. W. Lister Newcombe, and the work has been carried out by Mr. Pringle, of Gateshead, contractor. It is a handsome hall, with interior dimensions of 50ft. by 20ft., and is well ventilated and heated.

**SHOTTERMILL.**—The parish church of St. Stephen's was recently reopened, after reseating and other improvements, by the Lord Bishop of Winchester. The work, which has been executed from the designs of Messrs. Brown and Barrow, Architects, of Amberley House, Norfolk Street, Strand, by Messrs. Harding Bros., builders, of Shottermill, consists of the reflooring of the entire church—the body of the church with oak joists and 1½in. deal flooring, and the nave and entrance with pitch pine wood blocks—whilst the old seats have been replaced by modern seats of Columbian cedar, the wood being given by Mr. J. Ward.

## SOCIETY MEETINGS.

**Dundee Institute of Architecture.**—A meeting of the Dundee Institute of Architecture, Science, and Art was held in the Albert Galleries on Wednesday, the 10th inst., Mr. Leslie Ower, the president, in the chair. The Secretary (Mr. J. J. Henderson) intimated the results of the recent competitions under the auspices of the Institute, as follows:—Sketch Books: 1, Ada Hill Walker, St. Andrews; 2 and 3, Robert Annal, Dundee, and A. G. R. M'Kenzie, Aberdeen—equal; 4, Thomas Ross, Dundee. Measured Drawings: 1, Andrew Haxton, St. Andrews; 2, R. D. Baillie, Cupar Fife. Design for Pediment: A. Hutton, Dundee. Outline Drawings from Museum Casts: 1, Catherine Fidler, Dundee; 2, William H. Grant, Dundee. Interior Glass Door: J. Wyse, Dundee. The referees were Messrs. T. S. Robertson, James Langlands, J. J. H. Spindler, Robert Hunter, and John MacLauchlan. The exhibition as a whole, with the exception of the measured drawings, does not reach the standard of that of last year. A short lecture, entitled "Water Heating by Steam," was afterwards delivered by Mr. Walter M'Gregor, Superintendent of the Public Baths, who explained in an interesting manner the working of the various apparatus in use at the baths in Dundee and Lochee.

**The Institution of Civil Engineers.**—At the meeting on Tuesday, the 9th inst., Mr. John Wolfe Barry, the president, in the chair, the paper read was on "Cold Storage at the London and India Docks," by Mr. H. F. Donaldson. After a brief mention of the methods of importing meat for consumption in England, including the shipment of live stock for immediate slaughtering and of meat in a chilled state as distinguished from frozen meat, the author traced, from the commencement of the experimental stage in 1881, the progress in the accommodation of the frozen meat trade in the Port of London. The work had been carried on—first by the London and St. Katharine and the East and West India Docks Companies, and subsequently by the London and India Docks Joint Committee, which came into existence in 1889—in the construction of receiving chambers at the Royal Victoria Dock, and, later, at the South-West India Dock.



## Correspondence.

### VALUE OF LAND IN LONDON.

DEAR SIR,—Referring to your paragraph in this week's issue showing the value of an acre in the West End, it might be interesting to compare this with the value of an acre in the City, which is well shown by the sale of a property in Cornhill, which in June last, under our hammer, realised a price at the rate of £2,452,023 per acre. This is an interesting comparison, both being unique positions in their respective situations.

Yours truly,  
GREEN AND SON.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two. Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St.,  
Strand, W.C.

Two schemes are now occupying the attention of the Middlesbrough Corporation, both of which are of considerable magnitude. The introduction of an electric tramways system is the subject of the first. The second is the scheme now projected by the North-Eastern Railway Company as regards the proposed Dock Extension.

## Trade and Craft.

### ANNUAL SPECIAL NUMBER OF "TIMBER."

The publishers of *Timber* have favoured us with a copy of their truly remarkable Special Annual Number, dated Feb. 1st. It is, in every sense, a weighty production, not merely in the matter of avoirdupois, but in the solid and informing nature of its contents. The Timber Trade of Ireland forms the introductory article, and it is treated of in a thorough and exhaustive manner. Mr. W. Sinclair contributes, in the second place, a valuable monograph upon the "Structure and Properties of Pitch-Pine." Mr. F. W. Edwards treats of the nobler woods, mahogany and cedar. Then follow interesting expositions of the virtues and uses of Australia's famous Jarrah and Karri woods. The teak trade of East India, Burmah, &c., concludes the section appropriated to Timber. Special interest centres in the next article—dealing with the slate trade of Great Britain—in view of recent industrial wars. Penrhyn, with its wonderful quarries, forms the initial subject, but the whole Welsh slate trade is admirably considered, and effectively depicted. Chatty sketches of great firms in the trade are added to the more solid information, while the work

is fitly closed with a succession of illustrated notes upon the latest productions in machinery as applied to the requirements of timber and its working. This Special Number is phenomenal. Its store of information is voluminous and valuable. From beginning to end the text is elucidated by admirable illustrations. We have derived pleasure from its perusal, and have gained some additional knowledge as well. But one thing seems to be lacking—an index of contents; unless it be that there should also be index of advertisers—a body whose numbers here are formidable, and whose calls for attention necessitate the use of over a hundred pages of print. Yes, an index is wanted, and badly, amid such a clamorous crowd of competitors for custom.

### WHAT IS A STREET?

A case of some importance alike to local authorities and owners of property was recently decided by a local bench of magistrates sitting at Wetherby. It was an action in which the Wetherby District Council sought to compel Mr. Benjamin Hewling, of Boston Spa, builder and contractor, to set back a certain wall on the Thorparch-road at Boston Spa. Practically, the point in dispute was as to whether the portion of the road in question was a new street within the meaning of the Local Government Act, and thence arose the further question, "What constitutes a street?" In March last, legal proceedings were instituted by the Council against Mr. Hewling in respect of the carrying out of certain plans which he had previously submitted to that body. The plans in question had originally been approved in 1891, and, according to the contention of the District Council, provided for the removal of the wall in dispute to a distance of 18ft. from the centre of the road, as would be required under the District Council's bye-laws for the making of a new street. Subsequently, however, Mr. Hewling refused to set back the wall, and in April last was summoned before the magistrates at Wetherby, and fined. The fine and costs were paid, but still the defendant declined to carry out the wishes of the Council, with the result that in July a second summons was issued against him. On this occasion the Bench dismissed the case, but the District Council pursued the matter to the High Court. The action came before Justices Wright and Gainsford Bruce during last month in the Queen's Bench Division, and their Lordships decided to refer it back to the Wetherby Bench, with certain instructions, for decision upon the facts.—The magistrates announced that they had decided that they had no reason to alter their previous decision.

### A QUESTION OF CONTRACT.

The building of these halls, which are in course of erection with funds bequeathed by the late Provost Beveridge, Kirkcaldy, any money publicly subscribed in Kirkcaldy and neighbourhood for the erection of a memorial to Adam Smith, author of "The Wealth of Nations," a native Kirkcaldy, has just been the subject of a litigation in the Sheriff Court. Some time ago the Town Council of Kirkcaldy, in whom the money for the erection of the halls is vested, asked the Sheriff to interdict the defender, Alexander Waddell, builder, Burntisland, who is the contractor for the joinery work, from removing the tools, sheds, and other erections placed temporarily on the ground by him for his own use, and for the use also for the other contractors for the work until the completion of the buildings. It appears from the pleadings that the Town Council and defendant had disagreed as to the carrying-out of the contract for the joinery work, and after negotiations the former resolved to relieve the defendant of the contract and finish the work themselves. The work done by the defendant was measured, and the pursuers offered him the value thereof, which he did not accept. The defendant threatened to remove the wooden sheds and other erections, but the Council objected to their removal until the completion of the work. The contract for the joinery work

contained a clause to the effect that in the event of any disputes or differences arising between the parties the same should be referred to the decision of an arbiter named, whose decision should be final and binding on both parties, but no such reference was entered into for a settlement of the differences which arose. In defence of the action the defendant, *inter alia*, pleaded that the action was barred by the reference clause in the specifications, and that it ought to be dismissed. The Sheriff-Substitute (Gillespie) before whom the action was heard has now pronounced judgment, giving effect to the defendant's plea, that the action was barred by the reference provided for in the specifications, and dismissed the action with costs.

### ELECTRIC LIGHTING AT YORK.

At a special meeting of the York City Council held on the 8th inst., in reference to the electric lighting question Professor Kennedy said he gave the probable outlay for plans and mains as £12,000. The tenders for both the sections which covered this work amounted to £11,252, so that his estimate covers ample allowance for contingencies and additions in connection with the cables and roadwork. The schedule prices for the first 100 services and meters come to £695, so that his allowance of £1000 covered ample margin. For the arc lighting of the streets he mentioned the sum of £600 to £700, but the actual outlay would depend largely on the design of the lamp chosen, but in any case it would be below that estimate.

### RAILWAY EXTENSIONS.

A considerable portion of the Great Northern Leen Valley Railway extensions has been opened for mineral traffic, and henceforward an extensive coalfield will have provided for it an alternative route by which the mineral can be conveyed to its consumers. The colliery district embraced within the counties of Derbyshire and Nottinghamshire has recently received a goodly share of attention from competing railway companies, and the extension under notice is a typical instance of the enterprise which has been displayed by more than one company in an endeavour to serve a vast trading community.

### HEAVY COMPENSATION CLAIM.

Mr. Under-Sheriff Burchell and a special jury sitting at the Hotel Cecil have had before them the arbitration case of the United Realisation Company v. the Trustees of the late Mr. Arthur Jones. It was a case in which damages had to be assessed in respect of the compulsory acquirement of the freehold of Nos. 80 and 81, Strand, for the purpose of widening the approaches to the Hotel Cecil, and the Strand Improvement scheme. Sir William Marriott, in opening the case, said the Hotel Cecil formed one of the groups of the schemes projected by Jabez Balfour in connection with the Liberator group. Prior to the hotel being taken over by the Realisation Company, it had been allowed to go into a state of decay. Since the hotel had been taken over and opened up, the question of the widening of the approaches was brought home to the minds of those interested, and steps were taken to acquire the premises in question for that purpose. Under a will of the late Mr. Jones, it was provided that whatever money was realised from the sale of the property in question must be invested in Government securities. Upon the property was a lease, of which 56½ years had to run. The only question before the jury was what amount should be awarded the claimants. As he had said, 56½ years of the lease remained, and the premises were let at a rental of £400 per annum. On the face of it, that was an excellent investment, and he asked the jury, when awarding damages, to grant such an amount as would guarantee to those who benefited under the will the certainty of that income for the next 56½ years. Evidence was given on behalf of the claimant by Sir Whittaker Ellis, who estimated the amount of



damage, together with compensation for compulsory sale and interest on the reversion, at £19,021. For the Realisation Company, Mr. Freeman contended that the claim was excessive, and called Mr. Robert Vigers and Mr. Douglas Young, who estimated the amount to be awarded at £11,220 and £11,165 respectively. The jury assessed the amount at £16,500, including the 10 per cent. allowance for forced sale, and judgment was given accordingly, with costs.

## A BUILDING CASE.

In the Court of Appeal last week, before the Master of the Rolls, Lord Justices Lopes and Chitty, the defendant's appeal was heard in the action *Harrison v. the Yeadon Urban District Council*. This was a case in which Mr. Harrison claimed an injunction to restrain the District Council from pulling down or otherwise interfering with a coach house and stable which was being erected on a plot of land on the urban side of Cemetery Road, on the ground that the space left was not of sufficient width. They contended that if the building should stand the new street would only be 13ft. 3in. in width, instead of 26ft. 6in., as provided by the bye-laws of the Council. At a trial at the Leeds Assizes Mr. Justice Kennedy granted the injunction, and assessed the nominal damages of 40s.

Mr. Scott Fox, who now appealed, said that the question before the Court was one of the construction of the bye-laws. Although the issues were very complicated, the question to be decided had narrowed itself to small limits. The plaintiff had built in Yeadon certain property, which, for the sake of argument, though it was not named yet, might be called Carlton Terrace. It consisted of a row of nine houses, the fronts of which opened on to a narrow pathway, but the backs of which opened on to a road which gave the only access to carts. It was at the back of one of these houses on which the stable and coach house were built. He desired to contend that that roadway was a new street, and thereby came under the bye-laws. The width of their streets should be 26ft. 6in., but the plaintiff had narrowed their street to 13ft. 3in. He desired the Court to say that this was a street within the meaning of the bye-laws before a brick had been laid down to the coach house. The Court, without calling on the other side, dismissed the appeal.

## A TENANT'S LIABILITY.

At the Sheffield County Court last week, his Honour Judge Waddy finished the hearing of and gave judgment in the case of *Crawshaw v. Unwin*, which he had before partly heard.

The parties were respectively landlord and tenant of the house No. 14, Gatefield Road, and the plaintiff's case was that Unwin went out leaving the house in such a dilapidated condition that an expenditure of nearly £5 had to be incurred to fit the place for the next incoming tenant; and for that sum he sued. Further evidence was called by Mr. Ellison to rebut the plaintiff's allegations that damage over and above fair wear and tear was done in the house during the defendant's tenancy. Mr. H. Jenkinson, of 9, Gatefield Road, a neighbour, attributed the bad appearance of the rooms largely to dampness, which had discoloured the paper hangings, and also had turned the green paint yellow. He saw no evidence of wilful damage. The present tenant of 14, Gatefield Road, Mr. Richard Pexton was also called. The rooms were re-papered, he said, when he went in, and the paper had already shown signs of dampness. Mr. Edward Holmes, Architect, said he saw the interior of the house after Unwin left, and he noticed nothing inconsistent with ordinary wear and tear, except, perhaps, some marks which indicated that the persons who had cleaned the windows had stood on the window ledges and damaged the paint with their shoes. Judgment for plaintiff for 5s. 6d. cost of painting.

## BILLS OF QUANTITIES, &amp;c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.

## LIFTS

Hydraulic, Steam, Gas,  
Electric, or Hand-Power.

M. T. MEDWAY & CO.

ALBERT WORKS,

ROLT ST., DEPTFORD, S.E.

SAFETY . .  
. . ECONOMY . .  
. . SPEED.

## "ECLIPSE" PATENT GLAZING.

THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.

Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

MELLOWES & CO. Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
Telegraphic Addresses "SHEFFIELD,"

GUARANTEE sent with each Basin.



Recommended & Specified by Architects & Sanitary Engineers.

Perfect Sanitation, Healthy Houses

OBTAINED BY ADOPTING THE

"TWYCLIFFE"  
Patent Pedestal Syphon  
W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

Advantages claimed for the  
"TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.	Practically noiseless in action.
Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.	Simple in construction, reliable in action.
	No complicated mechanism to get out of order.
	Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.

## ECONOMY IN BUILDING.



B. WARD & CO.,

15, Gt. George St., London, S.W.  
And at CARDIFF, etc.

PATENT STABLE PAVING.  
PAVING.

FIREPROOF STAIRCASES.  
ARTIFICIAL STONWORKS.  
FIREPROOF FLOORS.

WOOD BLOCK AND MOSAIC PAVING.

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved, and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

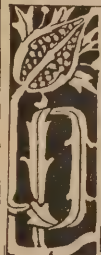
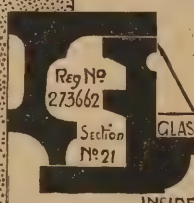
Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Feb. 20	Flints and Cartage, Chailey (Sussex)	Rural District Council	J. Miles, Clerk, 173, High-street, Lewes.
" 20	Stones and Carting, Dunblune (Perthshire), 1 Year, to Sept. 1898.	Perthshire County Council	G. A. Calder, Surveyor, Dunblane.
" 22	Materials, 1 Year, to March 1898, East Retford	Rural District Council	T. Henry, Surveyor, Retford.
" 22	Materials for Year to March 1898, London, S.E.	Vestry of St. Mary, Newington	L. J. Dunham, Clerk, Vestry Hall, Walworth, S.E.
" 22	Road and Street Works, Long Ashton, near Bristol	Rural District Council	W. Froun, Surveyor, 1, St. Stephen's-chambers, Bristol.
" 22	Road Metal, Motherwell (Scotland)	Commissioners	Surveyor's Office, Town Hall, Motherwell.
" 22	Flagging, Paving, Patricroft (Lancs.)	Burton-upon-Irwell Rural District Council	C. C. Hooley, Engineer, Union Office, Patricroft.
" 22	Materials, &c., for one year, Islington, N.	Vestry of St. Mary	W. F. Dewey, Clerk, Vestry Hall, Upper-street, Islington, N.
" 24	Materials, Litherlands (Lancs.), 12 Months	Urban District Council	W. B. Garton, Surveyor, 25, Sefton-road, Litherland.
" 25	Granite and Materials (one or three years), WoodGreen	Urban District Council	C. J. Gunyon, Surveyor, Town Hall, Wood Green.
" 25	Road Stone, Ruthin (Denbighshire)	Denbighshire County Council	E. W. Jones, Surveyor, Wrexham.
" 26	Road Material, &c., Lewes	East Sussex County Council	Henry Card, County Hall, Lewes.
" 26	Stone and Labour, Year ending March 1898, Erpingham	Rural District Council	R. Maine, Surveyor, Holt, Norfolk.
" 27	Street Works, Hoole (Cheshire)	Urban District Council	C. A. Ewing, Architect, 22, St. Werburgh-street, Chester.
" 23	Street Works, Stanley (Durham)	Stanley Urban District Council	J. Routledge, Surveyor, Council Office, Stanley.
" 23	Kerbing, Tar Paving, Metalling, Forest Hill, S.E.	Lewisham Board of Works	E. Wright, Clerk, Board of Works Office, Catford, S.E.
March 1	Materials for one year, Hendon, N.W.	Urban District Council	S. S. Grimley, Surveyor, Public Office, The Burroughs, Hendon, N.W.
" 1	Flints and Carting Steyning (Sussex)	Steyning, East, Rural District Council	E. Cripps, Clerk, Council Office, New Shoreham.
" 2	Road Materials, Bath, 1 Year, to March 26, 1897.	Steyning, West, Rural District Council	E. Cripps, Clerk, Council Office, New Shoreham.
" 3	Whinstone Metal, Year, to Sept. 1898, Glasgow	Urban Sanitary Authority	C. R. Fortune, Surveyor, Guildhall, Bath.
" 5	Making-up Pelham Road, Wanstead, N.E.	Urban District Council	A. Wilson, Surveyor, Alexandria, Glasgow.
" 5	Levelling, Kerbing, Paving, &c., Kingston-on-Thames	Corporation	W. Blewitt, Clerk, Offices of Council, Wanstead, N.E.
" 9	Maintenance and Repair (1 Year), Maidstone	Kent County Council	H. A. Winsor, Clerk, Catterton House, Kingston.
Feb. 20	Sewerage Works	Kettering Urban District Council	F. W. Ruck, Surveyor, 86, Week-street, Maidstone.
" 20	Sewage Disposal Works, Hillmorton, Rugby	Rural District Council	T. R. Smith, Engineer, Market Hill, Kettering.
" 23	Sewerage Works, New Mills (Derbyshire)	Urban District Council	T. W. Willard, Surveyor to Council, Rugby.
" 22	Pipe Sewers, Tanks, &c., Aughton, Ormskirk (Lancs.)	Rural District Council	Spinks and Beaver, 9, Albert-square, Manchester.
" 24	Sewerage Works, Clayton (Yorks.)	Clayton Urban District Council	C. S. Beeston, Engineer, Albany Buildings, Ormskirk.
" 27	Sewerage Works, Midsomer Norton	Urban District Council	J. Waugh, Engineer, Sunbridge Chambers, Bradford.
" 27	Sewerage, Midsomer Norton	Urban District Council	W. F. Bird, Market Hall, Midsomer Norton.
Mar. 2	Sewer Pipes, Bath	Urban Sanitary Authority	W. F. Bird, Market Hall, Midsomer Norton.
July 31	Sanitary Improvement Works, Oporto (Portugal)	Corporation	C. R. Fortune, Guildhall, Bath.
Feb. 20	Ironwork for Retort House Settings, Colne	Gas Committee	Municipal Town Hall, Oporto.
" 20	Gas Mains, Dover	Gaslight Company	Henry Simmonds, Engineer, Gasworks, Colne.
" 27	Sheet and other Iron (200 tons), Lisbon	Royal Portuguese Railway	G. Fielding, Secretary, 14, Sargate-street, Dover.
March 2	Steel Rails (1000 tons), Ottawa (Canada)	International Railway	Engineer, Company's Stores, Santo Apollonia Station, Lisbon.
Feb. 22	Carriage Timber, London, W.	Great Western Railway Company	High Commissioner for Canada's Office, London.
			G. K. Mills, Secretary, Paddington Station, W.

 <b>GEORGE WRAGGE</b>	<b>DECORATIVE METAL WORK</b> GAS & ELECTRIC LIGHT FITTINGS	 <b>WARDRY WORKS</b> Salford MANCHESTER LONDON 22 SURREY STREET STRAND W.C.	<b>METAL ORNAMENTAL CASEMENTS &amp; SASHES</b>
--	--	--	--

BATHS.  
CISTERNS.  
TANKS.  
STOVES.  
KITCHENERS.  
PORTABLE  
RANGES.  
MARBLE  
MANTELS.

### J. YOUNG & CO., Kenton Works, Kennington Cross, London, S.E.

Kennington Tel. No. 4712 (Hop.) Private Wire to Brixton. Balham Telephone No. 9219, Balham.

BRANCHES: 44, BRIXTON ROAD, AND 9 & 10, BALHAM HILL, LONDON, S.W.

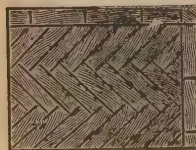
Everything for the Erection and Maintenance of Buildings and Estates can be obtained at our Warehouses. Have you a copy of our useful little Catalogue? If not, apply at once, enclosing Two Penny Stamps for Postage; it's worth the venture.

NOTE THE ADDRESS.

NOTE THE GOOD PRINCIPLE.

OUR TRADE PRINCIPLE: PERFECT WARES, IMMEDIATE DELIVERY, NOMINAL PRICES.

ROOFING FELTS.  
CORRUGATED  
IRON.  
SHEET ZINC.  
LEAD IN SHEETS  
AND COILS.  
PAPERHANGINGS  
WHOLESALE  
AND FOR EXPORT.  
OILS & COLOURS.



#### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM

JOINERY WORKS,

Clapham Junction, S.W.

FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

Telephone No. 77 (Fo-).

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,

48, HAMMERSMITH ROAD, W.

Reading Cases may be had on application  
to the Manager. Price is. 6d. each.

DO . .  
YOU . .  
WANT . .  
TO BUY  
RIGHT?

**HYDE & CO**  
**GEO. HYDE & CO**

173 & 175, KENNINGTON CROSS,  
LONDON, S.E.

DO  
YOU WANT  
SPEEDY  
DELIVERY?



## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Mar. 1	Plans and Estimates for Laying out Cliffs, &c., Felixstowe	£50, £15	
" 20	Designs for Town Hall, Enniskillen (co. Fermanagh, Ireland)	£50, £20, £10	Commissioners.
" 31	Railway Stations, Christiania	Kroner 10,000, 4000, 2000, 1000	Railway Offices, Department of Public Works, Victoria-terrace, No. 6, Christiania.
" 31	Designs for Public Halls and Municipal Offices, Govan...		Commissioners of the Burgh.
April 17	Plans and Designs for Assembly Hall, &c., Guernsey	£100, £50	States of Guernsey.
July 1	Designs for Water Supply, Elne (France)		La Mairie, Elne, Pyrénées Orientales.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AYR (N.B.).—For the construction of 6½ miles of sewers, &c., for the Commissioners. Mr. J. Eaglesham, C.E., Town Chambers, Ayr:—

W. G. Flett	£10,000 0 0	Brannigan and Scott	25,238 4 1
Shanks and McEwan	9,531 13 7	James Osborne	5,200 16 3
A. Waddell and Son	8,341 12 2	Robt. Stephenson	5,144 18 0
Workman and Co.	7,517 8 2	Wm. Simpson and Son	4,990 10 10
L. and W. McDonald	5,553 3 3	Thos. Crawford	4,832 11 3
Craik and Hendry	5,539 19 1	W. H. Blackburn	4,701 19 11
John Paterson and Sons	5,358 9 3	Chas. McAndrew	4,541 18 7
James Miller	5,305 2 0	Hugh Hastie, Crieff	4,257 8 0

BELFAST.—For the execution of road and sewage works, Hampton Park Estate, for Mr. Isaac Hampton. Messrs. Forman and Aston, C.E., 15a Donegal-place, Belfast:—  
David Ireland £1000 0 0 Thos. McMurray 2708 0 0  
Workman and Co. 820 13 6 Jas. Ross and Son 630 0 0  
J. and R. Thompson 801 1 3 Wm. McLarnon 619 10 0  
John Graham, jun 773 18 7 Michael Green, 135, Donegal-street, Belfast\* 581 2 5  
Wm. Geddis 752 10 0  
\* Accepted.

BRADFORD.—Accepted for the erection of stables and coachhouse, Morley-street, for Messrs. Empsall and Clark, architects, 7, Exchange, Bradford:—  
Masonry and Joinery.—John Moulson and Son  
Plumbing.—Robt. Townsend  
Plastering.—T. Cordingley and Son  
Slatting.—Jas. Smithies  
Painting.—John Looms  
[All of Bradford.]

CHRISTCHURCH (Hants).—For alterations, &c., at workhouse, Fairmile. Mr. Edgar H. Burton, architect, Branksom Park, Bournemouth:—  
W. H. Wilson £1,010 4 4 Tom Tiller, Bargates, 600 0 0  
Jenkins and Sons 600 0 0 Christchurch\* 2582 0  
\* Accepted.

DALHOUSIE (N.B.).—Accepted for extending Newton-Loan Hospital. Mr. Jas. Jordan, architect, 12, Castle-street, Edinburgh:—

Bricklaying.—Thomas Cumpstie, Dalkeith	£239 10 6
Carpenry and Joinery.—Thomas Macfarlane, Gorebridge	185 9 0
Slatting.—John Clapperton and Sons, Gorebridge	38 8 6
Plastering.—William Stewart, Edinburgh	47 0 0
Plumbing.—Alex. Hart, Dalkeith	53 8 6
Window Blinds.—William Bryden and Son, Edinburgh	9 12 0

DEVONPORT.—For new shop fronts and structural alterations at No. 19, Marlborough-street, for Messrs. Pote and Son. Mr. H. G. Luff, architect, Devonport:—  
Turpin £248 10 0  
T. Jenkin and Son, Devonport (accepted) 338 0

DOVER.—For a pair of semi-detached villa residences, Barton-road, Dover. Messrs. Worfold and Hayward, architects, Dover:—

Hayward and Paramor	£1,377	Austin and Lewis	£1,180
Wm. Dixon	1,363	J. Parsons (accepted)	1,118
GREAT YARMOUTH.—For additions, &c., to the "Queen's Hotel," for Mr. J. W. Nightingale. Mr. A. J. Lacey, architect, 6, Upper King-street, Norwich:—			
S. Chapman and Son	£800	G. W. Beech	£824
J. Downing and Sons	898	W. Cork, Great Yarmouth*	733
Carter and Wright	840		

HASTINGS.—Accepted for additions, &c., to engine and boiler house, Waterworks-road, for the Corporation. Mr. P. H. Palmer, C.E., Borough Engineer, Town Hall, Hastings:—

H. Ditch, High-street, Hastings  
HERTFORD.—For the supply of 600 tons broken granite road metal for the Corporation. Mr. J. H. Jevons, Borough Engineer, Town Hall, Hertford:—

	Per ton.
Fennings	8 4
W. Griffiths	13 0
Croft Granite Co.	15 4
Van Praagh and Co.	11 6
Yarborough Granite Co.	10 3
Clee Hill Granite Co., Ludlow	15 1
Somerfield, Burnshire	10 9
Midland Quarry Co., Nuneaton*	10 3
H. N. Fox	10 3
Forest Rock Co., Leicester	10 3
Fergusson and Co., Enderby	11 4
Ellis and Everard, Barton Hill	12 0
Swift Granite Co., Nuneaton	10 3
Gownley and Son, Cliffe Hill	11 3
Enderby	11 0
Enderby and Stoney Stanton	11 0
Mount Sorrell Co., Stoney Stanton	10 3

LEEDS.—Accepted for the construction of a covered reservoir, &c., for the Corporation. Mr. Thomas Hewson, City Engineer, Leeds:—

Harold Arnold and Son, Doncaster £23,000

LANGHOLME.—Accepted for the supply and erection of laundry machinery, drying closets, lift, &c., at the new Hospital, Langholme, Duffries, for the Managers. Messrs. Ainsley and Wood, architects, London. Mr. J. Kirkland, C.E. engineer, Westminster:—

Harvor Twelveteeth, Limited, Southwark-street, London

LLANDILO.—For building a residence for Mr. R. Shipley-Lewis. Mr. David Jenkins, architect:—

Lewis Davies	£1,280	Thomas Bros., Llan-	
G. Mainwaring	1,230	dilo*	£1,200
David Evans	1,200	Henry Price	1,150

LLANDILO.—For building a post-office. Mr. David Jenkins, architect:—

G. Mainwaring	£1,010 0	Henry Price	£781 0
Lewis Davies	1,002 0	David Evans, Llan-	
J. and D. Jones	935 0	dilo*	770 10
Thomas Bros.	825 0		

LLANCONEN (Cardiganshire).—Accepted for building a farmstead for Mr. Yeters Evans. Mr. David Jenkins, Llandilo, architect:—

David Evans, Llanlledeas, Llanylether, R.S.O 278

LOSTWITHIEL (Cornwall).—Accepted for the erection of four dwelling houses, for Messrs. Liddicoat. Mr. Wm. J. Jenkins, architect, Bodmin:—

Bassett Bros., Lostwithiel £2,637

LONDON.—For furniture at the Dudding Hill School, for the Willesden School Board. Mr. G. E. T. Laurence, architect, 181, Queen Victoria-street, E.C.:—

Illingworth, In-gram, and Co. £249 16 5 The Bennett Furnishing Co., Glasgow\* £804 5 10

LONDON.—For furniture at the Leopold-road School, for the Willesden School Board. Mr. G. E. T. Laurence, architect, 181, Queen Victoria-street, E.C.:—

Illingworth, In-gram, and Co. £283 14 5 The Bennett Furnishing Co., Glasgow\* £294 15 10

LONDON.—For erecting the Kensal Green School for 1,270 children, laundry and cookery centre, and caretaker's house, for the Willesden School Board. Mr. G. E. T. Laurence, architect, 181, Queen Victoria-street, E.C. Quantities by Mr. Alan Pauli, 6, Quality-court, Chancery-lane, W.C.:—

Holloway Bros.	£20,790	Alternative Extra glazed Bricks.	£250
H. Wall and Co.	20,599		910
G. Godson and Sons	19,618		870
Cowley and Drake	18,250		655
W. Scrivener and Co.	18,236		725
J. Chessum and Sons	17,989		947
Smith and Sons	17,712		933
E. Lawrance and Sons	17,309		520

\* Accepted subject to Education Department's approval.

LONDON.—Accepted for road-making and paving-works, Huthers-road (Section 1), for the Hammersmith Vestry. Mr. H. Mair, C.E., Vestry Hall, Hammersmith, W.:—

Wimpey and Co., Hammersmith £1500

LONDON.—For building a villa residence in Balmoral-road, New Brompton, for Mr. F. Pierson. Mr. E. J. Hammond, architect, New Brompton:—

J. H. Park £307 0 0 F. A. Hammond £375 10

J. L. Truman 450 0 C. E. Skinner, Chat-

H. Harris 395 0 lam\* 335 0

\* Accepted.

LONDON.—For the erection of a new Police Station at Camberwell, for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, architect. Quantities by Mr. W. H. Thurgood:—

Yerbury	£11,935	Scrivener	£11,235
Chessum	11,085	Grover	11,220
Hart	11,400	Holloway	11,000
Lawrance	11,385	Higgs and Hill	10,984
Ansell	11,275	Lathley	10,970
Perry	11,270	Lascelles	10,670

LONDON.—For the erection of new show-room, for Messrs. Peter and Evans, 464, Brixton-road. Mr. W. M. Bruton, architect:—

W. Rowe	£1,496	Tyerman	£1,416
Haydon	1,481	Godson and Sons	1,400
Triggs	1,450	Peacock Brothers	1,325
Courtney and Fairburn	1,425	Edwards and Medway	1,320

LONDON.—For rebuilding shop, High-road, Streatham, for Messrs. Purchase and Perham. Messrs. Saville and Martin, architects:—

Godson and Co.	£2,654	Peacock Bros.	£2,500
Godson and Son	2,506	Burnham and Son	2,500
Mitchell, S. E.	2,563	Palmer, W. D.	2,400

LONDON.—For repairs to the s.s. *Bazalgette*, for the London County Council:—

Robert Amor and Co.	£695 0	Mills and Knight	£298 12
John Stewart and Son Ltd.	436 11	Fletcher, Son, and Fearnall Ltd*	239 10
Robinson and Dodd	384 10		

\* Accepted.

## M'NEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)

## M'NEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

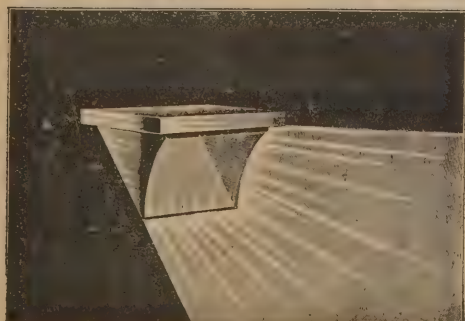
F. M'NEILL & CO., Head Office, Bunhill Row, London, E.C.; Slag Wool Works, Kirkintilloch, near Glasgow.

# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL FOR TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.



### "DRIPLESS" LIGHTS.

So constructed as to prevent the Condensation falling on anything which happens to be below.

### WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

### WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



LONDON.—Accepted for the execution of certain specified work of painting and repair to the watchboxes, fencing, &c., at Clapham Common, Wandsworth Common, Blackheath, and Maryon Park, for the London County Council.

<i>Clapham Common.</i>		
R. Harding and Son	£148 19 3	
<i>Wandsworth Common.</i>		
G. McArthur	£21 10 11	
<i>Blackheath.</i>		
E. Sroctor	£230 16 1	
<i>Maryon Park.</i>		
E. Proctor	£78 18 8	

LONDON.—For repair of roads and paths in parks, for the London County Council:—

<i>Brockwell Park.</i>		Gravel, per cubic yard.	Hoggin, per cubic yard.
J. Smith and Sons	...	9 3	8 0
H. Lake	...	7 0	7 9
J. E. Woodhams	...	7 0	7 6
Potter and Co.	...	7 0	7 0
G. W. Riley	...	6 5	6 7
W. Langridge*	...	5 5	5 5

<i>Dulwich Park.</i>		Gravel, per cubic yard.	Hoggin, per cubic yard.
L. Somerfeld	...	12 0	12 0
Fry Brothers*	...	9 6	9 6

<i>Dulwich Park.</i>		Gravel, per cubic yard.	Hoggin, per cubic yard.
W. Langridge*	...	5 5	6 7
G. W. Riley	...	6 9	7 3
Potter and Co.	...	7 0	7 6
H. Lake	...	7 0	8 0
J. F. Woodhams	...	7 3	7 9
J. Smith and Sons	...	9 3	9 3

<i>Peckham Rye Park.</i>		Gravel, per cubic yard.	Hoggin, per cubic yard.
W. Langridge*	...	5 7	6 9
G. W. Riley	...	7 0	7 6
Potter and Co.	...	7 0	8 0
H. W. Budd	...	7 3	8 3
E. Pitches	...	9 3	9 3
J. Smith and Sons	...	9 3	9 3

<i>Parliament Hill.</i>		Gravel, per cubic yard.	Hoggin, per cubic yard.
D. Ballard Limited*	...	7 0	7 0
F. A. Jackson and Son Limited	...	7 0	7 0
H. Barnaby	...	7 6	7 6

<i>Waterloo Park.</i>		Gravel, per cubic yard.	Hoggin, per cubic yard.
R. Ballard Limited*	...	6 10	6 10
F. A. Jackson and Son Limited	...	7 0	7 0
H. Barnaby	...	7 0	7 0

<i>Cissold Park.</i>		Cockle shell, per cubic yard.	Hoggin, per cubic yard.	Gravel, per cubic yard.
F. A. Jackson and Son Limited	...	9 6*	6 6	6 6
R. Ballard Limited	...	13 0	6 8	6 8
Fry Brothers	...	13 0	6 8	6 8

<i>Finsbury Park.</i>		Cockle shell, per cubic yard.	Hoggin, per cubic yard.	Gravel, per cubic yard.
F. A. Jackson and Son, Ltd.	...	9 6	5 11*	7 1*
R. Ballard, Limited	...	6 6	7 9	7 9
W. J. Lestock	...	12 0	7 6	7 6
L. Somerfeld	...	13 0	7 6	7 6
Fry Brothers	...	13 0	7 6	7 6

LONDON.—Accepted for the erection of a block of residential mansions in North-street, Belgrave, London, S.W. Mr. E. J. Sadgrove, architect, 22, Surrey-street, Strand, London, W.C. Quantities by Mr. W. H. Elmore, Castleman, Barnes, S.W.:

Stephens, Bastow, and Co. Ltd., Bristol £50,000  
MANCHESTER.—Accepted at a sale of prices for the execution of street works, Northumberland-road, and Darwin-street, for the Stretford District Council. Mr. Royle, surveyor, District Council Offices, Old Trafford.

Northumberland-road, Darwin-street.  
M. Naylor and Sons, Hulme. Wm. Clarke, Hulme.  
MORTLAKE.—For making up road, draining, and new fencing, for Sir Frederick Wynn, at Worples-road, Mortlake. Mr. C. Innes, architect, 27, Queen-street, City:—

Blackburn ... 710 9 Sale\* £484 2  
Hill ... 549 8  
Oundle.—For the erection of a house, out-offices, &c., West-street, for Mrs. Haines. Mr. J. G. Stallebrass, architect, North-street, Peterborough:—  
Siddons and Freeman ... £840  
Nichols ... £809  
Pettitt, Thrapston (accepted) ... 824  
Roberts ... 788

Coaten, Oundle ... £100

## WOOD BLOCK FLOORING.

**MASTIC** for laying above supplied in any quantity.

W. BRIGGS, Chemical Works, DUNDEE,

SOLE MAKER OF

"Tenax" Building Rock Composition

For Wall Cavities.

## PILKINGTON'S

WORKS:

CLIFTON JUNCTION,

NEAR MANCHESTER.

MANUFACTURERS OF HIGH CLASS TILES.

For Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR

CHURCHES, PUBLIC BUILDINGS AND

PRIVATE RESIDENCES.

London Show Rooms:

Lyric Chambers, 45, Whitcomb Street W.C.

Manchester Show Rooms:

37, Cross Street.

## TILES.



## HOISTING APPLIANCES

OF ALL KINDS.

Catalogue, 40 Pages, Free.

## WESTON

AND OTHER

## Pulley Blocks

in Stock, with any  
length of

## CHAINS.

Chain Maker on Premises  
for Repairs, &c.

## LONDON HOIST AND CHAIN CO.

32, Norton Folgate, E.C.

BRICKS.

LIME.

CEMENT.

**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

## SLATES

VELINHELI, PENRHYN, BANGOR, PORTMADOC, &c.

Cheap Dark Green for immediate  
delivery.

WRITE FOR PRICES—

**GIBBS BROTHERS,**  
LOUGHBOROUGH.

## MASON'S PATENT UNWEARABLE, NON-SLIPPING STAIR TREADS.

THE SAFETY TREAD SYNDICATE, LTD.  
15, Barbican, London, E.C.

Used on the New  
TOWER BRIDGE.

Non-Slipping Stairway

Entrance Covers,

Hydrant, Manhole,

Inspection, and other

Covers.

Coal Plates, &c.

Contractors to

H.M. War Office and

the Admiralty.

## GODWIN'S TILES

For PAVEMENTS  
WALLS HEARTHES &c

AS USED BY THE  
Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGBORDING, WORTHINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

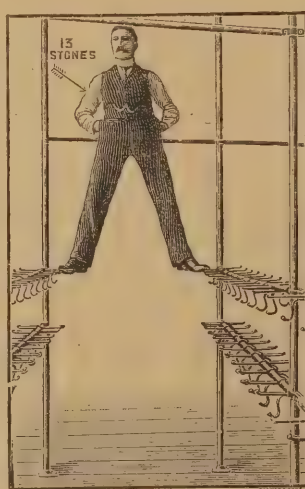
FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!



"SCHOLA"

## HAT & COAT HOOK

(Registered).

ADOPTED BY

Manchester and other School Boards.

20,000 FIXED AND IN HAND.

NO INFECTION.

Great Strength and Cleanliness.

**BROOKES & Co. Ltd.,** Art Metal Workers,  
4, CATEATON STREET, MANCHESTER.



**THE THORNTON-PICKARD**

SIMPLEST AND BEST.

**CAMERAS AND  
SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.

Illustrated  
Catalogue Free.





# "The Builders' Journal" Advertisers.

Names and Addresses with the page on which their Announcements appear.

Adams & Co. ... ..	vi	Couzens, G. and F., Cardiff ... ..	—	Jones & Attwood, Stourbridge and London ... ..	i	Rockingham Railway and Jarrahdale Timber Co., Ltd. ... ..	—
Adams, Robert, London ... ..	vi	Cox, Sons, Buckley & Co., London ... ..	—	Jones and Willis, London ... ..	—	Safety Tread Syndicate, Ltd. ... ..	x
Adams, T., & Sons, Ltd., Birmingham ... ..	xi	Dennis, Henry, Ruabon ... ..	—	Kauri Timber Co., Ltd., London ... ..	—	St. Pancras Iron Co., London ... ..	—
Albion Clay Co., Ltd., London and Burton-on-Trent ... ..	—	De Ridder, R. P., Liverpool ... ..	—	Kaye, Joseph, & Sons, Ltd., London ... ..	—	Self-Lock Roofing Tile Co., Ltd. ... ..	—
Allday, J. L. ... ..	vii	Doulton & Co., Lambeth ... ..	i, ii	King, John, Liverpool ... ..	i	Skidmore, Thos., & Son, Wolverhampton ... ..	—
Ashmore, Benson, Pease & Co., Ltd., Stockton-on-Tees ... ..	—	Easton, Anderson & Goolden, Ltd., London ... ..	iv	Lewis, J., London ... ..	v	Smokeless Fire Co., Ltd., London ... ..	i
Attwood, J., Stourbridge ... ..	—	Eastwood & Co., London ... ..	x	London Hoist and Chain Co. ... ..	x	Stanley Bros., Ltd., Nuneaton ... ..	xi
Ball, H. A. ... ..	—	Ellis, Partridge & Co., Leicester and London ... ..	—	Macfarlane, Walter, & Co., Glasgow ... ..	—	Stiff & Sons, London ... ..	iii
Barnett, Edward, Walsall ... ..	—	Elsley, Thomas, London ... ..	—	McLean Bros. & Rigg, Ltd., London ... ..	—	Strode & Co., London ... ..	i
Barrows & Co., Ltd., Banbury ... ..	—	Elterwater Green Slates ... ..	—	McNeill, F., & Co. ... ..	ix	Szerelmey & Co., London ... ..	—
Bath Stone Firms, Ltd., Bath ... ..	—	Etridge, J. J., Junr., London ... ..	—	Maw & Co., Ltd., Jackfield ... ..	—	Talbot Co., Leeds ... ..	vii
Batchelar, J., & Co., London ... ..	viii	Ewart & Sons, London ... ..	—	Mayfield, J. T., & Co. ... ..	—	Thornton-Pickard Manufacturing Co., Altrincham ... ..	x
Bayliss, Jones & Bayliss, Wolverhampton ... ..	—	Farmiloe, G., & Sons, London ... ..	—	Measures Bros., Ltd., London ... ..	v	Twyford, Ltd., Hanley ... ..	vii
Beaumont, John, London ... ..	—	Farrar, E., & Co., London ... ..	—	Medway, M. T., & Co. ... ..	vii	Vigers, Bros., London ... ..	—
Blackman Ventilating Co., Ltd., London ... ..	xi	Fawcett, M., & Co., London ... ..	—	Mellows & Co., Sheffield ... ..	—	Walton, Frederick & Co., London ... ..	vii
Blundell, Spence & Co., Hull ... ..	—	Gibbs Bros., Loughborough ... ..	x	Minton, Hollins & Co., Stoke-on-Trent ... ..	—	Ward, B., & Co., London ... ..	xii
Boote, Ltd., T. & R., Burslem ... ..	—	Glover, F. A., & Co., London ... ..	x	N. A. P. Window Co., London ... ..	iii	Warings, Ltd., London ... ..	i
Brady, G., Manchester ... ..	x	Godwin, William, & Son, Withington ... ..	x	National Opalite Glazed Brick and Tile Syndicate, Ltd. ... ..	—	Waygood, R., & Co., Ltd., London ... ..	—
Briggs, W., Dundee ... ..	x	Granite Silicon Plaster Co., London ... ..	—	Oates & Green, Ltd., Halifax ... ..	vi	Webb & Co., London ... ..	i
Brookes & Co., Ltd. ... ..	x	Gregory, Thomas, & Co., London ... ..	viii	Parker, Robert, & Co., Liverpool ... ..	i	Wilkinson, W. B., & Co., Ltd., London ... ..	—
Cakebread, Robey & Co., London ... ..	—	Grundy, John, Ltd., London ... ..	—	Patterson, J. & H., Manchester ... ..	—	Williams, G. A. & Son ... ..	iii
Candy & Co., Ltd., London and Newton Abbot ... ..	—	Hartley and Sugden, Ltd., Halifax ... ..	xi	Perkins, A. M. & Sons, Ltd., London ... ..	—	Wilson & Co., London ... ..	ix
Carter & Co., Poole, Dorset ... ..	—	Hentschel, C., & Co., London ... ..	i	Pilkington Tile and Pottery Co. ... ..	x	Woolams, Wm., & Co., London ... ..	—
Charteris & Longley ... ..	i	Homan & Rodgers, London ... ..	i, vi	Pulham & Son, London ... ..	—	Wragge, Geo., Manchester ... ..	viii
Claridge's Asphalt Co., Ltd. ... ..	—	Hope, Henry, Birmingham ... ..	xi	Red Star Glass ... ..	—	Wright, G., & Co., Rotherham ... ..	—
Cobbett & Co., London ... ..	—	Hyde & Co., G., London ... ..	viii	Rendle, W. E., & Co., London ... ..	—	Young & Marten, Stratford ... ..	i, ii
		Itter, A. W., Peterborough ... ..	—	Roberts, Adlard & Co. ... ..	—	Young & Co., J., London ... ..	viii
				Robson & Co., Sunderland ... ..	—		



THE  
**N.A.P.**  
Safety Windows  
supplied by the  
N.A.P. Window Co., Ltd.,  
159, Victoria St., S.W.

THE  
"Top Bolt"  
PATENT  
For the Alteration of  
Existing Windows.

**G.A. WILLIAMS & SON.**

**BLINDS**

**21. QUEEN'S ROYAL BAYSWATER LONDON. W.**

**CONTRACTS OPEN.**

## STIFF & SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS,  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS,  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

For Illustrated Price Lists apply to

**JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.**

in complete form, sealed, and endorsed "Tender for Sewage Disposal Works," on or before MARCH 3rd.

The Council do not bind themselves to accept the lowest or any Tender.

Parties tendering must do so at their own cost, and their attention is specially called to the Conditions of Payment.

CHARLES DAWSON, Solicitor,  
Clerk of the Council.

Public Hall-chambers, Uckfield,  
February 8th, 1897.

**TO BUILDERS.**

CITY OF CANTERBURY.

BEANEY INSTITUTE (PUBLIC LIBRARY, &c.).  
The Mayor and Corporation are prepared to receive  
TENDERS from competent Builders for the ERECTION  
and COMPLETION of the NEW BUILDINGS within

the City of Canterbury to be devoted to the purposes of a Public Library and Institute.

The plans and specifications may be seen at the Office of the Architect, Mr. A. H. CAMPBELL, City Surveyor, 28, St. Margaret's-street, Canterbury, from whom also schedules of quantities (prepared by an independent Surveyor) may be obtained on deposit with me of cheque for Five Guineas returnable upon receipt of a bona fide Tender and after the contract is settled.

Tenders, upon a prescribed form, properly filled up, sealed, and endorsed "Tender for Beane Institute," to be lodged with me, the undersigned, not later than TEN a.m. on MONDAY, March 1st next.

The lowest or any Tender may not be accepted.

HENRY FIELDING,

Town Clerk.

No. 15, Burgate-street, Canterbury.

### UCKFIELD URBAN DISTRICT COUNCIL.

SEWAGE DISPOSAL WORKS.

The Uckfield Urban District Council invite TENDERS for certain WORKS OF SEWAGE DISPOSAL, in accordance with the Drawings and Specifications and Conditions of Contract, which can be inspected at the Office of their Engineer, Mr. G. MAXWELL LAW-FORD, 13, Victoria-street, Westminster, on or after FEBRUARY 15th, and from whom the form of Tender and Bill of Quantities can be obtained.

Tenders must be filled in and delivered at my Office



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Feb. 19	<b>BUILDINGS—</b>		
" 19	Alterations to County Asylum, Rainhill (Lancs.)	Lancs. Asylums Board	G. Gornall, Clerk to the Board, Rainhill.
" 19	School Buildings and House, Ravenhill-road, Belfast	H. H. Boyd Endowment Trustees	Young and Mackenzie, Architects, Donegall-square, E. Belfast.
" 19	Fire Engine Station, Johnstone-street, Paisley	Commissioners	T. Walker, Clerk, Municipal Buildings, Paisley.
" 19	Warehouses, Strawberry-place, Newcastle-on-Tyne.	Household Furnishing Company Ltd.	Company, Strawberry-place, Newcastle.
" 19	Cottages, Celbridge (Ireland)	Guardians	S. Manning, Sanitary Officer, Celbridge.
" 19	Cottages (6), Needham-road, Combs (Suffolk)	Mr. John Bird	H. G. Bishop, Architect, Market-place, Stowmarket.
" 20	Gate Lodge and Museum, Fitz Park, Cockermouth		T. Hodgson, Station-road, Cockermouth.
" 20	Alterations and Additions, The Albert Institute, Windsor.		The Institute.
" 20	New Roof and Alterations to Church, Brentwood	Congregational Church Committee	C. Pertwee, Architect, Bank-chambers, Chelmsford.
" 20	Telegraph and Telephone Building, Cannes		Mairie at Cannes (Alpes-Maritimes).
" 20	Cottages, North Petherwin (Devon)	Duke of Bedford	Steward, Bedford Office, Tavistock.
" 20	Extensions to Netherfield Works, Kendal		R. Walker, Architect, Windermere.
" 20	Shop and Stores, Piccadilly, Walcot, Bath	Mr. E. B. Basson	H. Hookway, Solicitor, 15, Old Bond-street, Bath.
" 20	Additions and Alterations to Convent, Limerick	Society of Marie Reparatrice	W. E. Corbett, Architect, 23, Glentworth-street, Limerick.
" 22	Foundations of Lunatic Asylum, Horton (Surrey)	London County Council Asylum Committee	The Clerk, 21, Whitehall-place, S.W.
" 22	Restoration of Parish Church, Falmouth		E. Sedding, Architect, Plymouth.
" 22	Cottages (4), Langthorpe, near Boroughbridge (Yorks.)	Parish Council	S. Shaw, Clerk, Langthorpe.
" 22	School, Fairfield-road, Montpellier, Bristol	Bristol School Board	W. L. Bernard, Architect, 3, St. Stephen's-chambers, Baldwin-street, Bristol.
" 23	Works of Reconstruction, Infirmary, Whitechapel, E.	Guardians	B. J. Capell, Architect, 70, Whitechapel-road, E.
" 23	School Buildings, Walthamstow	School Board	W. A. Longmore, 7, Great Alie-street, Whitechapel, E.
" 24	Hoist and Covered Way, Dewsbury	Industrial Society, Limited	Borough Steward's Office, Dewsbury.
" 24	Dispensary and Residence, Castledermot (Ireland)	Athy Union	T. P. Orford, Workhouse, Athy.
" 24	Alteration to Boiler House, Workhouse, Plumstead	Woolwich Union	J. O. Cook, Architect, 1, Eleanor-road, Woolwich.
" 24	Enlargement of Sanatorium, St. Helens (Lancs.)	Corporation	G. J. C. Broom, Borough Engineer, St. Helens.
" 24	Swimming Bath, Rotherham	Corporation	H. H. Hickmott, Clerk, Council Hall, Rotherham.
" 24	Shed at Workhouse, Britford, Salisbury	Rural District Council	D. W. Morrice, District Surveyor, Homington.
" 26	Semi-detached Villas (3, 6, or 12 pairs), Drayton Park, Hanwell, W.		W. A. Fisher, Surveyor, 16, Finsbury-circus, E.C.
" 26	Boiler House and Works, Sewage Works, Walthamstow	Urban District Council	G. W. Holmes, Surveyor, Town Hall, Walthamstow.
" 26	Enlargement of Dining Hall, Asylum, Mickleover, Derby.		J. S. Story, City-Surveyor, County Office, St. Mary's-gate, Derby.
" 26	Isolation Hospital, Moyden, Middlesex	Heston and Isleworth Urban District Council.	W. J. Ancell, 3, Staple-inn.
" 27	Renovation of Reformed Presbyterian Church, Faughan		William Barker, 25, Orchard-street, Londonderry.
" 27	Parish Church, Brynmawr, Beaconsfield		Nicholson and Hawtree, Architects, Hereford.
" 27	Artificer's Work, Cairo, Alexandria, to March 31, 1898	War Department	Commanding Royal Engineer's Office, Head-quarters, Cairo
" 27	Three Houses, Albert Roysds-street, Rochdale		Bamford and Brocklebank, Surveyors, 58A, Yorkshire-street, Rochdale.
" 27	Retort House and Coal Stores, Grimesthorpe, Sheffield	Sheffield United Gas Light Company	F. W. Stevenson, Engineer, Gas Works, Grimesthorpe Station.
" 27	Stone Culvert (300yds.), Bideford	Corporation	W. B. Latham, Engineer, 13, Victoria-street, Westminster, S.W.
Mar. 1	Erection of a Pavilion, Newport	Royal National Eisteddfod of Wales	B. Lawrence, Austin Friars Chambers, Newport.
" 1	Restoration of Church Tower, Culmington, Salop		Rev. D. E. Holland, Culmington, Bromfield.
" 1	Public Conveniences, Taunton	Corporation	J. H. Smith, Municipal Buildings, Corporation-street, Taunton.
" 1	Foundations, Horton Asylum, Surrey	London City Council	G. T. Hine, Architect, 35, Parliament-street, S.W.
" 1	Works and Materials for 1 or 3 Years from April 1st, 1897, Hornsey.	Urban District Council	E. J. Lovegrove, Engineer, Council Office, Southwood-lane, Highgate, N.
" 1	Works, &c., to March 31st, 1900, Home District, London, S.W.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 1	Public Library, Canterbury	Corporation	A. H. Campbell, Architect, 28, St. Margaret-street, Canterbury.
" 1	Additions, County Court House, Londonderry	Official	A. C. Adair, Architect, Court House, Londonderry.
" 2	Materials, Lambeth, S.E., for 1 Year, March 25th	Vestry	J. P. Norrington, Surveyor, Vestry Hall, Kennington Green, S.E.
" 2	Works, Uffington Station (Berkshire)	Great Western Railway Company	G. K. Mills, Secretary, Paddington Station, W.
" 2	Almshouses (4), Rotherham	Trustees of Mary Bellamy's Charity	J. E. Knight, Moorgate-street, Rotherham.
" 3	Sewage Disposal Works, Uckfield	Urban District Council	G. M. Lawford, Engineer, 13, Victoria-street, Westminster, S.W.
" 3	Winter Garden on Pier, Southend-on-Sea	Corporation	Thompson and Greenhalgh, Architects, Bank-chambers, Southend.
" 5	Works, Repairs, &c., to March 31st, 1900, Royal Engineers' District, Dublin.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 6	Infectious Diseases Hospital, Kibble Bank, Burnley	Burnley Joint Hospital Board	F. S. Button, Blannel-street, Burnley.
" 6	School, Gigha (Scotland)		H. Douglas, Gigha, Argyllshire.
" 8	Works to March 31st, 1900, Royal Engineers' District, Belfast.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 10	Alterations to Workhouse, Park-road, Gosport (Hants)	Guardians	H. A. F. Smith, Architect, Star-chambers, High-street, Gosport.
" 13	Restoration of Roof, St. Blazey Church, Cornwall		Edmund Sedding, Architect, 12, Athenum-street, Plymouth.
" 15	Bishop's Palace, Londonderry	Committee	S. P. Close, Architect, 53, Warring-street, Belfast.
" 15	Works, &c., to March 31st, 1900, North-Western District, Liverpool.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
Feb. 19	<b>ENGINEERING—</b>		
" 20	Reconstructing Pier, Brighton	Brighton West Pier Company	Secretary.
" 20	Engines, Refrigerating Machinery, &c., Belgrade	Belgrade Cattle Market and B.C. Company.	Commercial Department of the Foreign Office.
" 20	Two Piers, Harris	Inverness County Council	G. W. Brennan, Civil Engineer, Oban.
" 22	Hot Water System, Plumstead		H. J. Fobling, 15, Genesta-road, Plumstead, S.E.
" 22	Filter Works, Sale (Cheshire)	Urban District Council	A. G. M'Beath, Engineer, 4, School-road, Sale.
" 22	Steel Footbridges, Dublin and Newry	Great Northern Railway Company (Ireland).	Company's Engineers, Amiens-street, Dublin.
" 22	Storm Overflow Conduit, Blackburn	Highway Committee	W. Stubbs, Borough Engineer, Municipal Offices, Blackburn.
" 23	Lancashire Boilers and Pumps, Kings-road, N.W.	Vestry of St. Pancras	Electricity Department Office, 57, Pratt-street, N.W.

## EASTON, ANDERSON &amp; GOOLDEN, LIMITED,

3, WHITEHALL PLACE, LONDON, S.W.

22, BILLITER STREET, E.C.

Telegrams—"EGYPTIAN, LONDON."

Telephone-3695.

## ELECTRIC &amp; HYDRAULIC LIFTS &amp; CRANES,

## PUMPS, RAMS,

## WATER SUPPLIES, ENGINES AND BOILERS,

## ELECTRIC LIGHT AND POWER.



MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.



## INDEX OF ILLUSTRATIONS AND CONTENTS.

## ILLUSTRATIONS.

Litho Plate Supplement:—Liverpool Museum Extension, by W. D. Caröe.

Design for Church Decoration at Hampstead, by T. G. Jackson, R.A. ....	17	Craithes .....	19, 20
Some Scottish Houses—Sketch Map and Plan .....	18	Craigievar .....	20, 21
		Planning of Small Houses .....	v., vi.

## CONTENTS.

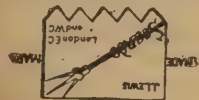
Mr. Spier's Works at the Royal Water Colour Society Art Club .....	17	Architectural Association—Discussion on Mr. A. S. Flower's Lecture.....	22	Trade and Craft—Annual Special Number of <i>Timber</i> —What is a Street?—	
An Election Farce at Beccles.....	17	Salisbury Cathedral.....	23	A Question of Contract—Electric	
Glasgow School of Art.....	18	Bricks and Mortar .....	24	Lighting at York—Railway Extensions	
Some Scottish Houses, by W. J. Blain.....	19	Professional Items .....	27	— Heavy Compensation Claim—A	
		Society Meetings .....	27	Building Case—A Tenant's Liability...	28
		Correspondence .....	28		
Surveying and Sanitary Supplement:—					
Planning of Small Houses, by H. V. Lanchester, A.R.I.B.A.—No. II. Terrace Houses .....					v
Workhouse Planning, by G. H. Bibby, F.R.I.B.A. ....					v
Workmen's Dwellings in Manchester—Surveyor's Report.....					vii
Sheffield Society of Architects and Surveyors .....					viii
Notes .....					viii

## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Feb. 24	Machinery for Pumping Station, Charonne	Urban District Council	Hotel de Ville, Paris.
" 24	Filter Presses (3) Sewage Disposal Works, Gillingham (Kent).	Guardians of Toxteth Park	J. Taylor, Sons, and Santo Crimp, 27, Great George-street, Westminster, S.W.
" 24	Boiler, Workhouse, Smithdown-road, Liverpool...	Hyde Gas Company	J. Moulding, Clerk, 15, High Park-street, Liverpool.
" 24	Telescopic Gas Holder, Gas Company, Hyde	Guardians of Woolwich Union	T. Newbigging and Son, Engineers, 5, Norfolk-street, Manchester.
" 24	Cornish Boilers (2), and Removing, Workhouse, Plumstead.	Rohilkund and Kumaon Railway Company Limited.	J. O. Cook, Architect, 1, Eleanor-road, Woolwich.
" 25	Underframes for Carriages	Spanish Government Corporation	E. L. Marryat, Secretary, 237, Gresham House, Old Broad street, E.C.
" 25	Light Railways, Porto Rico	Urban District Council	Direccion general de Obras Publicas, Madrid.
" 25	Covered Reservoir, Leeds	Quicksilver Mines Management, Alwaden	T. Hewson, City Engineer, Leeds.
" 26	Boiler House, Floors, and Machinery Foundations, &c., Walthamstow.	Harbour Works Board, Barcelona	G. W. Holmes, Town Hall.
" 26	Steam Boiler, Alwaden (Spain)	City Authorities	Secretary.
" 26	Steam Six-Ton Cranes (3), Barcelona	United Gas Light Company	The Secretary.
" 27	Pumping Machinery, Hamburg	Rural District Council	Secretary's Office, Rathaus, 1, Stock Zimmer, No. 34.
" 27	Retort House, Coal Stores, &c., Sheffield	Waterworks Committee	Fletcher W. Stephenson, Offices, Commercial-street, Sheffield.
" 27	Cast Iron Tank and Castings, Grimesthorpe Station, Sheffield.	Provincial Administration	T. W. Stevenson, Gas Offices, Commercial-street, Sheffield.
March 1	Tank and Cast Iron Pipes, Northleach (Gloucestershire)	Hants County Asylum	Witts and Phillott, 12, Promenade, Cheltenham.
" 1	Pumping Engine and Boiler, Ipswich	Bristol School Board Commissioners	H. Roberts, Manager, Waterworks, Ipswich.
" 1	Heating Apparatus, Cologne	Corporation	Engineer, Städtischer Heizungs Ingenieur, Hochbauamt
April 13	Harbour Work Extensions at Ostende	Rural District Council	Zim 18 Alter Pothof Koln a Rh.
Feb. 22	PAINTING AND PLUMBING—External Painting County Asylum, Knowle, near Fareham (Hants.).	Town Council	Brussels, Rue des Augustins, 17.
" 22	Plumbing Works at School, Fairfield-road, Bristol	Corporation	F. M. Aylen, Clerk, Asylum.
" 27	Plumbing Work, Asylum, Enniscorthy (Ireland)	Rural District Council	W. L. Bernard, Architect, 3, St. Stephen's-chambers, Bristol.
Feb. 19	ROADS—Works and Materials, Rawtenstall	Town Council	C. A. Owen, Architect, 16, Molesworth-street, Dublin.
" 20	Granite Slag and Limestone, Spilsby	Corporation	Borough Surveyor, Municipal Office, Rawtenstall.
" 20	Street Works, Trinity-street, &c., Batley		F. J. Dixon, Council Offices, Spilsby.
" 20	Levelling, Paving, &c., Batley		H. Dearden, Surveyor, Market-place.
			H. Dearden, Borough Surveyor, Market-place, Batley.

## TELEGRAMS:

"WEATHERVANE, LONDON."



J. LEWIS, 5 &amp; 6, Great Winchester Street, LONDON, E.C.

## LIGHTNING CONDUCTORS.

ELECTRICAL EXHIBITION CRYSTAL PALACE AWARD, 1892.

"LEWIS LINK." The only EFFICIENT COUPLING for Conductors. PATENT No. 16,641.

SEE SECTION Fig. 2.

VILLAS,  
MANSIONS,  
SCHOOLS,  
CHURCHES,  
FACTORIES,  
CHIMNEY  
SHAFTS, &c.MEASURES BROTHERS, LTD.  
LONDON.

SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

Have now in their Town Stock 6 500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &amp;c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &amp;c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.

Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.





# "OPALINE"

The New Sanitary  
Slab Work for Wall  
Linings, Urinals, etc.

SEE ALSO

**ADAMS & CO.'S**  
.. SANITARY CATALOGUE ..

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

**ROBT. ADAMS, 67, Newington Causeway, London, S.E.**

These marvellous  
Double and Single  
Action, Silent,  
Adjustable, and  
Self Compensating

## SPRING HINGES

Guaranteed to last  
longer and work better  
than any hitherto  
made.

CAN BE FITTED TO ANY  
DOOR.

Fig. 1 (Silent).

A Double-Action  
Spring Hinge

which opens to and  
closes from the angle  
of 135°.

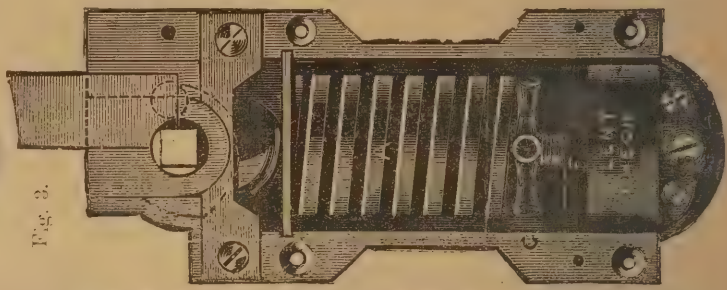
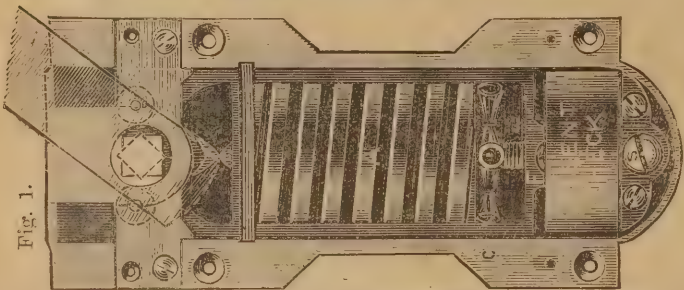
Fig. 3 is the new

Single Action Spring.

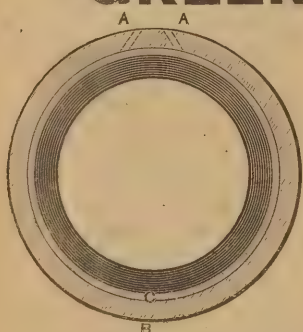
It opens to and closes  
from the angle of 180°,  
i.e., "wide back."

THE FIRST

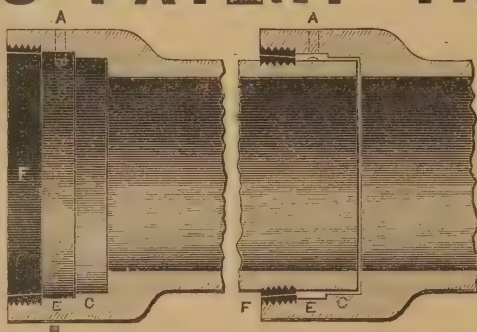
SPRINGS EVER  
PRODUCED WITH  
THESE GREAT  
ADVANTAGES.



## GREEN'S PATENT TRUINVERT PIPE.



LONGITUDINAL  
SECTIONS.



AA—Holes for pouring in cement or composition.  
BB—Strengthened and Lengthened Socket.  
CC—Inner Socket and Rest.  
EE—Chamber for cement or composition.  
FF—Stanford Joint in new position.

The object of this patent is to form a perfectly level bottom or invert, to strengthen the socket at its weakest point, and to make a triple joint in a cheap and effective manner.

To put it shortly, this pipe secures TRUE ALIGNMENT OF INVERT, INCREASED STRENGTH IN THE SOCKET, THREE GAS AND WATERTIGHT CONNECTIONS AT EVERY JOINT, and while allowing for a slight settlement when first laid, forms an ABSOLUTELY RIGID JOINT directly the cement sets.

### POINTS.

- 1.—GAS AND WATER-TIGHT JOINTS EASILY MADE UNDER WATER.
- 2.—TRUE ALIGNMENT OF INVERT.
- 3.—SOCKET THE STRONGEST PART OF THE PIPE.
- 4.—NO SPECIAL JUNCTIONS REQUIRED.

OATES & GREEN, LIMITED, HALIFAX.

## HOMAN & RODGERS,

ORIGINAL PATENTEES OF ALL GIRDERS

**ENGINEERS.**

FORMED OF JOISTS AND PLATES.

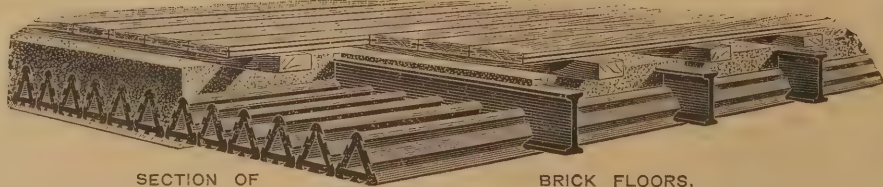
CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS,  
USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES,

PIERS,



SECTION OF

BRICK FLOORS,

GRANITIC

PAVING STEPS,

ASPHALTE.

LONDON { OFFICES: 17, GRACECHURCH STREET, E.C.  
{ WORKS: NINE ELMS LANE, S.W.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1021, Avenue.

MANCHESTER { OFFICES: 10, MARSDEN STREET.  
{ WORKS: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



# Surveying and Sanitary SUPPLEMENT.

FEBRUARY 17TH, 1897.

## PLANNING OF SMALL HOUSES.

By H. V. LANCHESTER, A.R.I.B.A.

### No. II.—TERRACE HOUSES.

THE first two plans illustrated this week are suggestions for treating sites where the ground falls slightly; in the first case (No. 2) away from the road, and in the second (No. 3) towards it. No. 4 is drawn for a level site, but it would be suitable for adoption where the garden at back is somewhat higher than the road; in each of these three plans the rooms at the front of the house are on a different level to those at back, the short flights of stairs carrying one alternately from the one level to the other. Such an arrangement as this offers substantial advantages in exchange for some drawbacks of a more trivial character.

In the first category one may note the compactness and economy of passage room, the superior position of the principal back rooms with regard to the garden, better access to the kitchen offices, and more disconnection for them than usual in a house of the size, and generally a more interesting scheme due to the variety of level. On the other hand, some might consider the small flight of stairs between kitchen and dining-room objectionable; though it might fairly be regarded as equalised by the shortness of the route between these rooms. There is also a less degree of privacy in one or two of the bedrooms, though these again are better placed in the case of their being utilised for additional sitting-rooms, as might frequently occur in the case of a small family. It is obvious, indeed, that by this arrangement the line of demarcation between sitting-rooms and bedrooms is necessarily less marked than when the latter are on a separate floor; but a house on these lines has a certain flexibility of character, as it may be termed, that renders it more adaptable to varied requirements. Considering the designs more in detail, it will be seen that in Nos. 2 and 4 a separate tradesman's entrance is obtained. No. 3 could only secure this by means of access from a back way, if such were provided. This system of providing back passages for tradesmen and for access to gardens was largely adopted in estates laid out some thirty or forty years ago, and no doubt has advantages in the case of terrace houses with gardens of any size; it is, however, in much less use at the present time; partly, I should say, on account of its diminishing the privacy of the garden, and partly by reason of the liability of such passages to become neglected and to accumulate unsavoury rubbish. If adopted they should always have an impermeable paving, should be at least 8ft. in width and open at both ends. Returning from this little digression to the consideration of our plans, it may be suggested that a certain diversity of outline is desirable where houses are packed together in terraces; for instance, where the porches are grouped together in plan No. 2 they can be carried up to a gable which may be varied in

form and treatment, or the different blocks in No. 4 can have such modifications in the form of roof, distribution of windows, and other details, as to avoid the monotony of uniform repetition. Even where no projections or recesses break up the façade, as in No. 3, a great deal could be done by such variations as those described. Should the amount of ground permit, terraces should be divided into groups of six or eight houses, the opening between each block allowing the air to circulate more freely round it, thus keeping the space at back sweeter and fresher than it would be if entirely built up. In addition, the different design of the semi-detached house at the end of the block gives an air of variety and inte-

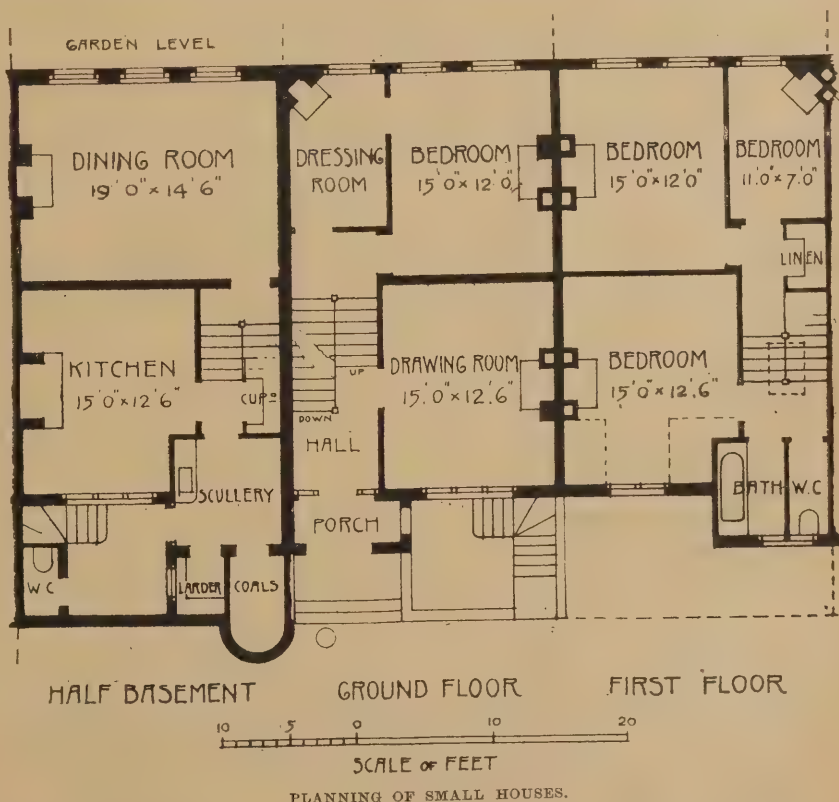
## WORKHOUSE PLANNING.

By GEORGE H. BIBBY, F.R.I.B.A.

### No. I.—INTRODUCTION.

THE housing and relief of the poor and destitute (so far as it was attempted in the Middle Ages) appears to have chiefly devolved upon the monastic institutions; these voluntarily provided for the performance of duties which are now enforced upon the public by modern poor-laws; as an instance, the Hospitallers bound themselves to relieve casual destitution, the preaching and begging friars

NO. 2 TERRACE HOUSE 20 FT FRONTAGE. — CUBE AT 12 = £90

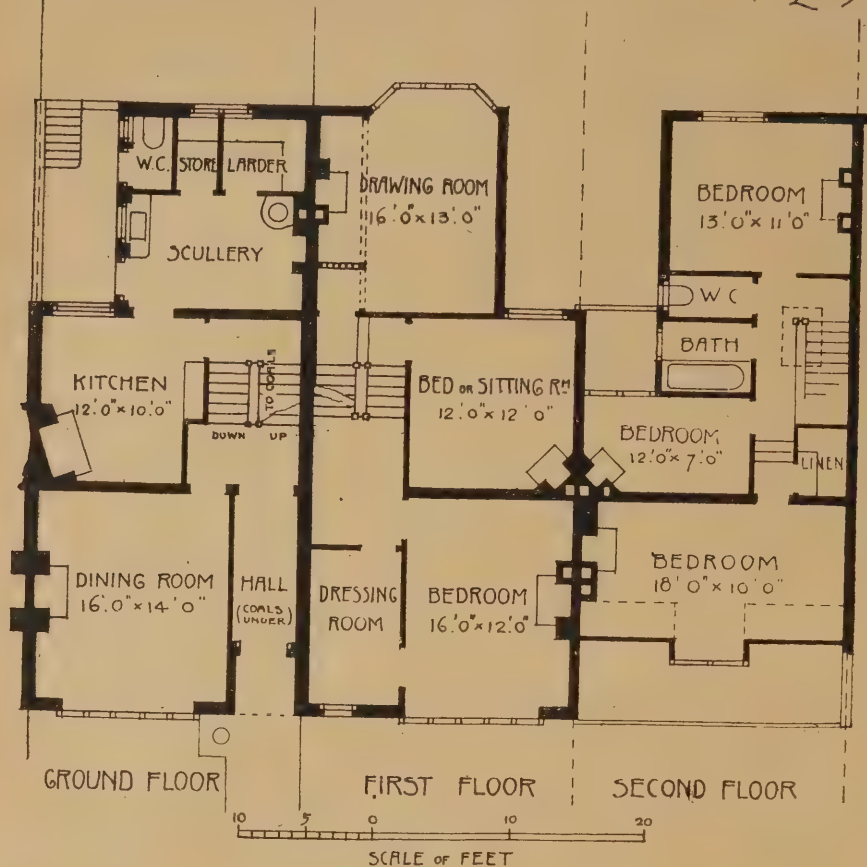


PLANNING OF SMALL HOUSES.

rest to the road that cannot but make it more attractive. My own opinion is that the terrace is, to say the least of it, a mistake, and that, if the value of the land necessitates covering it so closely, the buildings might more satisfactorily take the form of flats, with a good deal more open space allotted to them than is usually the case, thus giving room for games, promenades, &c., instead of the ground being cut up into numberless small fragments that are absolutely useless for any practical purpose. However, the demand for terrace houses no doubt exists, and must, consequently, be supplied.

were frequently the nurses of the sick and infirm, especially during the times of the plague, or "black death." Houses then existed where gifts of bread and beer were given to those who were in need, and where clothing and hospitality were provided; but, although it is not improbable that these institutions created pauperism to some extent, yet, that they greatly assisted many who needed help from no fault of their own, cannot be denied, and it is certain that for many years immediately following the destruction of monasteries, the poorer classes suffered great privations by



N<sup>o</sup> 3 TERRACE HOUSE - 20 FT FRONTAGE - CUBE AT 12 = £105

reason of the absence of all organized means of relief.

The monasteries having been thus swept away, and the funds for their support devoted to purposes for which they were never intended by the donors, it was quickly perceived that the general public of the period, being unaccustomed, were also very unwilling to provide sufficiently for their paupers, but in the last year of Edward VI. two collectors were appointed for every parish to obtain contributions for the relief of the poor. These subscriptions appear to have been voluntary, but later, in the reign of Elizabeth, the justices were, for the first time, empowered to levy taxes upon the inhabitants for these purposes.

The next advance appears to have been the assessment of property under the Act of 43 Elizabeth, cap. 3. This was originally intended as a temporary measure, but in its general principles continued until the introduction of the Poor Law Amendment Act of 1834. Prior to the passing of this Act, paupers were relieved by the overseers of the various parishes, and where these were of sufficient extent or importance, or the population considerable, there was provided the building known in later times as the "Poor-house."

The structures thus designated were frequently mere ranges of two-storey sheds, without any connecting corridors, so that inmates had to pass through open yards to reach their dining apartments, &c., while those who occupied rooms on the upper floor could only get to them by means of exterior step-ladders and open galleries, all exposed to the open-air.

The accommodation provided in certain poor-houses of this description sixty years ago, consisted of a series of dormitories, each 15ft. by 10ft. by 7ft. on the ground floor, the rooms on the upper floor being another foot in height. In each dormitory about seven inmates slept, with an allowance of 150 cubic feet each. No fireplaces were provided except in the halls or day rooms and the dining-rooms. One privy for the males and another for the females completed the accommodation for the paupers, and there were no bath-rooms.

The only further apartments were committee and governor's rooms, kitchens, and wash-house, with two enclosed yards. Even with such simple arrangements, it is surprising to learn that this type of poor-house could be erected at the exceedingly low price of £8 or £9 per bed.

No Architect originated this system of planning, and the principle of the scheme is, in its author's words, thus stated: "The height of the rooms, the thickness of the walls, &c., should not exceed the dimensions of the

cottage of the honest, hardworking, independent labourer, well-built, substantial rooms being a luxury as attractive to the pauper as food and raiment!"

There yet exists in London the old poor-house of a metropolitan parish, very much in the same structural form as at the commencement of this century, although long disused for public purposes. It contains such low and stone-paved apartments and timber galleries as are mentioned by Charles Dickens in "Oliver Twist" and elsewhere, and possibly he thought of such poor-houses as these when he wrote: "The room in which the boys were fed was a large stone hall, with a copper at one end, out of which the master, dressed in an apron for the purpose, ladled the gruel at meal times." From this description one may conclude that the dining-room and kitchen in poor-houses of that period formed one apartment.

The structural arrangement of the first buildings used as workhouses (after the passing of the Poor Law Amendment Act) were such as provided for the accommodation or employment of those paupers who either could not or would not work, but owing to the greatly altered state of public opinion and the circumstances of the present time, Poor Law buildings are now arranged in divisions and sub-divisions which did not formerly exist when the great object attempted was the suppression of those able-bodied paupers who unduly claimed help. There are now many divisions and classifications in large workhouses, while even in the smallest institutions provision must be made for classifications formerly entirely disregarded.

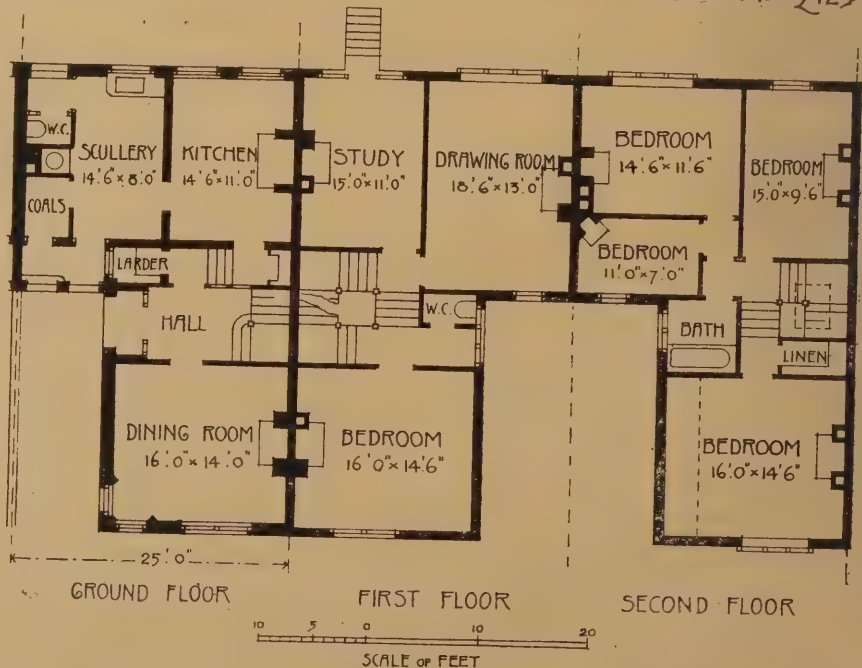
A complete workhouse for a large Union will usually comprise the following buildings, with separated divisions and yards for each sex:—

1. Entrance and Reception buildings.
2. Vagrants' wards.
3. Main buildings.
4. Imbeciles' wards.
5. Schools.
6. Sick and Infirm wards.
7. Isolation wards.

All these divisions of buildings are not absolutely necessary in the case of small work-houses, providing that the number of inmates and officials is very limited, but the Local Government Board state that the complete workhouse above referred to should, on the other hand, not be constructed to contain more than one thousand or, at the most, fifteen hundred inmates; where the total number of in-door poor exceeds that number, it is preferable to form two or more distinct institutions, and it is desirable, even with the lesser number,

N<sup>o</sup> 4 TERRACE HOUSE - 25 FT FRONTAGE

CUBE AT 12 = £125





that detached buildings, quite beyond the precincts of the workhouse for the adults, should be erected for the children.

It is essential that there should be a complete separation of the sexes, and also, as far as may be, of classes; and, for these purposes, distinct dormitories, day rooms, entrances, staircases, yards, water-closets or earth-closets, lavatories, &c., should be provided for each sex and class. This is for the purpose of securing complete and efficient classification of the inmates of workhouses, without which it would be difficult to maintain the discipline that is necessary in all well-managed institutions. Efficient classification also tends to promote facility of supervision and management. In the case of workhouses in large towns and in the Metropolis the children are often quite away from the adults' workhouses. The sick also are usually separately provided for, as also are the harmless lunatics and the infectious cases; and the workhouses for adults in health are, in many instances, arranged exclusively for special classes, as for the old and infirm, the able-bodied, &c.

In the Metropolitan district there are some Acts in force which do not concern the workhouse arrangements in the provinces, these relate, amongst other things, to the manner of calculating the spaces for the accommodation of the inmates—it is desirable that the various blocks or pavilions should not be for very large numbers of persons. Upon this subject Dr. William Farr, in "Vital Statistics," states: "The collection of a number of persons exceeding those of an ordinary family under one roof, has hitherto had a tendency to increase the dangers of disease, for certain diseases are, like fire and ferments, diffusible; the danger is increased when all the patients are sick, for their breath and excretions spread through the wards: the dangers, too, are likely to increase in a faster ratio than the numbers, and the patients are less likely to recover health in the sickly atmosphere of a larger building in a city than in a pure country air."

The several classes of paupers for whom accommodation has to be provided in large workhouse establishments is as follows, each class having separated sections for the sexes: Aged and infirm; Able-bodied; Harmless lunatics and imbeciles; Sick of all classes; Children; Infants; Aged married couples; Probationers; Vagrants. Therefore in a large workhouse there may be, for the two sexes, at least eighteen blocks of buildings or divisions of the institution, exclusive of entrance buildings, administration buildings, offices, and other necessary structures. For the purpose of avoiding cheerless and built-up yards, for access of light to the rooms, and for securing a free circulation of air about the buildings, the Local Government Board require that the blocks of buildings should not, except where unavoidable or for exceptional reasons, be directly connected at a right-angle or an acute-angle; for kindred reasons adjacent blocks of buildings should be placed sufficiently far apart to allow free access for light and air, and should also, where practicable, have such an aspect that the direct rays of the sun may pass between them during several hours of the day. It is therefore advisable that the distance between adjacent blocks of buildings should be, at least, equal to twice the height of the higher of them; this frequently involves the spreading of the buildings over a considerable area of ground. For the purpose also of securing access for light and air to workhouse buildings, and in order to avoid communications between inmates and the outside, no building occupied by inmates as sleeping or day-rooms should be erected on the boundary of the premises, unless at right-angles thereto, or in such a manner that windows and ventilators are not required in the wall resting on the boundary. To avoid inconvenience in management and supervision, the various wards or suites of rooms should not be of great extent, therefore one room or suite of rooms should seldom exceed one hundred feet in length. As in the case of hospitals and asylums it is necessary that the length of a workhouse ward or dormitory should be calculated according to the number of beds to be placed in it, and the

requisite amount of wall-space required per bed, otherwise there might be waste of space and unnecessary expense, for similar reasons the doorways and fireplaces of dormitories should be arranged so as to interfere as little as possible with the spaces occupied by beds; dormitories, day-rooms, and wards for all classes of inmates should be so arranged as to be supplied with adequate means of through ventilation by opposite external windows, distributed throughout their entire length. With the exception of infants sleeping with their mothers, and of aged married couples, every inmate should have a separate bed, and each bed should stand in the centre of its own allowance of wall-space; with certain exceptions the beds should be placed with their heads against the side walls of the wards or dormitories; in the case of existing buildings, where two rows of beds are placed in a ward, 16ft. or less in width, the beds may be placed with their sides to the wall.

In the course of the following seven articles, I propose to give descriptions, with plans of each of the main divisions of a workhouse, in the following order: 1st, Entrance and Reception Buildings; 2nd, Vagrants' Wards; 3rd, Main Buildings; 4th, Imbeciles' Wards; 5th, Schools; 6th, Sick and Infirm Wards; and 7th, Isolation Wards.

(To be continued.)

It was reported at the last meeting of the Police Commission at Arbroath that the total cost of the new well at Warslap up to the present was £1128 18s. 2d. The Borough Surveyor reported that the average quantity obtained from the well during the past fortnight had been 220,000 gallons per day.

The Trowbridge Urban Council has resolved to spend a sum not exceeding £500 on experimental works founded on the septic system. The surveyor has been instructed to prepare the necessary plans, &c. It is intended to proceed with the experiments as soon as the necessary drawings have been made.

Dr. Meredith Richards, medical officer for the borough of Chesterfield, referring to the necessity of an isolation hospital says the only provision at present is the temporary structure at Haiby Lane. A site of twelve acres has been purchased at Hasland, at a cost of £1200, and the question of erecting a permanent hospital seemed to have come within the region of practical possibilities.

Major-General H. D. Crozier, C.E., on behalf of the Local Government Board, has held an inquiry at Kirkheaton with respect to the issue of a provisional order for the compulsory purchase of five acres of land, required by the Urban Council for sewage disposal for the inner district of the township. Under the scheme the whole of the sewage of the district will be dealt with by gravitation on the land on the Ives' system of chemical precipitation, and a provisional contract has been entered into.

The District Council Public Works Committee held a meeting last week at Barry Docks, Mr. W. Thomas presiding. Plans were submitted by the surveyor, Mr. J. C. Pardoe, for the widening and improvement of the highway from the Royal Square, Cadoxton, to Colebrook Bridge, and working plans were ordered to be prepared for the Church Road improvements.—A sub-committee was appointed to wait upon Mr. R. Forrest with the view of securing some land belonging to the Romilly Estate opposite The Parade, Barry, for laying out as public gardens. In view of the alleged inefficient manner in which certain public works had been carried out in the district, it was moved that it be an instruction to the council to exercise greater discretion in future as to the tenders of contractors which they accepted, especially to beware of accepting the lowest tender; and that the surveyor be allowed another clerk of works, there being at present only one clerk of works, quite inadequate to exercise due supervision over all the works in progress in the district. Eventually it was resolved that the matter be deferred pending a systematic visit of inspection of the district works at present in course of execution.

## WORKMEN'S DWELLINGS IN MANCHESTER.

### THE SURVEYOR'S REPORT.

THE Sanitary Committee of the Manchester Corporation has for some time past been considering proposals for utilising for the purpose of tenement dwellings and cottages for working men, a number of building sites now in possession of the Corporation. A scheme, based upon recommendations contained in a report of the City Surveyor, will, says the *Manchester Guardian*, be submitted to the City Council for adoption at its meeting to-day. The Surveyor says:—"The total number of persons to be housed is 2584. The sites known as the 'Oldham Road area' and 'Pollard Street area' are to have buildings so constructed as to contain in the aggregate not fewer than 2034 persons. The Oldham Road area is divided into two building sites of nearly the same size. Tenement dwellings of five storeys have been erected upon the east portion of the site between Spittal Street and Bengal Street. These dwellings contain 235 double rooms and forty-eight single rooms, and accommodate 848 persons. The remainder of the site between Spittal Street and Cornwall Street is available for the erection of additional buildings. The Pollard Street area is covered by tenement dwellings very similar to those that have been erected on the Oldham Road area. These dwellings consist of 130 double rooms and five single rooms, and accommodate 448 persons; this leaves a balance of 738 persons still to be provided for on the Oldham Road area. 300 persons are to be housed on the Chester Street area, and 250 persons on the Pott Street area, making a total of 1288 persons still to be housed." In order to obtain accommodation for this number of persons without having recourse to high buildings similar to those already erected, the City Surveyor has examined the other sites belonging to the Committee which may be utilised for the erection of

### LABOURERS' DWELLINGS.

A plan is given which shows the position of five building sites, situated in Oldham Road, Chester Street, Pott Street, Harrison Street, and Pryme-street. The railway stations, tram routes, and the distances of the sites from Albert Square are indicated on this plan. With regard to the Oldham Road area, the plan adopted provides for buildings to front Oldham Road, four storeys in height, and to consist of thirteen shops and dwelling-houses, with frontages varying from 19ft. 3in. to 29ft. 6in. The first, second, and third storeys would consist of five-roomed dwellings, connected with the shops. The buildings on the remaining portion of the site would consist of two rows of two-storey tenement buildings, fronting to a new 12 yard street, and one row of five-roomed cottage dwellings, fronting to George Leigh Street, which is 18 yards wide. The clear space between the buildings at the rear would vary from 58ft. to 55ft. in width. The four rows of buildings would afford accommodation for 377 persons.

### THE ESTIMATED COST

of erecting these buildings is £17,901, equal to £36 15s. 3d. per person. The estimated cost of sewerage and paving the new streets, exclusive of the cost of widening the existing streets, is £900, to which must be added the estimated value of the site, viz., £7981, or a total of £26,782. On the Chester Street area it is proposed to erect four blocks of buildings, with frontages to Chester Street, Marsland Street, and Hulme Street. The buildings would be two storeys in height, and each dwelling would consist of two two-roomed and two three-roomed tenements. These buildings would afford accommodation for 306 persons. The estimated cost of these four blocks is £11,873, equal to £38 16s. per person, and the estimated cost of new streets, exclusive of street improvements, is £350. The estimated value of the site, which has an area of 4554 yards is £2277, or a total of £14,500.

### AN ALTERNATIVE SCHEME IS SUBMITTED.

On the Pott Street area it is proposed to erect two blocks of four-storey tenement dwell-



lings of a similar character to those already described for the Chester Street area. The buildings would accommodate a total of 400 persons. It is proposed to widen Pott Street, Sandford Street, Caroline Street, and Wharf Street, making the width of these Streets in each case 14 yards. The estimated cost of the buildings is £15,357, equal to £38 7s. 10d. per person, and the estimated cost of new streets, exclusive of street improvements, is £164. The estimated value of the site, which has an area of 3914 yards, is £1957, or a total of £17,478. The committee recommends the Council to approve of and authorise (subject to the sanction of the Local Government Board) the erection of a model lodging-house in Harrison Street, in general accordance with the sketch plans prepared by the Surveyor. Certain proposals contained in the report of the Surveyor with respect to Pryme Street were withdrawn.

#### SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.

THE monthly meeting of the members of the Sheffield Society of Architects and Surveyors was held at the School of Art, Arundel Street, last week, when Mr. John Slater, B.A., gave a lecture on "The Buildings of the Ancients." Mr. C. Hatfield (president), occupied the chair, and among the members present were Messrs. R. W. Fowler (vice-president), F. Fowler (hon. treasurer), C. J. Innocent (hon. secretary), E. M. Gibbs, Joseph Smith, Thomas Winder, W. J. Hale, J. R. Wigfull, C. B. Flockton, C. M. E. Hatfield, Alwyn H. Holland, Edmund Winder, jun., J. T. Cook, J. B. Mitchell-Withers, and many others. Mr. Slater, at the outset, quoted the late Mr. Ferguson's remark that beauty in architecture consisted not so much in particular features as in appropriateness of design and elegance of detail. In the present century there had been many changes of style. Each successive period had found ugly and unsuitable what had been praised as fit and beautiful by its predecessor, thus showing the narrow-mindedness of those who posed as the directors of the public in matters of taste. It might not be uninteresting to go back to a time anterior to all the recognised styles, and see what kind of buildings were erected by the ancients, when the sole object was to meet the requirements of the people for whom the building was intended, and who obtained Architectural effects by ornamenting their construction, and not by constructing their ornament. The great feature of the Egyptian temples was their solidity and massiveness, but relieved by the most elaborate and varied system of colouring, the granite columns having been coated with stucco before the application of the colour decoration. Crossing from Africa to Asia, different materials and methods of building were found, sundried and burnt bricks forming, in the absence of stone, the staple building materials. After alluding to recent discoveries in the district anciently called Phrygia, and to some curious examples of the exact imitation of wooden forms in stone, the lecturer concluded by saying: "As the byways of the world become opened up to us, we are continually finding unexpected remains of building nations, and it is not too much to say that wherever over the whole face of the earth, explorers have come upon the relics in stone or brick of a remote civilisation, their wonder has been excited at the solidity, and in many cases the high artistic quality of the work. It appears to me that, despite all our modern resources and all the discoveries of science in these latter days, no one can study such buildings as I have brought to your notice this evening without having a little of his nineteenth century conceit taken out of him; for truly all the remains testify that in energy and in intelligence, and in skill, there must have been giants in those days."—The paper was illustrated by a number of large diagrams.

MR. D. BALFOUR, of Newcastle-upon-Tyne, has been instructed by the Newport Pagnell Rural District Council to prepare a scheme of main sewerage and sewage disposal for the town.

## Surveying and Sanitary Notes.

AN application has been made by the Sandgate District Council for power to borrow £1000 for sewerage works, and the usual Local Government Board enquiry has been held by Col. W. Langton Coke.

THE Committee of the Keighley and District Hospital has agreed that it is necessary to at once proceed to enlarge the premises so as to make room for forty beds more—that is, to double the existing room—and to erect an administrative block. To do this will probably involve an outlay of not less than £15,000.

To provide for the completion of the North Street and Cavendish Street improvements, the Keighley Town Council will be asked at their next meeting to sanction an application for further borrowing powers to the amount of £40,000; and to instruct the Town Clerk to ascertain as soon as practicable the value of the remaining scheduled properties. There is a considerable increase in the number of plans for sanction.

THE object of the Surveyors (County Dublin) Bill is to confer on the Grand Jury of the County of Dublin the power of appointing one surveyor, with one or more assistants, for the whole county, instead of two surveyors, without assistants. The Grand Jury of every other county in Ireland, consisting of two divisions, was given by an act of the year 1893 the power of appointing one district surveyor for both divisions, instead of one surveyor for each division, and in all other counties except the County of Dublin the power has always existed of appointing assistants. A vacancy having arisen in the office of one of the two district surveyors of the county, the proposal is now made to put the County of Dublin in the same position in this matter as all other counties.

THE 204 members who carried the second reading of the City of London Sewers Bill will probably live to be ashamed of themselves, says a contemporary. This Bill provides that the City Corporation shall absorb the functions of the City Commissioners of Sewers. The latter is a highly efficient body, and there are those who suggest that the former is not. But apart from that it seems plain that so important a measure ought not to have been brought forward as a private Bill. The whole position of the City requires revision and assimilation in one sense or another with the municipal government of London as a whole. Further, it is highly desirable that the lighting and paving of the whole of London should be committed to a central body—not the Corporation—instead of being confided to incompetent vestries. On these accounts, the Bill in question appears a step dead in the wrong direction.

THE heavy rainfall of the past two months has enabled the Leeds Corporation to store a sufficient quantity of water to meet the requirements of the inhabitants for some time to come. The storage reservoirs in the Washburn Valley are overflowing. At a meeting of the Waterworks Committee last week it was reported that there were 2507 million gallons of water stored, which represented 105 days' ordinary supply. At the corresponding period of last year the quantity of water in the storage reservoirs was equal to only 98 days' supply. Some discussion took place at the meeting respecting a contract for 1300 tons of cast-iron water pipes, which the committee recommended should be given to the Staveley Iron and Coal Company. As that firm desired a longer time for the delivery of the pipes than was stipulated in the specifications, the committee resolved to rescind their recommendation of the last meeting, and to ask the Council to accept the tender of Messrs. Cockrane and Co., of Dudley, for £5818 10s.

DR. F. J. WALDO, Medical Officer of Health for the parish of St. George's, Southwark, is an acknowledged authority upon the subject of shelters for the homeless and their sanitary

condition, and the announcement that he would open a discussion on the question drew a large attendance to the Sanitary Institute on Wednesday, the 10th inst. In the course of his remarks, Dr. Waldo pointed out what he regarded as the weak point in the law as it at present affects the shelters to which, as is well known, he has given a great deal of personal attention. The direct evils of improperly conducted shelters might be regarded under the heads of dangers to the public and dangers to the inmates, and, as the institutions in question escaped the control of the local authorities, they could hardly avoid the conclusion that, as centres of actual and potential disease, they became a danger, first to their own inmates, and secondly to the general public. The obvious further conclusion was that all night shelters should be brought within the control of the local authorities, either by a separate legislative Act or by bringing them within the clauses of the Common Lodging Houses Act. Several took part in the discussion, and, in the main, Dr. Waldo's views appeared to be generally accepted with regard to the necessity of legislative reform.

MR. H. CARTER, C.E., and other engineers engaged in business in London write with reference to the London water supply. They call attention to the present action of some of the London water companies in serving notices on owners of houses to take out their three-gallons flushing cisterns and to substitute two-gallons cisterns. They add: "As experienced sanitarians, we have been in the habit of recommending three-gallons flushing cisterns, being satisfied that a two-gallons flush is not sufficient to clear the trap and drain, however perfect their construction, and it is also well-known to us that most of the so-called two-gallons flushing cisterns do not discharge more than a gallon and a half. We consider that such a retrograde movement should not be allowed to pass unchallenged, as it is a serious menace to the health of the metropolis, and we, therefore, take this means of making known our views on this important point. It is quite time that the public should be impressed with the absolute necessity of placing the water supply of the metropolis in the hands of a body of men who will formulate regulations more in consonance with the advance of sanitary science rather than perpetuate the antiquated powers at present vested in the water companies."

IN his annual report to the Local Government Board and the County Council, Mr. Coutts, sanitary inspector of the Ellon district, states that an amount of work in regard to drainage has been carried out in the district during the year. A special water supply district has been formed for the village of Hatton and suburbs, while in connection with several farms a new supply has been introduced, or their previous supply improved. Special inspections had been made in regard to cases of infectious diseases, and in regard to crofters' houses, and also in regard to the erection and alterations of dwelling houses. In the special districts, meetings with the different proprietors to consider the course to be followed in carrying out the drainage of the properties had been numerous. The slaughter-houses in the district had been visited, and found fairly satisfactory. In regard to house accommodations, he says:—"The erection of dwelling-houses for the accommodation of the labouring class is still being pushed forward in the district—thirty new houses have been built, while several others have been greatly improved. On one estate wooden houses are being erected, and in the manner most of them have been erected they seem to be quite comfortable, and most of the tenants seem fairly well satisfied with them. Men-servants' sleeping apartments have also been attended to, and during the year nine new ones have been erected, while a few have been repaired. Some of these apartments are being constructed on approved principles, others are being erected without fireplaces, while others are being repaired merely, notwithstanding the fact that they are situated above stables."

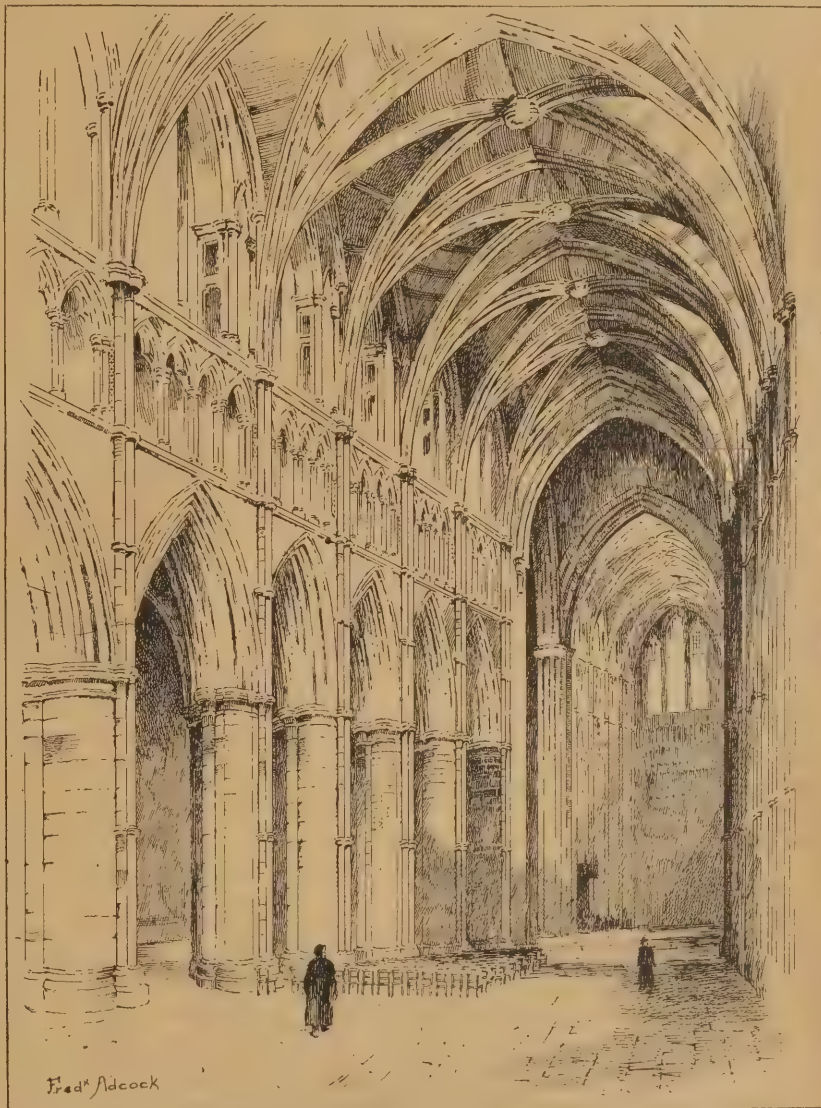




WE see from time to time, **Five per Cent.** as was the case the other day, advertisements with regard to proposed buildings, such as that lately issued by the Metropolitan Asylums Board, in which a definite lump sum is offered, instead of the usual commission, for the services of an Architect. It is noticeable that these definite sums are generally less than the customary five per cent. would amount to, and are usually offered in connection with large buildings. This would seem to imply that, in such cases, five per cent. seems to the advertisers to be too much for the services to be rendered. There is perhaps from their point of view a modicum of truth in this. They may naturally think that in a certain class of simple and straightforward building, such as a hospital or workhouse, in which one wing is an exact repeat of the other, there is not so much work as in a building where no two features are alike. A fee in proportion to the amount spent evidently appears to them more easily earned in the one case than the other, and so they might argue that if five per cent. is enough for a hospital with one wing, it is too much where there are two wings precisely alike. This leads us to remark that we think the time has come for some reconsideration of the method by which an Architect is paid. The present system is allowed by everyone to be unsatisfactory, but has been generally accepted as a compromise, for lack of a better. Taking the simple class of building with the intricate, it is felt that on the average, it is not so unreasonable; but if the class of building which pays best is to be deducted, this average will be considerably lowered. We are not concerned with the reasons which led to the adoption of this system, but would content ourselves with remarking on the curious conception of the Architect and his functions which it displays. Our chief objection to it is this, that the cost of a building, and therefore a percentage on the cost, bears no proportion to the amount of skill and knowledge involved in its production. The cost of a building is no criterion of the skill of its designer. A small and cheap building often takes more time, and involves a greater strain upon the Architect than a large and costly one; evidently he should be paid in proportion to the difficulty of the scheme, and not in proportion to its cost. The cost of a building is largely dependent on the materials employed, and it is no more trouble to the Architect to design in expensive materials than in cheap ones. The alteration of a few words in the specification may make a difference of thousands of pounds in the cost, and the Architect's commission will vary accordingly. We say nothing of the possible temptation to the Architect to increase the cost for the sake of the extra commission, as all reputable members of the profession are above all that; but we may note that a good deal of the Architect's time is taken up, and a great deal of skill displayed, in reducing the cost of the building, and so reducing his own fees. We think this system is to be condemned, if for no other reason than this, that it shows no recognition of the Architect as Artist, and we are of those who believe that unless he is that, he is nothing. Practitioners in other Arts are remunerated according to their skill and reputation. Why

not the Architect? At present this percentage is paid for the production of plans for a building and the superintendence thereof, though there may be no pretence to Architecture, and we see it so paid every day. If there is any Art thrown in, it is the free gift of the Artist, for which he is not paid anything extra, the client getting his Art for nothing; so that it may be said that the whole of the Art lavished on the buildings of London since this system was started was a gift, and has never been paid for. The Architect's duties are not confined to the artistic creation; he has certain business to transact before he can see his design realised. For these duties, which are not artistic, but which many think cannot be so well performed by anyone but the Architect, a fee in proportion to the amount spent

the scheme, which has no necessary relation to its cost; then add to that a certain percentage, as at present, for the preparation of contract drawings and the specification superintendence. The total would be his fees in connection with the work. We think some arrangement of this sort would have many advantages. First, it would secure to the accomplished Artist some recognition of his powers and recompense for his skill. Secondly, it would tend to more equally divide the work, and many people not thinking it worth while to go to an expensive man for ordinary work, the best class of work would get into the best hands, and the best men, by getting more for their work, could afford to give more time to it, and so produce still better. Lastly, it would help to remind the public that an Architect can have



ST. SAVIOUR'S, SOUTHWARK. THE NAVE. FROM A SKETCH BY F. ADCOCK.

might be to some extent reasonable; though even here it is evident that it is no more trouble to specify and superintend costly materials than cheap ones. The Architect's design is one thing; the specification superintendence is another. The first is artistic creation, and should be paid for as such, according to the talent and reputation of the Artist; the second is professional skill, payment for which could be more easily arranged on a certain scale of fees, as in other professions. Taking into account the difficulty of entirely superseding any fixed custom, we think that a practical move in the right direction would be made if the Architect were to charge a certain arbitrary sum for the design, such as his position warrants, and according to the difficulty of

an artistic reputation, which should be paid for in the same way as that of a Painter, Sculptor, or Musician.

**A Third Cathedral.** THE Prince of Wales's attendance at the opening services of St. Saviour's, Southwark, was a fitting acknowledgment on his part of the completion of a great work of Church restoration to which he had set his hand at the beginning. It must have been a pleasure to him to see Sir Arthur Blomfield's work completed. Needless to say, the Church was crowded at the afternoon Te Deum and the festal evensong. It will be a great boon



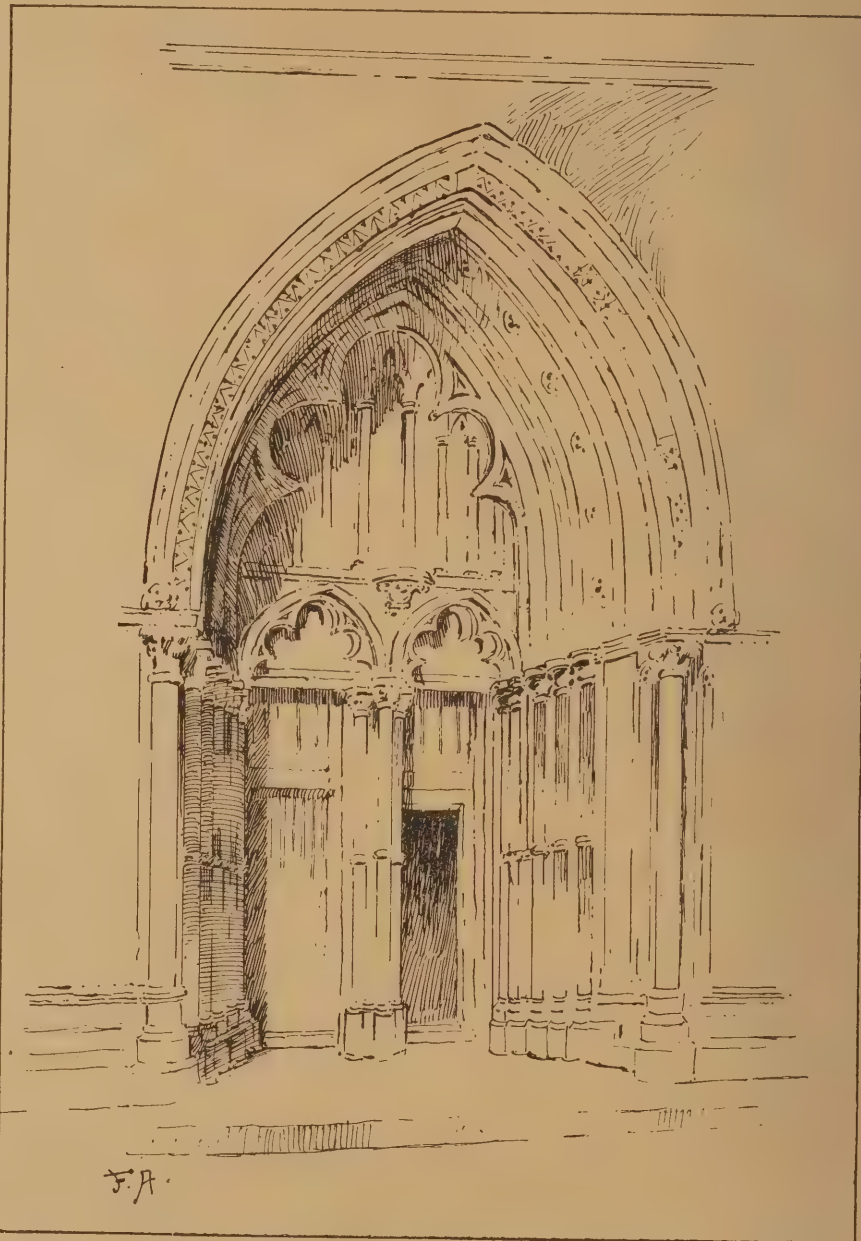
to all London south of the Thames, but we must not say much on this head, for in these columns we have little to say of spiritual things, except so far as concerns their artistic and external expression. St. Saviour's may now be described as a beautiful Church, reverently brought to its present state, and affording a field, as all great edifices do, for the exercise of the art of the sculptor, the mural painter, the worker in metals, and the makers of music. The body of the building is Early English throughout. It is only in the transepts that you discover the marks of a later style, the perpendicular. The exterior features of the Church are striking, but they are in no respect remarkable. The interior, like the mind of Arthur, is "crowded with many memories," centuries old. Erected originally in the twelfth century by Giffard, Bishop of Winchester, it was destroyed by fire in 1213, and again rebuilt by Peter de Rupibus, another Bishop of Winchester. Indeed, Bishops of Winchester were generous patrons of the Church, for in the fifteenth century Bishop Fox of that See restored the upper portion of the nave which had fallen into decay. After the Reformation, the Church was allowed to fall into neglect, though in Elizabeth's time and later it was enriched by being made the burial spot of many famous Englishmen. In the Lady Chapel is the tomb of Bishop Andrews, saint and scholar; in a bay of the choir aisle is an altar tomb of Alderman Humble, quaint and ostentatious; not far away is a mural monument of some pretension to the memory of John Trebearne, gentleman. In the north transept old John Overs has what the rector calls an "emaciated effigy," as he deserves, for he "lost his life by his own covetousness," though why he should covet we know not, for he was known everywhere as the rich ferryman of London. What vice he had was atoned for by his daughter Mary, who caused the Church of St. Mary Overs to be built. In various parts of the building we find the tombs of Lockyer, the Holloway of his time, which was that of Charles II.; Austin, "in contemplation an angel;" Gower, the first of English poets according to many, for was he not laureate to Richard II., Lady Cobham, and others of lesser degree? The Church has many memories of the dramatists of Shakespeare's time, of Marlowe, Massinger, Ford, and Green. Many of the new windows will commemorate these things. A few words about the Church itself must close this sketch. In its walls are the remains of every style of Architecture, not excepting Roman and Saxon relics. It is the nave that has been the costliest part of the restoration. This has been entirely rebuilt. Standing at the west end you have a view of almost the entire length of the Church. It seems a sweep of fully 300ft., but in reality it is only 200ft. The new stone is remarkable for its whiteness and its comeliness of use. One can see what will be the great feature of the building in time to come. This will be the fine canopied reredos, which, like that of one or two Oxford Churches, will be filled with the carven effigies of Saints from the lowest to the highest tier. London now contains three great Cathedrals, and is in reality three great cities. St. Saviour's will be open daily for prayer, and choral song, and Eucharist, and will doubtless for many centuries to come recommend the sober teaching of a sober Church to millions of our fellow-countrymen. Although the work was practically completed in July last, the reopening of this Cathedral did not take place until Tuesday in last week, which, considering all the difficulties involved, and that the work had to be done a little at a time, may be deemed satisfactory, especially as it has been practically finished for six months. The old nave was built nearly sixty years ago in what was described as "the purest and most debased style of churchwarden Gothic," and which Sir Walter Besant has stigmatised as "a thing of ugliness and meanness." The whole restoration has been accomplished in a little less than seven years. Full descriptions of the work and sketches have been given at various times in the "Builders' Journal," so that little remains to be said. Sir Arthur Blomfield's estimate, seven years

ago, of the cost of rebuilding the nave so that the new building should form with the choir and transepts one harmonious whole, was from £35,000 to £40,000. But the then Bishop of Rochester candidly stated at the time that "anything like an exact estimate at the present moment must be hazardous and premature." The estimate, however, has been at least so near the proved expenditure that, after an outlay of rather more than £40,000, it has been found possible to open the building for public worship. The sum of £7,500 is immediately and urgently needed to pay off debts and complete existing contracts, and a further sum will be required to supply deficiencies of

several windows, the restoration of the tower arcading and the new tower ceiling. The sketches we publish were made from drawings placed at our disposal by Sir Arthur Blomfield.

#### MR. WALTER CRANE AND THE NATIONAL COLLECTIONS AT SOUTH KENSINGTON.

WITH the heavy responsibilities of the present Government in view, especially as regards India, one hardly likes to put forward the claims of Art, but since the subject of the need of a new building for the



ST. SAVIOUR'S, SOUTHWARK. THE PORCH. SKETCHED BY F. ADCOCK.

detail, so that the ultimate cost must exceed £50,000. Various works are in progress, among them the window openings in the south nave aisle and at the west end, which are, with one exception, subscribed for; the organ-chamber and organ in substitution for the small temporary one now in use, which are being built by a generous donor; the canopied choir stalls, the memorial of the diocese to Bishop Thorold, and the remainder of the choir stalls, which have been given anonymously. A lectern, also, is in course of manufacture, the gift of a widow of a late Warden of the Great Account. Offers are invited of a pulpit, a font, a choir screen,

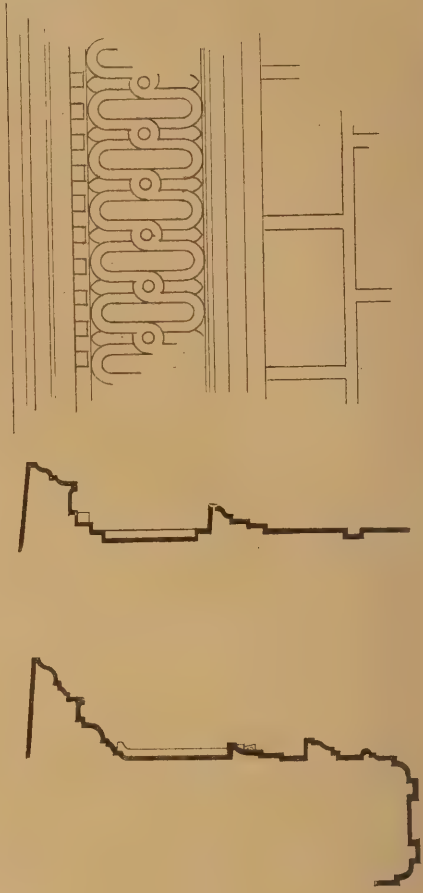
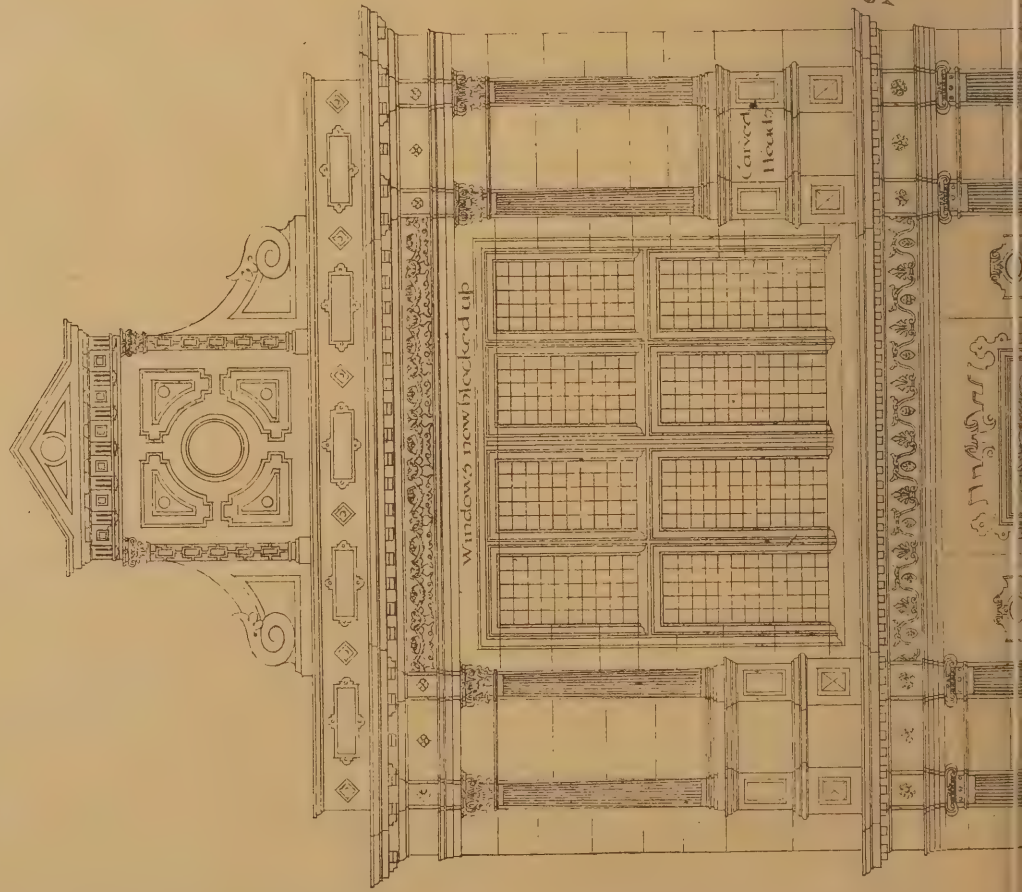
South Kensington Museum has been opened in the columns of the *Times* I feel bound to say that there can be no doubt that room is very much wanted. We have a collection of decorative design and handicraft of almost every kind and period, which is the admiration of Europe, crowded together in a makeshift building, where it is most difficult to see and impossible to classify and arrange properly in due chronological order or Artistic sequence, as should be done to make such a treasury of Art really intelligible and instructive to the public. As it is many beautiful things have to be put away in dark holes and corners, and there is no space to place new and important acqui-



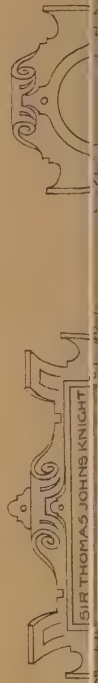
LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



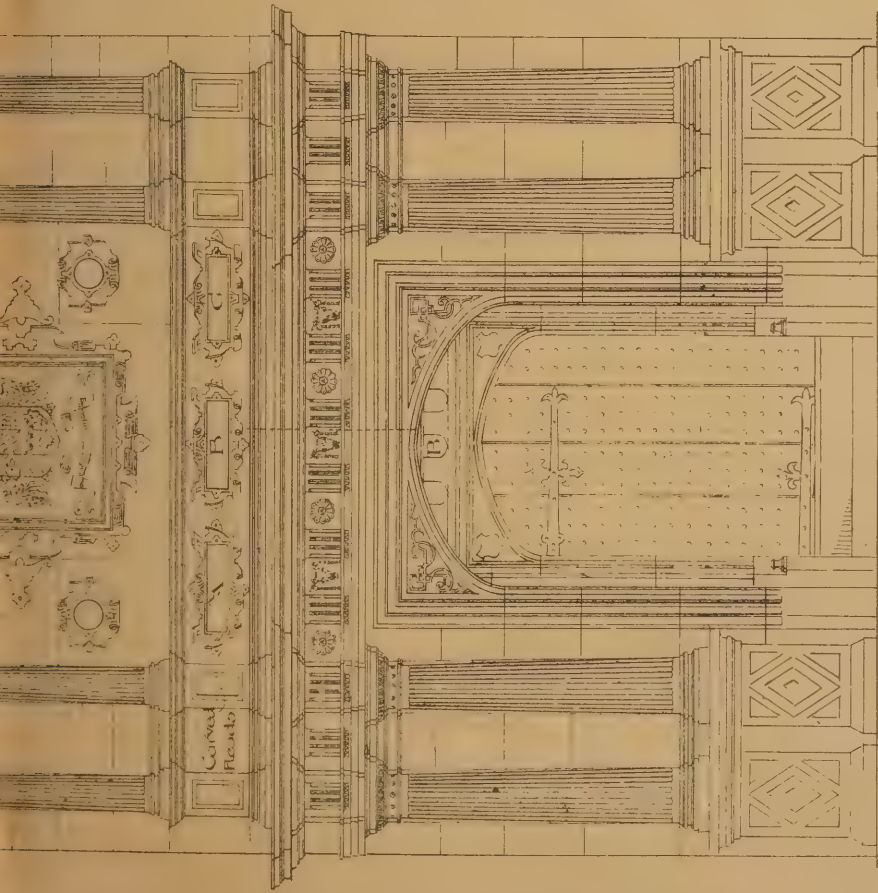
Porch in Courtyard  
OLD BLAUPIRE  
Gloucestershire



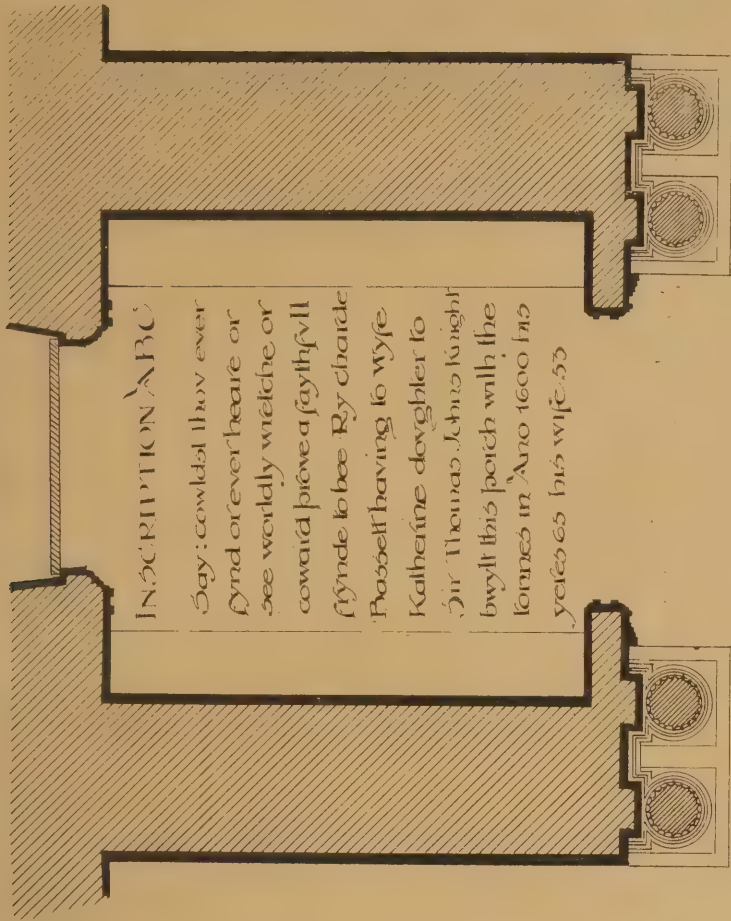
Section at B B Detail of Cornice inside Porch







Front Elevation



Ground Plan

INSCRIPTION ABC

Say: couldst thou ever  
 find or ever heare or  
 see worldly wretche or  
 coward piere a saythfull  
 sinder to bee By chaide  
 Passell having to wyse  
 Katherine daughter to  
 Sir Thomas Johns knight  
 bylt this porch with the  
 lornes in Anno 1600 his  
 yeres 65 his wife 53

Scale of Feet



MEASURED AND DRAWN BY W. EATON, A.R.I.B.A.



UNIVERSITY OF TORONTO



ons. The important, and practically useful, ries of Architectural models, to scale, of some of the choicest interiors of the early Italian Renaissance (which have been produced at the suggestion and under the superintendence of the present Art director, Mr. Thomas Armstrong) cannot properly be seen, for instance, and the latest addition, a particularly interesting reproduction on a large scale of the room of Isabel d'Este at Mantua (for which it has been discovered that the famous Mantegna pictures in the Louvre were originally painted), cannot at present be properly exhibited at all. It may be said, too, that as regards the value of the museum collection the expenditure of public money has been

#### VERY SMALL

compared to the enormous value (either at an Artistic or market valuation of that collection, which has been further enriched by gifts and bequests alone to the estimated amount of £1,000,000, whereas all the funds voted by Parliament for the museum only amounted to between £200,000 and £400,000, as I am informed. Those who have served the Department in the capacity of examiners from time to time know how cramped they are for space to carry on their vast educational work, which culminates in the national competition every year, the selected results of which from all the schools of the country have to be placed before the public. Whatever differences of opinion there may be as to the value of the educational work of the Department in Art, the results are, at all events, open to the public, so that progress may be gauged from year to year, and there should at least be no hindrances to the proper exhibition of such results for want of space. Large and costly buildings, like the Imperial Institute, apparently, can be erected without any visible reason for their existence, while a national museum of unrivalled beauty and richness, with a great educational influence, might almost be said to have nowhere to display its treasures.

#### ART IN IRELAND.

A MEMORIAL has been laid before the Council of the Royal Dublin Society which states that, being deeply interested in the prospects of Art in Ireland, the memorialists make various suggestions for a systematic encouragement of Art knowledge and a stimulation of artistic activity in Dublin. By the terms of its Charter, the Royal Dublin Society is particularly called upon to care for the advancement of Science and Art. At present the only part taken by the Society in the promotion of the plastic Arts lies in its administration of the Taylor funds. These funds have done something to encourage the Arts of Painting and Sculpture, and to enable young artists to obtain a footing in their profession. But they have not added to the knowledge of, or interest in, artistic matters of the community at large. Such knowledge can best be given, and such interests awakened, by a series of well chosen lectures from acknowledged authorities on artistic matters. A course of six lectures every year, with appropriate illustrations, would be of the greatest possible value in spreading sound knowledge and definite ideas on both the history and the true aims of Art. The completion of the new Lecture Theatre affords a means for carrying out such a scheme as the Society has never before possessed. It has, therefore, seemed good to approach the Society with this petition, and to suggest that the proposed series of lectures might take the following form, with such modifications as the Council of the Society might deem necessary; also that they might be provided at an expense hereinafter estimated. (1) Series of six Lectures on the History of Art: 1, Egyptian Art; 2, Assyrian, Phœnician, and Early Greek Art; 3, Greek Art of the Periclean Age; 4, The Decline of Greek Art and Roman Art; 5, The Art of the Renaissance (I.); 6, The Art of the Renaissance (II.). (2) Series of six Lectures on the nature of the various forms of Fine Art: 1, Architecture; 2, Sculpture; 3, Sculpture;

4, Decorative Art; 5, Painting; 6, Painting. Such lectures as these, if given by men of acknowledged authority, could scarcely fail to excite a widespread interest. They might be followed by further series, covering parts of the same ground in a less general fashion, and affording the specific knowledge which is less common in Ireland than one would like to see it. As to the matter of expense, it is believed that each series of six lectures could be obtained at an inclusive cost of from £120 to £150. So far as the arrangements of the new Lecture Theatre are understood, they seem to lend themselves most admirably to such lectures as those now pressed most warmly on the Council of the Royal Dublin Society.

MR. ROSCOE MULLINS, who has recently received the appointment as master in modelling and sculpture at the L.C.C. School of Arts and Crafts, is engaged in executing a bust of the late Miss Buss, which is to be placed in the Camden School for Girls.

GIFTS of £1000 for the building of a chancel, the erection of an east window, and the re-seating of the nave, and of another £1000 for endowment, have been made to St. Matthew's Church, Cainscross. The cost of the improvements named is estimated at £2500.

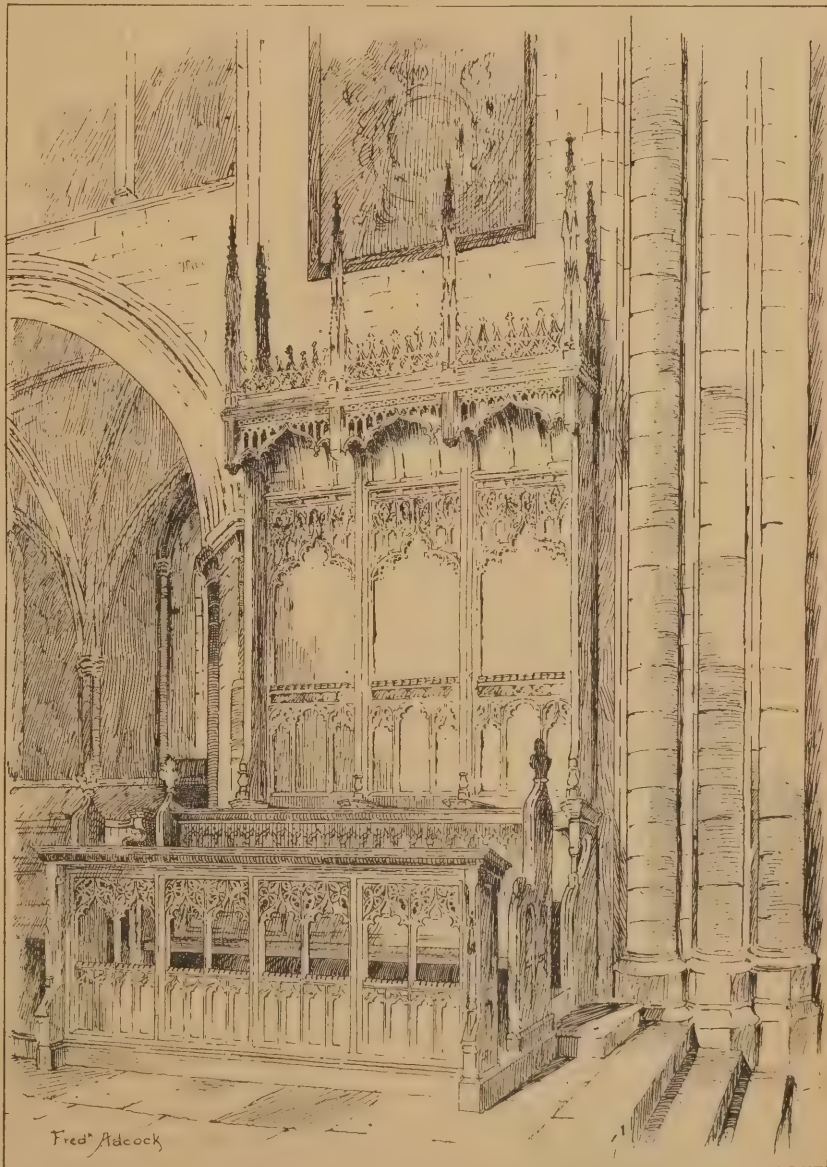
THE Haberdasher's Company's Schools at Hoxton are about to be removed from their present location, the buildings having been sold to the London County Council for the purposes of a technical institution. The schools will probably be transferred to Hampstead.

#### KEYSTONES.

THE Lamp Committee of the Leeds Corporation is contemplating lighting the principal thoroughfares in the central parts of the city by electricity. Arc lamps are to be placed on the poles that are to be used to support the overhead wires for the electric system of tramways. It has also been suggested that the requisite electrical current for lighting should be obtained from the central generating station at Crown Point.

At a recent meeting of the Blackpool Town Council a discussion took place in regard to the proposed paving of the new tramway roads at South Shore and North Shore, some members objecting to the cost, and proposing that sett paving should be substituted. The minutes recommended that a sub-committee be appointed to purchase the necessary wood, and eventually the discussion narrowed down into an argument as to the respective merits of hard wood and soft wood for paving purposes. It was resolved to carry out the improvements.

FOR the information of Parliament, the engineer to the East London Water Company has deposited an estimate of £342,000 as the expenditure of capital required by the company in order to construct the necessary storage reservoirs which are proposed by that company's Bill of this Session. The new reservoirs will cover an area of 92 acres on Chingford Marsh, Wild Marsh, and Mitchley Marsh. It is proposed to meet this expenditure by the creation of debenture stock.



MEMORIAL STALLS, ST. SAVIOUR'S, SOUTHWARK. SKETCHED BY F. ADCOCK.



## Some Scottish Houses.\*

By W. J. BLAIN.

(Continued from page 21.)

TO get from Alford to Midmar it is best to take the train down the Don to a station called Tillyfourie. Here you will alight and walk over a flat and uninteresting country, crossing over a low eminence and descending into a valley about halfway between the Dee and Don, watered by nothing in particular, and consisting of a dry clayey soil on which nothing grows of its own inclination. There is a little fertile spot, however, running into a deep gorge of the hill of Fare, and closely and densely wooded, and in the upper recesses of this gorge stands the Castle of Midmar. It is a fine old house, and perhaps owing to the natural strength of its position, has an air of sturdy domesticity which is not found in Crathes or Craigievar. It is not definitely known when this house was built, or by whom, but it must have been about the year 1570, and considerably earlier than Crathes or Craigievar. It has changed hands often during its three centuries of existence, and is now occupied by a branch of the Gordon family. As we noticed in Crathes and Craigievar a similarity in the arrangement of the plan, so in Midmar and Castle Frazer we will notice a similar community of arrangement.

Midmar is designed on what is known as the Z Plan, that is, the L Plan with a tower added to the diagonally opposite corner. In the case of Midmar and Castle Frazer this

tower is circular. The plan consists of the usual arrangement of rooms, the hall and drawing-room being on the first floor, but in this case the hall block is square and comparatively small, while the drawing-room almost equals it in size, and the staircase occupies the whole of the square tower—the tower in the re-entering angle being here done away with. Interiorly the house still retains many of its original features, the walls being panelled in wood, and the ceilings, while comparatively low and simple, ornamented with plaster-ribs and devices. Exteriorly the building consists of plain storeys, the angles being in this case square, with an attic storey having richly corbelled angle-turrets, the round tower rising to the height of six storeys and covered with a flat roof and embrasured parapet. The building rises naturally from the ground, but no doubt this is helped by the latter additions and the little courtyard wall in front.

The glory of Midmar is its round tower. No matter from what view, it always remains the most important feature, the reason for this being of course that a round feature is always bigger than a square, because it has fewer vertical lines. The difficulty the modern student has is to sketch this broad enough, and he will rub out two or three times before he gets it correct.

The details of Midmar are very beautiful indeed, and although the angle-turrets reduce the gable to a mere apology, they are so well connected to the corners and so closely knit to the roof in outline that the unity of the whole building is fairly well maintained. At the open angles of the main block these turrets are formed square, curiously corbelled out, and finished with a small gable with roll-moulding on the edge, and nicely detailed finials. Looking from the north-west, a stair-

turret connects the round tower to the main block, and this is carried above the lower parapet and finished with ogee roof and beautiful weathercock vane, which weathercock, as a matter of design, is well worth studying.

While one leaves Midmar with a certain sense of satisfaction, he will not have those deep, unfathomable thoughts he had on leaving Crathes. The building is too easily

## MIDMAR



understood at first sight, and has none of that subtle, dramatic charm of effect brought about by the proper distribution of rich detail on plain surfaces, which takes so long to unravel, and which remains a joy with you till the end of your days.

The detail here is too much in harmony with the plain surfaces, and although the grouping is perhaps better than either Craigievar or Castle Frazer, after three hours study the student will not have an unconquerable desire to see it again before he dies.

The village of Echt is about a mile from Midmar, and there is a good hotel where you can put up for the night. Echt is a charming little village, situated in the centre of a wide agricultural district, and about sixteen miles from Aberdeen, from which place a bus runs out and in twice a week. The road to Castle Frazer is over nearly the same country as you travelled from Tillyfourie to Midmar, but it lands you two stations further down the Don Railway, at Kemnay, which is the station, and is in close proximity to Castle Frazer.

Castle Frazer is the seat of the Frazer family, who have held the lands since the middle of the fifteenth century. The present house was built in 1576 by the Frazer of that date, and is presently occupied by Colonel Charles Frazer. It is with the greatest difficulty you can get permission to see round the house, and, as for getting inside, there is simply no chance. Castle Frazer sits in the middle of a flat plain, bounded by the Don on one side, and the slight eminence overlying Echt on the other. The policies are very extensive, finely wooded, and are beautifully laid off with walks, while the old avenue, now disused, approaches the house from the east through a magnificent double row of beeches, extending as far as you can see. The plan is almost similar to Midmar; only in this case the main block is larger and oblong, and the round tower is smaller, while the main staircase, which is here circular, occupies only a small portion of the square tower. The withdrawing room thus sinks into insignificance, and the great hall, rising two storeys, with its richly plastered barrel vault and fine end window, again assumes predominance over all the other rooms of the house. The plan is a very fine one, the parts being properly balanced, the arrangements convenient, and the rooms beautifully proportioned.

Externally, Castle Frazer consists of four plain storeys, with square corners, and fairly large openings corbelled out on the attic, the round tower rising to the height of seven storeys. If size and richness of detail are the criterion of a good building, then Castle Frazer outbids Crathes, Craigievar, and Midmar in importance, as it is certainly the largest and most elaborate building of its type in Scotland. Looking from the north-east into the open angle, the building presents a vertical appearance, owing to the grouping of the main block and towers, while it is finely bound together by the continuation of the horizontal corbel



MIDMAR. SKETCH FROM THE SOUTH-EAST.

\* A paper read before the Glasgow Architectural Association.



band, which throws itself up at the centre of the main block into a series of richly sculptured panels, with dormer over. The grouping of this feature with the two side dormers, and contrasting with the plain wall spaces, forms a fine primary motive to the entrance front. In the angle a circular turret rises from the ground and finished with a cone roof. The angle-turrets, while rising rather abruptly from the angles, are well proportioned to the size of the gable, which, in this case, is not so much lost as at Craigievar, while the turrets read fairly well with the chimney-head to form a complete gable. The round-tower, from this view, has a very bad connection to the end gable of the main block, and were it not for the presence of the later two-storey additions, would look detached.

One of the finest features of Castle Frazer is the long horizontal line of the main block towards the south, with its rich corbel course and row of fine dormers. This is almost similar to Killochan Castle, Ayrshire, which, although plain, has not that competition between the main rock and the round tower, which, in Castle Frazer, is so defective from this view. The round-tower, unlike Midmar, is furnished with a finely detailed Renaissance ballustrade, and the corbel course is carried right round the tower and continued round the house, although it would have been better left out here, while a beautiful detailed turret with arcaded openings at the top rises from the angle, similar to Midmar, but not nearly so finely connected to the round-tower, and finished with a fine ogee roof and weathercock vane.

The dormers are finely enriched and varied in detail, but the repetition of the round turrets appears a little monotonous after having seen the fine effect at Crathes, Craigievar, and Midmar of the combination of the square gable with this form. The sky-line is very good, and, while sufficiently varied, is not so pronounced as to take away from the simplicity of mass of the whole group. On leaving Castle Frazer, the student will again experience something like that feeling he had on leaving Crathes, with this difference, that he will understand why. The effect produced by Castle Frazer, while very grand and elegant, pertains more to the cast-iron or mechanical type of grandeur. From Castle Frazer the distance to Kemnay Station is only a mile or two. Kemnay is a nice little



MIDMAR. FROM THE NORTH-WEST.

village on the Don side, which boasts of some good houses, and is famous for its granite quarries. From Kemnay the railway takes you

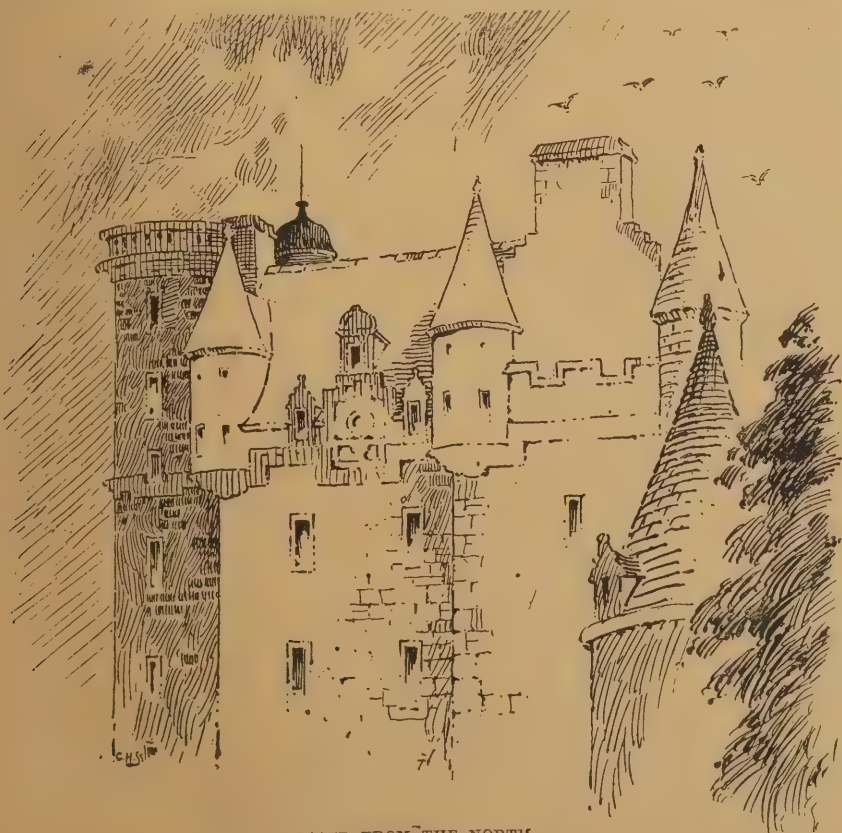
down to Kintore, where you join the main line from Aberdeen to the north.

It will now be necessary to compare at some length the various characteristics of the buildings I have just described, and to find out the causes that go to make them superior to the majority of the buildings of their time. To do this it will be necessary to prefer one building from the others for its general superiority, and to praise the features of one building at the expense of another. From this you may lose your good impression of these buildings, but things are only great by comparison, and as I think Crathes infinitely superior to either Craigievar, Midmar, or Castle Frazer, so I consider these houses greatly superior to most of the other houses of their type throughout Scotland as far as I have seen them.

Making an instance of some of our Western ones, take Auchans, Rowallan, or Newark, and they are not to be compared to the houses of the Dee and Don, and even Maybole and Killochan, buildings which approach the same type, are not equal to them in design, grandeur of conception, simplicity of mass, and general elegance of detail.

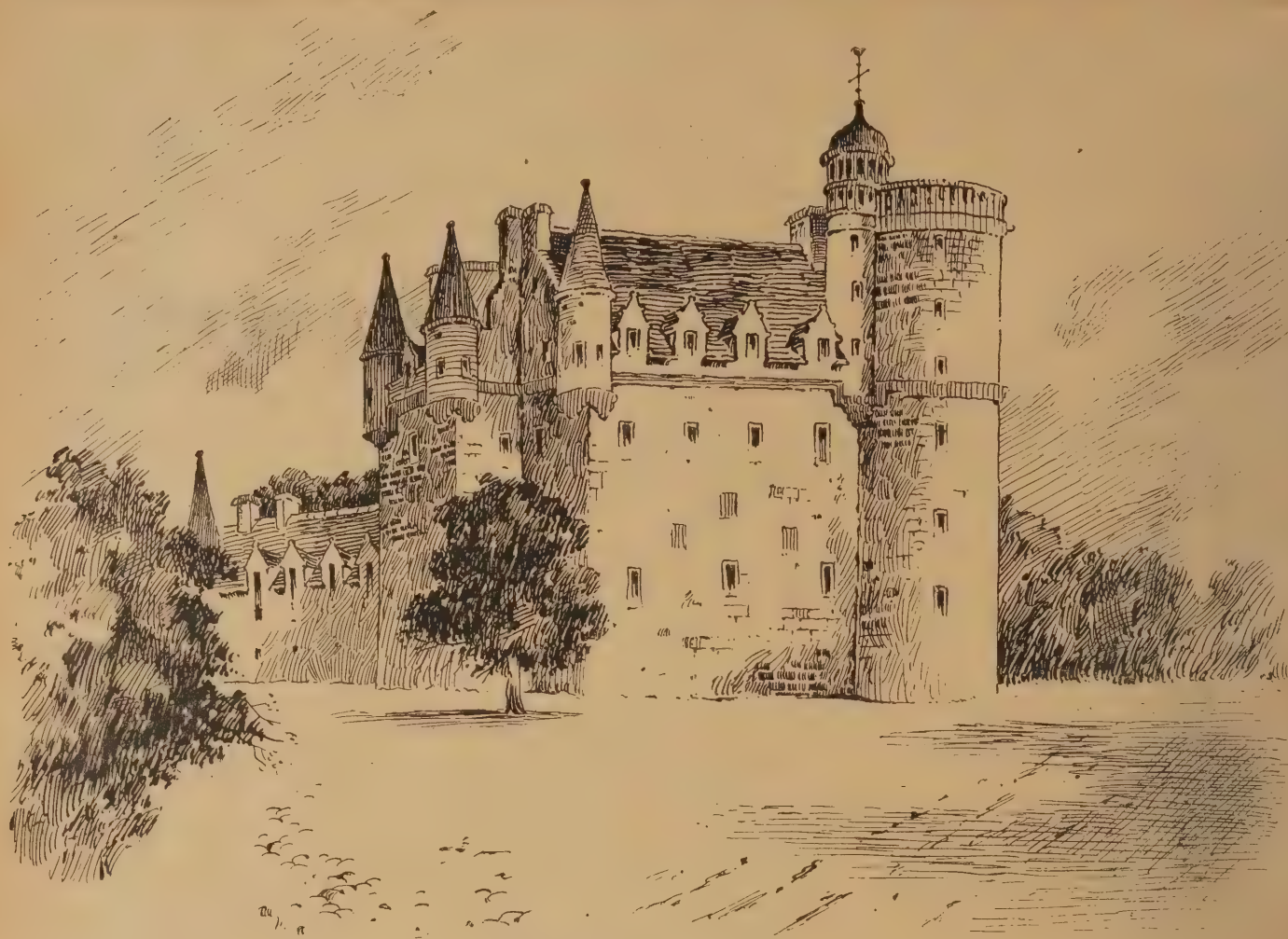
A building cannot be said to be fine unless it is well designed. When a man has an idea to express, if simply and emphatically spoken, it will always remain dignified. And yet a thought may consist of numerous subsidiary thoughts, and may be expressed in fine language. But it is only the great mind that, having conceived a central idea, can hedge it round with a network of subsidiary ideas, all tending to prove the main idea, and, withal, clothed in the most beautiful expression.

The reason why the Architecture of the present day is so inferior to that of the Renaissance is not because of its want of beauty, but because of its want of a central motive, or because its central motive is lost



CASTLE FRAZER FROM THE NORTH.





CASTLE FRASER FROM THE SOUTH.

through the improper relation of the subsidiary motives, that is to say, comparatively speaking, there is no unity of idea in modern work, which is as much as saying there is no design. Now a building which is not designed has no right to exist, and to be designed it must have dignity and beauty. A building, however beautiful, if it has not dignity, is merely a pretty toy, whereas a dignified building may not necessarily be beautiful to be fine. Dignity has to do with scale, but has nothing to do with size. The smallest cottage may be dignified. Now the elements of dignity in a building are found in the unity of the main mass, subordination and proper relation of the features. Thus, a house to be well-designed must have a central purpose, an idea—it is a place to live in, but it is not two places to live in, but primarily a house. Now this house may have a large hall, which pronounces the main block; it may have a staircase tower, and it may have a drawing-room which pronounces the drawing-room block—neither of these is the house, but the three combined are the house. The staircase tower is first of all a part of the house, and then a staircase tower; and so with the drawing-room tower, and when they become more or less than that they are badly designed. In the same way a gable is a part of a house first and a gable afterwards. It may consist of two angle-turrets and a crow-stepped skew, but if the angle-turrets are so pronounced as to make the gable read two angle-turrets and a gable in place of a gable and two angle-turrets, it is badly designed; in the same way if a house is designed in a landscape so that you cannot see the landscape for looking at the house, then the house is badly designed, and appeals to you like an egotistic man in a company. It is this unity of mass and proper relation of parts that make Crathes so superior to Craigievar, Midmar, and Castle Frazer. If you compare the plans of these houses, you

will find that Frazer is a great deal larger than Crathes, and I am convinced that Crathes creates a much larger impression on you, although in the perspective it appears much smaller. I have often noticed that the size of a building in reality is inversely in relation to its size on a drawing.

The primary reason why Crathes possesses this unity of mass is the peculiar arrangement of the staircase, which I have already said came out flush with the front gable. If you had lived in the sixteenth century you could never have mistaken this for anything but the staircase, and yet it remains part of the house; again you would imagine that because of the connection of the staircase the drawing-room block would appear detached; but this is not so, as, because of the increased size of the main block, it takes its proper relation, and never competes with the main block, while it is sufficiently pronounced to appear an important part of the house. Now, in connection with the first point, at Craigievar, looking from the south-west, the staircase is so prominent and withal emphasized in the roof-line by the Renaissance parapet that it cuts the building into three parts, between which there is equal competition for importance, and, although this tends to increase the height of the building, it takes from it size. Again, in connection with the second point, although at Castle Frazer the main block from the S.W. is never lost sight of, the round drawing-room tower is so pronounced and so little connected to the house that, apart from its beauty as a feature, it does not read with it as it does in Crathes. In Midmar, however, this same round tower is so large that the house is subsidiary to it, and there is never any competition as to which is the most important, the house nestling closely by into the side of the tower. The rounded corners, too, at Crathes and Craigievar, although seemingly a small matter, help to bind the

houses together and softly unite the side in light to the side in shadow.

Regarding the proper relation of features in these houses. At Crathes the staircase and main gables are so well connected by the parapet, the turrets are so gradually connected to the angles, the gables are so much more important than the turrets, and the roof line of the turrets and dormers so squat and little pronounced against the sky-line, that the main idea is never lost, and every feature lends to the picturesque harmony of the whole. Again, the corbel course is not continued round the house, but is level throughout at the turrets, and thus

## CASTLE FRASER



pops out and hides itself again, playing a sort of hide-and-seek round the house which gives the subtle effect to Crathes and represents that dramatic concentration of detail I have already referred to.

In Craigievar the effect is quite the reverse. The features keep dancing round the roof line in a continued state of unrest, and as if competing in a friendly way for your notice, while the continued corbel course, combined with the want of grip of the ground, gives the building a top-heavy appearance. This continued corbel course in Craigievar and Castle



Fraser is in my opinion a mistake. It seems to me that one of the first principles of design is, if you have an idea emphasize it. Now, the idea of Craigievar is verticality, and therefore no horizontal line should be stronger than the vertical line. In the south-front Fraser again, where the idea is horizontal, it is very pleasing, but is utterly out of place in the gables. The features of Midmar and Castle Fraser are fairly well adjusted, and perhaps the only serious defect in Castle Fraser is the connection of the little angle turret over the round tower. This you might not observe had you not already seen the most beautiful and appropriate connection of the similar tower and turret at Midmar. In Midmar the two surfaces of the turret and tower die flush into each other over a flat arch, and again the turret is carried flush into the hall block over a corbel. The effect of this is to add to the already gigantic size of the round tower, and to connect it and the turret to the main block, thus carrying out the principle of Design which I have already tried to explain. If I were asked in a word to give my impression of these houses, I would say that Crathes combines dignity with beauty of detail, Castle Fraser beauty of detail with dignity, Midmar dignity without beauty of detail, and Craigievar beauty of detail without dignity.

My impression of detail is that it consists of two distinct types. The one being a higher form of detail than the other lives longer and grows on you, the other is as pleasing for the moment. The one is the general harmony of the detail to the whole building, the other is the harmony of distributed detail over the whole—the one is the general harmonic feeling of the Colosseum at Rome, the other the contrasted harmony of the Parthenon at Athens; the one is the general harmony of the perpendicular Gothic, the other the contrasted harmony of the Early English; the one is the general harmony of Midmar, the other the dramatic distribution of ornament on Crathes; the one I call simple harmony, the other compound harmony.

The detail of Castle Fraser and Crathes is of this contrasted harmonic type, and the fine concentration of ornament above the entrance at Fraser Castle, combined with the rich elaboration of the corbelling and dormers in contrast to the plain wall surfaces, produce a lasting impression on the student which is somewhat spoiled, in this case, by its formality. At Crathes, however, the detail is charming; in fact all over Crathes you seem to feel the Artist. The corbellings are like the building itself. While retaining general unity of mass, they are cut up into parts which are again redistributed in the most subtle manner, each part being subordinate to its superior, while they are bound together at top and bottom by strong bands, enriched by the projecting gargoyles, and then dropped down the angle a bit and finished into the round with a simple corbel. The dormers, too, are enriched by finials, which, while they enrich the outline, never lose their effect of being single stones set on end, and are moulded in a peculiar, sturdy fashion which feels native to the Artist and Scotch in its essence, and they are as subtle to draw as they are appropriate to the building.

It may be asked, Why do we study these old buildings? Do we intend to introduce a new Scotch Renaissance? If it were so, I should be the last to study them. My impression of revivals is that they are retrograde, that each revival throws back the progress of Architecture for the period of its existence, and that the great Renaissance of the sixteenth century was only excusable on the grounds that, the world having gone so far astray, it was necessary to break with the present, go back for ten centuries, and begin over again.

Nature teaches us certain principles of Design such as harmony, proportion, symmetry, &c., but nature is difficult to read, and by studying good buildings we may see these principles in stone and lime. It is thus that the Houses of the Dees and Dons should be studied, not to copy their forms blindly, but by their defects as well as their virtues to understand the principles that govern their forms.

## THE ARCHITECT AND THE PUBLIC.\*

By MR. W. H. BIDLAKE.

THE public was not inherently or intuitively antagonist to the Architect, or the Architect to the public. Some assumed that this state did exist, but, on the contrary, each existed for mutual help. "I must live and be sheltered; this want you must supply, and you must make my shelter beautiful for me. For this I will assist you in living." What arrangement could be more just and harmonious? Quite true. And yet the working of the arrangement could be more just and harmonious. Then came the question, how? That was the subject of the present paper. Architectural society was divided into two groups—clients and non-clients. The former was a small minority, though every taxpayer and ratepayer was a client where State and municipal buildings were concerned. Then he took an interest in the matter, and saw, as far as he could, not only that the money was wisely expended, but that Architectural results were obtained which would gratify his citizen pride. But the unwelcome fact must be faced at the outset—the British public was profoundly indifferent to Architectural matters. Some might say "no." The citizen did, perhaps, arouse himself from his wonted lethargy occasionally, and vehemently denounce the modern Architect and all his works, and it was a credit, therefore, that in these days so much good Architecture was done. At Florence in the days of the Renaissance the keen interest taken in Architecture invigorated the air and stimulated men to aspire to works which would claim public praise and public gratitude. When the public heart was touched, then was there an outburst of music and song and grand and exquisite creations of Art. There was such a burst, when, in the days of the Renaissance, men threw off the superstition and tyranny of the Church which had held them in slavery. Easy commercial prosperity made men content with conventional commonplaces. It did not set them longing. Life ran smoothly, and its daily currents did not disturb their emotions, and so in these days they had to face public apathy. An appreciative public would stimulate an Architect to produce his best, to produce better Art, for all his faculties would be awakened. Public praise was all very well, but what was the praise of ignorance? Public appreciation, to have any weight and to be capable of influencing the best men, must be critical and founded on knowledge and good taste. This led them to consider the great fact that the British public was profoundly ignorant in Architectural matters. How could it be otherwise? Indifference produced ignorance, and ignorance indifference. People did not even know what Architecture consisted of! Some regarded it as Archaeology as applied to modern buildings. The public idea of Architecture was that of ornamenting buildings. Here was a barn or factory: cover it with sufficient ornament and it became Architecture. The ornament might be misplaced—before it was an ugly building, now it was a beautiful one. Such a view might be pardoned in an ignorant man, but it was, alas, a view held by many men of education, men who had been taught to appreciate music and good literature, but who altogether

### FAILED TO APPRECIATE ARCHITECTURE.

If they saw a building in plain mass they called it unarchitectural. No doubt there was a winning grace in modesty theoretically, but the Englishman liked to see a man push himself to the front, and he also liked to see the same thing carried out in buildings. This was much to be deplored, because it was responsible for a certain class of building which was vulgarising whole districts—for it was undeniable that there were Architects who were prepared to sacrifice whatever principle they possessed on the altar of popular taste. Another popular fallacy was that the planning and design of buildings were two separate processes, and general ignorance also existed as to the right

treatment of building material. The public did not even know that there was a right and wrong way in dealing with building material. The effect of this wide ignorance was that Architects were deprived of public opinion and approbation. To the public the Architect was a luxury, and being unable to criticise him and his work, it was at his mercy. The Architect told his client what was the fashion, and he (the client) paid heavily for being made uncomfortable until his lease—or his life—ran out. But why should this ignorance of Architecture exist? They had been taught music; they knew English history as a series of sanguinary conflicts between England and France; but no one instructed the public to read for itself the history of our forefathers, written in the walls of the Parish Church. Was it not surprising that Architecture did not form the least part of the school curriculum? Even in Schools of Art, though building was taught, the subject of Architectural Design was conspicuous by its absence. A man ought to be considered as lacking in his education as an English gentleman if he

### KNEW NOTHING OF ARCHITECTURE.

If Architects would bring the subject before the public and assist in the establishment of lectures, scholarships, &c., and do everything possible to excite the interest of their neighbours, much might be done to claim public recognition for Architecture, and though it would not perhaps lead to the thorough purification of the Architectural taste, it would assuredly tend in that direction. It was vastly more important that our streets should be lined with beautiful buildings than that we should listen to music in the park for a few hours now and again in the season. One of the most important departments of municipal government was that dealing with new buildings, but here Architects had neglected the opportunities of their Art. And, indifferent as the average Englishman was towards Architecture, when his interest was excited he sought to know what was good and what he ought to admire, and if authoritatively told to do so, he would admire the really beautiful. He must, however, be taken in hand first; he would not undertake the initiative, and it was by Architects that he must expect to be led. He was unimaginative and commercial. When he built he liked to see his money's worth; let him have plenty of it and he would rest undisturbed by questions of refinement and quality. But if the beauties of proportion, of light and shade, and other evidences of refined taste were pointed out to him, he was not so insensible but that he would learn to appreciate them. Who would point them out to him? Not Architects. They were too busy with their individual practices. The public did not regard the Architect as a practical man—that term applied to the builder; the Architect was a luxury, and his services could be dispensed with in these days when one could rely upon the authorities to see that one's drains were in a good state, and everything else in satisfactory order. It was a general belief that when a plan and an estimate were obtained, the work of the Architect ceased. It came as a surprise to most clients, who were not usually experienced in building matters, to see the

### NUMBER OF DRAWINGS REQUIRED

in the erection of their buildings. "Well," said the client, "I did not know you had to work so hard for your money. I should not think the five per cent. pays." Five per cent. was considered a high commission, and Architects were often asked to take less; certainly to exceed it was a difficult matter, even when engaged with the most elaborate fittings or Church decorations. When the Church Architect, asked to accept a lower commission, demurred, he was reminded that a donation to the organ fund would be most acceptable, or was given the opportunity of providing a silver trowel for the foundation-stone laying, and the result of this sort of thing was that the Architect whose practice was principally confined to religious work was subjected almost to a perpetual fine. Not infrequently the Committee acted very shabbily towards the Architect. On the Committee there

\* Report of paper read at a meeting of the Architectural Association on Friday, the 19th inst.



was at least one member who had had some experience of building, and he came very prominently forward with his assistance. The private client, however, had no one to help him, and it often became necessary to provide many alternative sketches before the clients came to the conclusion that he would not build, and was much surprised, and exclaimed, "Why, I didn't select any of those sketches you sent me," when he received a bill. Many a patient Architect had laid his most exquisite ideas before unrefined and uneducated wealth, to have them ruthlessly set aside with a sigh and a remark about "beauty and the beast." Another point to which he wished to refer was that of public competitions. This method had reached alarming prevalence owing to the folly of Architects in administering to it. The system appeared to him a very mean way of getting £100 worth of work for £10. He wondered if painters would in time be asked to compete for painting portraits. Public competitions, provided an assessor was appointed, seemed right and fair, but the first premium was a delusion and a snare. The Architect competed on the understanding that if he was placed first he would be employed in erecting the building, for the paltry amount of the first premium was by no means adequate remuneration for his labours. Competition drawing could not serve as working drawings. The work had to be done again, and it was right that he should receive some preliminary compensation. But there were others who had performed the same labour. Should not these receive compensation? Would it not be more satisfactory to divide the amount of premiums, including, of course, the first, in equal honorariums to all those invited to compete? Furthermore, would it not be better to limit the number of competitors, and thus avoid a large expenditure of labour and bad language called forth by the recent competition at Exeter? No competition should have more than twenty competitors, and in the case of a competitor submitting a design of great excellence, but omitting one condition, it was unjust towards that competitor and wrong towards the public to deprive it of a notable building on such trivial grounds. The right course would be to erect the building, the money to be handed over to the first competitor who had observed the conditions. While the public knew little of the extent and nature of the Architects' work, the attitude of the public towards the Architect was one of distrust. This was the underlying sentiment, engendered by prejudice, hearsay, and experience. They might feel inclined to deny this—they certainly would like to deny it—but was it not true? If it was true, what were the causes? There might be many, but he believed there were two chief ones. Distrust was if the Architect was included in the general distrust of the word "artistic," and particular distrust rested on financial grounds. As a red rag to the British public was the word "artistic." Ask the Britisher himself, and he would say that if he must go to an Architect, he would go to a practical man and not to one of "those artistic chaps." Architects were to blame for this conception of the word "artistic." The Britisher had shrewd common sense, and his idea of a home was summed up in the word comfort; he did not think it desirable to darken the rooms in order that the exterior of the house might be in some particular style of Architecture. Undoubtedly most Architects set themselves sincerely to interpret their client's wishes, but there were those who sought their own

#### REPUTATION AT THEIR CLIENTS' EXPENSE,

compelling him against his will to accept a certain design or feature of a design. It was the duty of the Architect to respect his client's wishes if they were reasonable and wise, and if not to save him from himself as it were, especially so if a client was uneducated, or a man possessed of some particular fad of which he would probably tire. If the Architect acquiesced quietly, the client would turn upon him and say: "It is true I wanted such and such, but I don't know much of the business and did not see the effect of it. I came to you

as a specialist, and was quite open to argument." In public work the case was different. The committee stood for the public, and the individual opinion of any member ought not to over-ride that of the Architect whom they presumed better understood the question. The Architect, convinced of the wisdom of his views, should then maintain his position, not dogmatically maintain it, but winning the members of the committee to his side. A further question remained to be considered—a question of the greatest importance—that of the distrust by the public of the Architect on financial grounds. It was often said that if they went to an Architect they never knew where the expense would end, and there was some truth in the statement. The client lays his wants before the Architect and tells him how much he is prepared to spend. Of course, the sum is inadequate, and the Architect tells him so. "Not at all," he says, and the design is submitted, which he is told can be carried out for the sum named. All goes well until the tender is opened, and then came the disillusionment of the client. The lowest tender is half as much again, or perhaps it is double. This misleading of the client as to cost was of frequent occurrence, and how much more confidence he (the client) could place in the Architect if the latter told him at once what his building would cost! He would doubt the Architect, however, say that Mr. So-and-So had had a similar building put up for a like amount, and he would therefore consult another Architect who would mislead him, so that the straightforward craftsman ran the danger of losing his clients. In the end, however, he would be the gainer, for he would acquire the rare reputation of being an Architect who could be trusted, and would be able to build up a practice on the soundest basis. And turning again to public competitions, each competitor was required to give an estimate of cost; some conscientiously endeavoured to carry out instructions in spirit and letter, and had to cripple their design in consequence. Others made an elaborate drawing of an elaborate building, arranged on the principle of cost being divided according to the cubic measurements of the building, and by such an arrangement they found to their satisfaction that it could be done for exactly the sum to be expended. This proportion, when carefully described, was enough to throw a committee off its guard, and when the tenders were opened there was a growl by the committee, and expressions of disgust by brother competitors, disgust which deepened when the bill of extras was sent in. The Architect could not prevent extras altogether, but he could do much to lessen the amount, and ought to keep a client inclined to order extras informed as to how the bill was mounting up, so that there could be no after surprise. The reputation of being able to build without extras was so unique and priceless to the Architect that it was worth some trouble to win. It would increase his practice more than any thing else. And coming to the last point in the paper, the public had heard from time to time some

#### TALK OF ILLICIT COMMISSIONS

as associated with the practice of Architecture. Lately it had even been subject for discussion in the Press, though in spite of that fact there might be no truth in the statement, for the public was naturally suspicious. It was stated that commissions had been given to Architects by tradesmen. They believed this was true, that some members of the Institute had received these commissions. They might even know of some specific case, but were they going to report these members? They talked much about purifying the profession, but they would not venture so far as to report such a case. They must be left to their consciences, and at the same time do all in their power to prevent the commissions by personal influence and by making known the names of those firms offering commissions. But it was not only from tradesmen that Architects received commissions. It was the custom in many cases for the quantity Surveyor to take out the Architect's quantities, and the latter would then

ask, "What is your percentage, and out of that how much do you allow the Architect?" In other words, the Architect, relieved of the trouble of taking out quantities, yet received a certain percentage. The Quantity Surveyor was, to a large extent, at the mercy of the Architect. He received his work from the Architect, and if the Quantity Surveyor objected to the Architect receiving a commission, it might be that the Architect would go elsewhere and give his work to the man from whom he could obtain a commission. Furthermore, the builder was equally at the Architect's mercy, for it was from the Architect that the builder received invitations to tender, and just in the same way the builder was also, though to a less extent, at the mercy of the Quantity Surveyor, for it was clear that the latter, when employed to settle up the work, could make either more or less for the builder who was engaged upon it. Now the Quantity Surveyor was not employed directly by the client, and in most cases the client did not even know of his existence—he did not even know that it was necessary for quantities to be taken out—and the result of it was that there was a closed ring between the Architect, Quantity Surveyor, and the builder, and it was to the interests of the three who worked within the ring to study each other's interest. There was no doubt, however, that the Architect's profession was as pure as any other profession, and the majority of Architects would scorn to take advantage of this closed ring. But was it not an extremely unsatisfactory state of things that such possibilities existed, because when they saw conditions which led to fraud they could rely as an absolute certainty upon fraud being perpetrated, and he was therefore anxious to lay particular stress upon this question. The essential point was this: Is the Architect justified in receiving commissions from the Quantity Surveyor? While many Architects scorned to receive commissions from tradesmen, there were many Architects who received commissions from tradesmen. Where was the difference? The only difference was that, in the case of the Quantity Surveyor it was customary, and with any practice, however immoral, which could be regarded as an immemorial custom, it was not difficult to reconcile one's conscience to it. If then, the receiving of commissions from Quantity Surveyors was as bad as receiving commissions from tradesmen, how was it that the one was so often condemned while the other was seldom heard of? Because, as he had said before, the Architect knew perfectly well that the Quantity Surveyor was dependant upon him and would not be likely to divulge matters. It seemed to him that it ought to be one of the conditions of membership of the Institute or the Association, not to receive commissions from Quantity Surveyors or from any tradesman. The Architect's defence was this: He receives five per cent. for making the drawings and superintending the work. When the quantities are taken out more work is entailed, and the Architect thought he should be remunerated for it. Let him be remunerated for it, but let him be

#### REMUNERATED DIRECT FROM THE CLIENT

and not from the Quantity Surveyor. The Architect should not receive a single farthing from any other source than directly from the client, and it seemed to him that that was a right and proper condition of membership in an Architectural body. If the public only knew of the closed ring of which he had spoken and the possibilities of fraud it opened out, he was sure that the distrust of the profession would increase, and perhaps the most direct way of putting the Architect out of temptation was to let in full public knowledge. If they could bring about the purification of the profession in this and other respects they would find that the Architect would become much more entrusted by the public, and the public would be prepared to receive from the Architects their ideas in matters of taste as well as construction, and, at the same time, would trust them in matters of finance.—Mr. Osborne Smith, in moving the usual vote of thanks, thought Mr. Bidlake had laid bare



certain defects to which he had often thought attention ought to be called. He was prepared to endorse nearly all the author of the paper had said, and his personal experience had so convinced him of the ignorance of the public in matters architectural, that he took every opportunity of deluging clients with drawings. They ought to show the public the difference between the house put up by the speculating builder and one put up by an Architect. He did not agree with Mr. Bidlake as to the monetary relations between the Architect and the Quantity Surveyor; "the half-percentors" were dying out, and those at present in existence were chiefly to be found in the provinces. He did not think first-class or even second-class Surveyors would lend themselves to such a thing. And as to the Architect receiving information from the Surveyor—well, if the former prepared his drawings properly, he did not want much information; but when he had no specification beyond a few notes on the back of a foolscap, it was necessary for the Quantity Surveyor to keep the Architect correct on many points. This was an evil which he had heard bitterly complained of by some of the best builders in London. The chief fault that the speaker had to find with the modern draughtsman was that he did not start in the proper way to make his drawings. Some draughtsmen had developed the habit of making elevations without a plan—a most unintelligible way both to the builder and the Quantity Surveyor. They must thoroughly develop their ideas before they called in the Quantity Surveyor, and not seek to rush their jobs through on the chance of things coming right in the end. The only proper way to begin was to make everything clear to the client at the outset, especially the position of the Quantity Surveyor so that he might know that the Architect did not take out his quantities, but that someone else had to be employed for whom he (the client) would have to pay. If this was done, he agreed that much of the public distrust towards the Architect would disappear.—Mr. B. F. Fletcher had pleasure in seconding the vote of thanks, because he disagreed with him on nearly every point. As to the public ignorance in the matter of Architecture—well, what could they expect? Architecture was one of the most difficult, one of the most progressive—or it should be—of Arts, and it required a life-time to acquire a grasp of the subject; yet people were crying out as to the public ignorance! If they considered the ignorance of Architects on Architecture, they would see that there was room for improvement even there; and the only way to view the subject was in the same light as they would view medicine or law. It was simply a little knowledge on the part of the public on the subject of Architecture, which had brought all the trouble about, for many of the revivals was directly owing to the action of Antiquaries. If there had been no Parker they might have gone merrily along the high road of Architecture, bringing out new forms and making fresh developments which Antiquaries had prevented. As to proportion, Architects knew very little about it themselves, and it was impossible for them to instruct the general public in its subtleties; it was not to be taught by rule of thumb, but was to be learnt by

#### ARTISTIC QUALIFICATIONS

acquired as the result of many years of study. Mr. Bidlake had gone very strongly on the poor British public for its ignorance on the subject of the right use of material, but here again a difficult and very laborious study was entailed, and they could not expect an untrained public to know much on the matter. It was a case of "a little knowledge being a dangerous thing," and it seemed to him that the more the public knew up to a certain extent of Architecture, the worse it would be for the Architect. Knowledge of forms by the public was not reasoned out, and all this talk as to the public taking an interest in the subject did not, he thought, really serve any useful purpose.—Mr. H. W. Pratt was unaware that the Quantity Surveyor, the builder, and the Architect, entered so much

into a "closed ring" as Mr. Bidlake would lead them to believe, and certainly it was not practised to any large extent in London. Unfortunately it was because of the Surveyor's commission being paid in the way it was, that they were enabled to deal with such a free hand. The work of making out the specification was now-a-days frequently placed in the hands of the Surveyor, and to this he strongly objected to, not only because such a practice meant putting upon the Surveyor work which to him had ascertain value, but because the compiling of the specification was a matter which essentially came within the Architect's province. He was sorry that Mr. Bidlake had raised the question of the "closed ring" so prominently in his paper, because it would be

#### A REVELATION TO THE PUBLIC.

It was a question to be discussed by Architects themselves, but not in public. He was not saying that the matter ought to be hushed up, but Architects could arrive at a satisfactory understanding without undesirable publicity. The speaker acquiesced as to the public ignorance in Architectural matters, and referred to a recent competition in which the designs were asked for on the quarter scale—elevations and everything. Of course, this was utterly absurd, and he could only account for it by believing that a builder was included among the members of the committee. Architects, he thought, ought to seek to acquire greater business capacity, and they simply had themselves to thank for the distrust in which they were held on financial grounds.—Mr. E. W. Mountford thought that Mr. Bidlake had brought into rather undue prominence things which existed, but not to any large extent. They knew that the illicit commissions he had spoken of were paid, but neither in London or the provinces was it a matter of common custom. He did not agree with the last speaker as to the importance of the specification for it was by the bill of quantities they were guided, and if the Architects, therefore, supplied plenty of detail, the specification sank into comparative insignificance.—Mr. H. B. Cresswell continued the debate, remarking that he thought Mr. Bidlake had started from the wrong standpoint. He ought to have commenced by saying, "The public is an ass," and have gone on to show that the public really was not so bad as it was made out.—In winding up the discussion after the vote of thanks had been carried, the Chairman (Mr. Beresford Pite) said they had to recognise one fact—that Architects were only paid for design. Their client never contemplated that they would put sufficient time into their work to devolve a really artistic design. He did not understand that such a contract was implied, and he certainly would be very much surprised if asked to pay for the Architect's time. They had, therefore, to regard themselves as men of business, and under these circumstances the temptation to a young Architect to fling artistic impulse into his plans was very great, and only those men who understood that the Architect was a self-denying, hard-working philanthropist could really do good work. What did a client care how much they rubbed out a detail? They might do a whole set of drawings over again in order to get one idea over which they were enthusiastic embodied in actual bricks and mortar. Of this the client knew nothing, nor did he care a brass farthing, and therefore he did not think they ought to ask the client to pay for time. Had it never occurred to them that they ought to pay the client for erecting, on a piece of ground which belonged to him, their own dream of the Renaissance? In view of the fact that

#### THEY WERE DREAMERS AND IDEALISTS,

and had opportunities of carrying out their dreams at the expense of the public, they ought to modify their idea of the public. The amount of work imposed upon the Architect for his 5 per cent. was, however, getting unduly onerous. Considering what often devolved upon a London Architect in the way of preliminary surveys, negotiations with the County Council, and so on, and remembering that a client would feel very much aggrieved if he

received a fee account at the end of his commission account, they undoubtedly had cause for complaint. Since the practice in London of an Architect taking out quantities of his own work had been forbidden, he had been deprived of a very definite source of profit, and he could not help thinking that many of the difficulties under which they laboured would be dissolved if the Architect was able to take out his quantities as of yore, and as they still do in the provinces. He did not think the client or the builder would run more risk of suffering; he was certain the Architect would not be more expensive to the client, and the facilities for building would be much greater than at present. The speaker proceeded to denounce the practice of taking out excessive quantities adopted by some Surveyors as an absurd state of things, and it seemed to him that the only way to bring it to an end was for the Architect to take out the quantities. He had never known of a case of an Architect receiving a commission from a Quantity Surveyor, though he had heard of such cases. Many clients did not regard the taking of commissions from tradesmen as an obliquity, but, whatever the client's feelings were, it was wrong, and Architects had no business to receive such commissions. And as to the competition system, he thought that the adjudication of competitions as carried on at the present time was very mischievous and unsatisfactory, and the fact that large sums of money were paid to assessors to assist in arriving at these unsatisfactory results did not improve matters. In big competitions the adjudication might, he thought, be left in the hands of the competitors themselves, for they were best qualified to judge the drawings. But failing the acceptance of this view, he would like the Institute to consent to act as adjudicators in any competition whatever without any charge, simply and solely in the interests of the profession. A Council of Honour of the Institute would soon make its influence felt, and the public would learn that they could always get the best opinion without any cost whatever, and the gain to the profession would be very great indeed.—In replying, Mr. Bidlake said he thought the standard of public taste could be raised by showing the public beautiful buildings with fine proportions, which they would learn to know and admire. As to the monetary relations between the Architect, Quantity Surveyor, and the builder, he repeated that arrangements could be made as to sharing percentages. All the possibilities of fraud were there, and it was these possibilities which he denounced. He did not say Architects were guilty of it—he had far too much respect for the profession to say that for a moment—but so long as the possibilities existed it was unsatisfactory, and it was because he thought this was a slur on the profession that he had brought the subject forward.

Another attempt is to be made to improve the atmosphere on the underground railway. The President of the Board of Trade has appointed a committee "to inquire into the existing system of ventilation of tunnels on the Metropolitan Railway, and report whether any, and if so what, steps can be taken to add to its efficiency in the interests of the public."

The St. Pancras Vestry has decided to extend its electric mains to Park Village West, Regent's Park. Dr. Walter Smith recently stated on behalf of the Electricity Committee that that committee never recommended extensions unless there was a certainty of realising 20 per cent. profit on the outlay incurred. This profit had been derived hitherto in regard to the extensions effected.

Few probably know the amount which is annually expended in respect of our diplomatic and consular buildings abroad. It will be for the ensuing year about £24,400, and the money will be expended at different capitals or great towns all over the world. A melancholy interest attaches to an item of £800 which is included in this total. It is to be expended on cemeteries, £200 being in respect of the cemetery on Cathcart's Hill, in the Crimea, and £369 on that at the Bosphorus.



# ROYAL INSTITUTE OF BRITISH ARCHITECTS.

## THE GARDEN IN RELATION TO THE HOUSE.

DISCUSSION ON MR. H. E. MILNER'S PAPER.

(Continued from page 24.)

THE discussion which followed the reading of Mr. H. E. Milner's paper on "The Garden in relation to the House" at the last meeting of the R.I.B.A. was opened by the Hon. Alicia Amherst, who fully expressed her agreement with the facts and principles laid down in the paper, especially in that the garden ought to be laid out with due regard to the Architecture of the house. She was very glad to hear Mr. Milner make reference to Parkinson and his "outlandish" flowers. Certainly never were there so many "outlandish" flowers as at the present day. And just as in designing an Elizabethan house they adapted it to modern requirements, so in a modern garden these flowers ought to be taken into consideration. Mr. Milner had dropped suggestions which, if carried out, would, she thought, lead to the mutual benefit of both Architecture and Horticulture.—Mr. Aston Webb proposed a vote of thanks to Mr. Milner, and said it would be impossible to find a more delightful subject than gardening; it was a subject in which all Architects were closely interested. A beautiful garden was incomplete without the house, just the same as a modern house was incomplete without a beautiful garden, and it was therefore essential that the producers of the house and garden should work hand-in-hand from the very commencement. It seemed to him a most desirable thing that in building a house they should call in the gardener and discuss the way in which they proposed to lay out the house before they drew a single line on paper. This was a practice which, personally, he had found very helpful. The question as to whether the garden should be formal or otherwise was naturally a matter of interest to Architects, and not only in the present day, but it had been so from the time of Queen Elizabeth—they had taken an interest in the garden which surrounded their houses, and he could not help thinking that the word formal had been much overdone, and was misunderstood, not amongst Architects, but amongst their clients and the public generally. The formal garden they were striving for, and hoped to see adopted, was the formal garden of England, not the formal garden of Holland,—gardens such as that at Hampton Court or at Hatfield House, with high hedges and long walks, with wide and sloping lawns, pleasant to look upon. It had been sneeringly stated that this was a subject—the garden question—which Architects were now noticing more than hitherto, but as yet their idea of a garden was a small plot of ground surrounded by a high brick wall. Personally, he did not think Architects wanted to surround every garden with a square brick wall, though he was not at all sure that Mr. Milner even, had not the idea that they were desirous of doing something of the kind. They were certainly not afraid of a brick wall, but they also recognised the desirability of hedges. The principal things to be considered in dealing with a garden were the prospect, sheltering and shading and so on. Mr. Austin, in "The Garden which I Love," wrote, "Had I a garden it should lie all smiling in the sun," which reminded them that the garden should of course be on the sunny side of a hill, whilst the entrance to the house should be on the shady side. There ought to be some design about a garden; man's hand should be visible, and any attempt at naturalism would, he ventured to think, only lead to unsatisfactory results.—Mr. H. H. Statham seconded the vote of thanks.—Lieut.-Col. Lennox Prendergast said the subject of gardening was of greater interest to Architects than many people were inclined to think, because it had to do with the great question of beautifying English homes. The houses of England to-day were for the most part on high grounds, and this altered the whole method of dealing with the grounds. It involved

a complete change of principle. The grounds must fall away from the buildings, and the question was, How were they going to act? The builder would like everything taken out from the foundation, but that would not do, and a consultation with the landscape gardener as to the general way in which to deal with the material was desirable.—The Chairman closed the discussion with a few remarks, in which he said that he always understood that the landscape gardener looked upon himself as the master of the situation, and when called in to lay out a garden and grounds, did the work to his own satisfaction, and was then ready to recommend a man to build a house which would agree with what he had done. He considered there was a certain charm about what was called the formal garden. It was delightful to see this formality in cottage gardening, and it was brought into pleasant contrast in some of the wildest places in the country. Of course the formal garden of to-day was nothing compared with the garden of the Romans, from whom this formality came. They carried it to the very extreme, for they read of animal forms being cut upon the trees and so forth. The information Mr. Milner had given them was very useful, for few of them had not a house to build in the country occasionally.—Mr. Milner, in replying, said he thought the only rational way of treating the grounds of any place was to adapt their plan to the natural circumstances. It would be impossible in every district to form such a garden as that at Hampton Court; if the Hampton Court plan had been made for a hillside, the result would have been ridiculous. It was the business of the landscape gardener to form in his mind a picture of how the ground would look when the plan was carried out; and it was, as Mr. Webb had said, highly desirable that he should go hand-in-hand with the Architect.—The next meeting of the Institute will be held on March 1st, when the business will include the election of the Royal Gold Medalist for the current year.

## EXHIBITION OF OLD MINIATURES.

THE authorities of the Queen's Park Museum, Manchester, have secured for their twelfth winter exhibition, which opened a few days ago, a most attractive and important collection of old miniatures. For many years miniature painting has been neglected. The last great painter of the old school, Sir William Ross, died in 1860, and after his time the cheap photograph drove the expensive miniature out of the field. A few miniature painters have continued to practice the art in a debased style, and the wealthy enthusiasts have never ceased to collect examples of the old English school; but for the general public this delightful branch of Art was dead and forgotten. Of late, however, there has been a sudden change of fashion. It has been discovered at last that miniature portraits are preferable to photographs. Young artists, says the Manchester Guardian, have turned their attention to the subject. Two societies have sprung up—the Society of Miniaturists, founded in 1895, and the Society of Miniature Painters—and have held exhibitions in London. The Art magazines abound in articles on the new movement. In short, there is every sign of the revival of the miniature, and Manchester, thanks to the authorities of the Queen's Park Museum, is to have a share in promoting this worthy object. The present collection of 367 old miniatures, most of which were shown at the Grafton Gallery in London in November last, represents the Art as it flourished from the sixteenth to the early nineteenth century. It is not complete, for Holbein and the two Oliveres, Isaac and Peter his son, Samuel Cooper, the greatest of our miniature painters, and Flatman, his younger contemporary, are not represented at all, though the very solid and ably painted "Henry, Prince of Wales" (No. 512) is not unworthy of Isaac Oliver, the favourite Court painter of Elizabeth and James I. Still, the collection shows very fairly the growth of the art from the days of Nicholas Hilliard, who painted Mary, Queen of Scots (No. 502), and Lady Jane Grey (No. 519), to the age of

Cosway and his brilliant school. There is a capital example of John Hoskins, who died in 1664, in the "Thomas Hobbes," which is lent by the Duke of Devonshire. Laurence Crosse, the pupil of Cooper, is seen at his best in a delicious portrait of a gentleman who is supposed to have been a brother of the first Duke of Devonshire. Ozias Humphry, the clever contemporary of Cosway, is represented by a striking but somewhat hard miniature of the "Duchess of St. Albans," in a large red hat. But the work of the later eighteenth century, it must be confessed, takes precedence of all these. Cosway himself is particularly well represented by a long series of portraits of his noble patrons, most of which are perfectly preserved. A number of modern miniatures—187 in all—by the members of the Society of Miniaturists, are also included in the Exhibition. It must be confessed that it is rather painful to inspect them after spending an hour or two with Cosway and Russell, Engleheart, Pailton, and the rest of the old masters. The modern work is as yet too laboured, too weak in drawing, and too thin in colour to bear the inevitable comparison with the work of the past. However, several of these examples encourage the hope that the Art will revive.

## TECHNICAL EDUCATION IN LONDON.

IN the report of the Technical Education Board of the London County Council on the expenditure for the year 1897-8 it is stated that by March 31 the unexpended and unappropriated net balance of the sums hitherto allotted will probably be insignificant. The opening of new technical institutes in various parts of London, and the growth in the number and variety of workshop classes in the various trades will, with the ordinary expansion of the number of students, necessitate some increase of expenditure, whilst they are in hopes of being able, during the ensuing year, to fill some gaps which are still existing in some districts. The Board realises that the present rate of increase of the work cannot be indefinitely continued, but there is still much to be done, and the amount which should be set aside by the Council for the purposes of technical education for the year ending March 31, 1898, if the Board is to maintain its present work, will be £150,000. This amount is arrived at as follows:—Technical departments of polytechnics, £30,000; Shoreditch Municipal Technical School, Wandsworth and Norwood Technical Institutes, the (Mile End) Craft School, Herold's Institute, Camberwell Art School, Central School of Arts and Crafts, Bolt Court School, and other institutes in contemplation, £27,700; technical departments of public secondary day schools (including allowance for fees, books, &c., of the Board's scholars, £10,000), £23,000; higher education, £4,500; county scholarships, £29,175; teaching in art, science, and technology and manual instruction (including exhibitions in art, science, and technology, but excluding polytechnics, secondary schools, and special institutions for which the Board is mainly responsible), £19,900; domestic economy, £6,000; commercial subjects, £2,000; museums (chiefly art examples), £1,000; expenses of administration (including cost of advising and inspecting technical institutes, advertising their classes and the Board's scholarships), £7,200. For the year 1896-7 the Board's expenditure is estimated at £120,000, and the chief causes of the increase for 1897-8 are assigned to—(1) the establishment of additional classes for workmen in the polytechnic institutes; (2) the establishment of craft schools and technical institutes specially adapted to meet the requirements of London industries, some of these being wholly or chiefly under the Board's direction; (3) the development of the Board's scholarship system, which has now reached the limit of the original scheme. Owing to the development of technical schools and classes in artistic crafts it has been rendered impossible to distinguish between the teaching of technology and that of art, and in the present estimate the teaching of art, science, and technology in institutions, aided by the attendance grants, is grouped under one heading.



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
February 24th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A CORRESPONDENT writes: "With your permission, I desire to call attention to the advertisement which appears from the Commissioners of the Borough of Enniskillen, inviting Architects to submit designs in competition for a new Town Hall. The proposed expenditure is £7500, and sums of £50, £20, and £10 are offered as 1st, 2nd, and 3rd prizes, with the condition that 'the successful plans and designs are to become the absolute property of the Commissioners, to adopt in whole or in part, as the Commissioners may deem desirable or necessary, without further payment to the successful competitors.' It is to this condition I take exception, as being a most insidious attempt on the part of a public body to obtain work of an exceptionally valuable description, and evade payment for it at its ordinary market price. As this is an open competition, the profession throughout Ireland, and not the profession alone, but every man in sympathy with it, are equally interested in the terms under which it is to be held. The uniform practice in all such cases is that the author of the selected design is entrusted with the carrying out of the work, receiving the usual fees, in which the amount of the first prize is merged. In this case the fees would amount to £375; and, as the work would possibly take a couple of years to execute, the remuneration, it must be admitted, is a moderate one, especially when it is remembered that it includes a large amount of necessary and subordinate work, all of which involve considerable office expenditure, and make a heavy deduction from the sum received."

THE Benchers of Gray's Inn have resolved to remove the disfiguring stucco from the exterior of their fine old hall and to restore it, as nearly as possible, to its state when originally erected. The work was so satisfactorily begun on Thursday last, that a successful completion is confidently anticipated. The hall, though not large, is one of the most interesting in London. Queen Elizabeth visited it often, and its finely carved oak screen and several of the dining tables were, according to a tradition of the Inn, a gift from her to the society. The members still solemnly drink on the grand night of each term "To the glorious, pious, and immortal memory of good Queen Bess." The accounts connected with the erection of the hall, written by Sir Gilbert G. Knight, the then treasurer, are still preserved in the library, and they show that the cost was £863.

PROFESSOR AITCHISON, writing on the subject of South Kensington Museum, says it is melancholy that the fine site should be left in the condition of a contractor's yard, with nothing but blank walls and sheds, instead of proclaiming by a fine building to London and the world that it is the entrance to a museum which contains the best collection of works of Art in Europe. The space now wasted is urgently wanted not only to display collections but to render them useful to students and the public. The Museum contains the finest col-

lection of Roman ornament there is in the kingdom, now, alas, unseen and useless; and there are, doubtless, other collections equally valuable that cannot be shown for want of space. The marvellous improvement of late in drawing and book illustrations is largely owing to the efforts of South Kensington, and so is the improvement in the designs of articles of use—humorously called Industrial Art, but which Michael Angelo and Benvenuto Cellini considered worthy of their skill. It is not size but perfection that characterizes works of Art, or we should have heard more of the Colossus of Rhodes and less of "the Scrapper." Our Artless generation is ignorant of the great popular lessons that are given by fine specimens of contemporary Painting, Sculpture, and Architecture; lessons which can be given by these alone; "contemporary" because the most learned have but a slight and superficial knowledge of the tendencies of other times, while ordinary persons have not the slightest notion of any other times but their own. Works done by their contemporaries must have some characteristics of the time they live in, and therefore more strongly appeal to their emotions. It is to be hoped that those who have the power may urge the Government to have the work, so urgently required, begun at once.

THE annual distribution of prizes to the members of the Art classes of the East London Technical College was held last Wednesday at the People's Palace, Mile End Road. Mr. J. R. Diggle, of the London School Board, presided, and said that there were no fewer than 400 pupils in the classes. The prizes were distributed by Mr. Orchardson. The chief prize-winners were Ernest Smith, who had won a bronze medal in the South Kensington national competition, Henry Bulmer, Alfred White, and Ethel Lind, each of whom had won London County Council scholarships of £20 a year, and Cecil Duffield and Alfred Walker, who had gained scholarships of £5 each. Mr. Orchardson congratulated the pupils on the progress they had achieved. The progress of the young was always a matter of interest to those who were veterans, for they knew that the young people had to carry on the traditions of British Art. They came to Art classes to learn to see. Many people did not know what seeing was. The training of the eye, and the brain behind it, was the chief work that an Art class achieved. They did their drawings and then were not satisfied with the result. Why was that? Because they had learned the chief lesson that an Artist ought to learn. They had found that until both eye and brain were fully educated they could not see properly. The beginning of Art was seeing with a purpose. And when this was once learnt it lay with the pupils how far they could carry out their lessons; it lay with them to reproduce that which their brain conceived. Art was not alone the mere seeing of Nature, it was seeing her with a purpose, and a purpose in which the Artist's own individuality had the chief concern. A photograph was not Art, because there was no personality behind it. It was a mere mirror, a reflection. The Artist put the reflection of his own soul in the picture he painted or the decorative design that he conceived.

UNDER the superintendence of Messrs. Wimperis and East, the upper part of 179, Bond Street, has been almost entirely rebuilt to make suitable premises for Messrs. Lafayette, the well known photographers of Dublin. An additional floor has been erected, which forms a fine studio, with plenty of light, and we understand special machinery has been put in for rarifying the atmosphere upon an entirely new system, which has been found to work with much success. We have not had an opportunity yet of seeing the working of this arrangement. The electric light installation is very complete, and has been carried out by Messrs. Strode and Company.

THE Royal Scottish Academy's seventy-first exhibition opened on February 19th. This year 727 works of Art have been accepted, as against

656 last year, and more than 620 were rejected. One of the features of the exhibition is a display of works by the late Sir John Millais, who was an honorary member of the Royal Scottish Academy. In all seven pictures have been secured, which illustrates the early, middle, and late periods of Millais' artistic career. These include the "Ophelia," the "Rosalind and Celia," and the "portrait of Mr. Gladstone." Of the work of the late Mr. Otto Leyde, another Academician recently deceased, several examples are upon the walls. The exhibition also includes a portrait painted last year by Mr. Orchardson of Mr. Henry Balfour Fergusson, Dundee. Sir George Reid, President of the Scottish Academy, contributes two portraits. Other portraits which may be specially mentioned are those of Mrs. MacLehose and Master Roy Garraway, by Mr. James Guthrie, one of the younger Scottish painters; and of the Misses M'Laren, by Mr. John Lavery. In the department of landscapes the best works exhibited are by Mr. John Smart, Mr. J. L. Wingate, Mr. A. K. Brown, Mr. James Paterson, Mr. G. W. Johnstone, Mr. W. D. M'Kay, Mr. J. Campbell Nobee, and Mr. W. S. M'George. The water-colour room is well furnished with characteristic work from such well-known painters as Mr. R. B. Nesbit, Mr. Henry Kerr, Mr. Tom Scott, Mr. J. M. Hay, and Mr. Skeoch Cumming.

FOR some weeks past the condition of the spire of St. Augustine's Church, Hagley-road, Birmingham, has occasioned anxiety, inasmuch as some of the masonry had become dislodged and fallen to the ground, and with the aid of a powerful field-glass, a large crack could be descried high up, beyond the range of the naked eye. Mr. F. B. Osborn, Architect, whose services had already been retained with a view to the restoration of the spire, advised that it would be inexpedient, if not unsafe, to hold services in the Church pending investigation into the extent and character of the mischief. The Church of St. Augustine is rather more than a quarter of a century old, but the tower and spire were not added till about twenty years ago. The structure is in the Gothic style, and the octagonal spire, rising to a height of 185 feet, has been much admired for its graceful outline. The origin of the injury it has sustained can only be conjectured, but the theory which finds most favour is that its insecurity is due to the earthquake shock of last December acting on a fault produced by the spire having previously been struck by lightning. The damage appears to be about 25ft. or 30ft. from the top, and it is anticipated that the spire will have to be taken down and rebuilt from the lowest point to which the damage extends.

ANOTHER of the series of lectures under the auspices of the Arts and Crafts Society of Ireland was recently given in the Royal University Buildings by Mr. John McCloughlin, the subject being "Irish Hammered Ironwork, Old and New." The lecturer said that workers in iron might profitably spend some of their time in carefully inspecting many of the examples of ironwork to be seen in Dublin, both old and new, noting the design, or better still, sketching it, and considering its construction, and, in fact, studying the work so that if they were asked they could make it, and if possible improve on it. Whether any of it was made before 1700 he did not know, but he rather thought that most of it dated from the middle of the last century. There was also some good last century ironwork to be seen in the Corporation buildings. There was very little wrought iron work in Dublin from the end of the last century until about forty years ago. At this time there was a good deal of ironwork imported; but there were at least two firms in Dublin who devoted themselves to artistic ironwork. The gates of St. Teresa's Church, in Johnston's Court, were worthy of notice. These gates were entirely of wrought iron. The leaves, &c., were very elaborate. While most of the ironwork in the Dublin Museum was imported work, he was glad to be able to say that the ironwork of the Kildare Street entrance to the Museum had been



executed entirely in Dublin. The arch over the gates he considered better than any ironwork in Ireland, wrought or otherwise. College Green and Dame Street were likely to become very rich in ironwork. The oldest there were the railings of Trinity College. There were many good smiths in Dublin, but without much experience in Art work. Most of them, however, were very rapid learners, and they soon become skilled workers. It was not the designers that were wanting; it was intelligent patronage that was needed—people who were able to judge of work on its merits, and who did not condemn a thing because it costs a shilling or two more than an inferior article.

GREAT efforts are being made to have British Art strongly represented at the Brussels Exhibition this year, and a circular is being sent round signed by the President of the Royal Academy inviting exhibits. Artists may note that these will be required not later than March 17th, and that they will be returned at the end of October. Sir Edward announces that it is understood other countries are doing their utmost to appear to advantage in their respective Art sections, and that his committee are satisfied that British Art will hold its own if British artists are at all fairly represented. It rests, of course, very much with them to bring this about—with them and with the owners of their works, whose liberality may be counted on.

ST. DAVID'S CHURCH, Exeter, which is being demolished to make room for the new building designed by Mr. Caröe, was erected from the designs of Mr. James Green in 1816-17, and was of the Grecian Doric order. It was a massive and substantial looking building built of stone and faced with plaster. The interior was rather bare, and had large galleries which somewhat darkened the building. There were also several windows containing good specimens of stained glass. The Church also contained several brasses and tablets of interest. The foundation-stone was laid on 4th June, 1816, the anniversary of George III.'s birthday, with considerable ceremony by the then Mayor of Exeter, Mr. Williams, of Duryard Lodge. To mark the event 300 poor persons of the parish received a loaf of bread each with a pot of beer to drink the health of His Majesty. There stood an older building on this site which dated back to 1541. In this building stood a monument to the memory of Sir Thomas Gifford, knighted by James I. for his ingenuity in dyeing a piece of cloth scarlet on one side and blue on the other. He built Great Duryard House, and died there in 1703. The foundation of St. David's Church is an ancient one, being mentioned in 1222.

THE restoration of the ancient tower of St. John's Church, Cardiff, has been commenced. The work is being carried out under the supervision of Mr. C. B. Fowler, who, in his work upon the churches of Glamorganshire, says the tower was designed by one Hart, who designed the fine towers of Wrexham and St. Stephen's, Bristol. The foundation stone was laid in 1473. All these towers are of the Perpendicular style, though St. John's is not so rich as the other two. The embattled parapet, with its graceful pinnacles, is certainly a landmark for ancient Cardiff, of which the inhabitants of the present time should be justly proud. One of the corner parapets had to be rebuilt in 1860, having been struck by lightning. It is some years now since the restoration of the Church began. Four or five years ago the north and south aisles were added, and three years ago the organ chamber was built. Thus, the restoration of the tower completes the restoring of the Church. In connection with the present contract the most important work will be the restoration of the south archway at the foot of the tower, the embattled parapets, the window strings, the cornice and turrets, the groining under the floors, and the glazing of the large west window. The present contract is only for the top, the windows, and the general structure, and amounts to close upon £2000.

IF all future gifts of modern English Art are to be banished to the Millbank Gallery, we fear that the flow of them may be retarded. Unfortunately, the authorities of the National Gallery have no other alternative. The Government, having accepted Mr. Tate's munificent offer, and agreed to the out-of-the-way site for their display, must supplement it by any pictures of a like kind which come into their possession; and it is probable that the near future may find all British work removed from Trafalgar Square. We understand that amongst the first pictures to be treated in this way is Millais's masterpiece of the "Yeoman of the Guard," and this although Mr. Tate's collection is already rich in examples of that artist.

MR. E. R. ROBSON, writing to the "Times" upon the London County Council Works Department, thinks the Council might, before coming to a decision, draw a clear distinction as to the methods most suitable for new works and for repairs, for large works and for small, for those involving capital expenditure and those paid for out of current account. He says that: "In the course of my life I have twice held important public appointments involving the control of a body of workmen for repairs and maintenance. In both instances new works of any size were invariably let by contract. The only case within my knowledge where an opposite course has been pursued was that of the Mersey Docks and Harbour Board, who carried out a long, continuous series of large works in the stupendous extension of the dock system at Liverpool, with their own workmen, and under their able engineer, Mr. George Fosbery Lyster. The only point on which the Council might appear to be able to excel as their own builders is that of paying cash for everything. But the large contractors all do the same. In new or large works they can no more compete with the contractor than the Architect with the speculative builder."

A GREAT deal has been said lately about the increasing cost of the schools erected by the London School Board. The report of the special sub-committee appointed to inquire into the subject shows that the increase is a fact, and the explanation anything but satisfactory. In 1885, the cost per head in twenty-two new schools ranged from £7 0s. 1d. to £9 1s. 11d.; in 1890, seven schools cost from £11 6s. 11d. to £17 8s. 4d.; and in 1895, ten schools cost from £10 13s. to £15 15s. 9d. Part of this increase is due to a general advance in wages in all trades of about one halfpenny per hour during the last ten years, which is not very surprising considering the extent of building operations during that period; but the sub-committee say that "the great difficulty to be faced is the quantity of work done per hour. Speaking generally, the Architect estimates that the work done per hour is now from 25 to 30 per cent. less than it was ten years ago." If it is so, it is a very discreditable fact, and further inquiries should be made to ascertain whether the statement is correct.

A YOUNG artist having succeeded in making an excellent copy of one of the masterpieces in the picture gallery of the Museum at Mayence, thought fit to also copy the signature of the old master, with the result that he managed to sell the picture as an original for a large sum. The fraud was later on discovered, and the authorities of Mayence have, in consequence, just decided that in future no copies of pictures will be permitted to be made of the same size as the originals. The copies must be at least a quarter larger or smaller than the originals.

THE honours paid to the late Mr. Alfred Hunt by the Burlington Fine Arts Club and the Royal Society of Painters in Water-Colours, of which he was one of the most prominent members, are a fitting recognition of his merits. Mr. Alfred Hunt, as is well known, originally began his public career as a painter in oils, and after long abandoning that

medium, he again took it up in later life. The collection at the Burlington Fine Arts Club is better suited and better arranged for the purpose of appreciating Hunt's various excellencies, although it contains nothing earlier than the "Harlech Castle," painted in 1855. This, and all the other works of the early Welsh series, show the extent to which he was influenced by the example and teaching of the Pre-Raphaelites, and one is not surprised that such careful work as that shown in "Climbing Shadows," the "Spring Study of Comel Rhôs," and the more richly coloured picture of "Harlech Castle," attracted Mr. Ruskin's notice, and earned the praises of that exacting critic. As time went on, we trace through the Swiss and Thames subjects the teaching of the author of "Modern Painters," in the elaborate care with which Alfred Hunt treated mountains and clouds. It was, however, on the north-east coast of England, in the district between Bamborough and Robin Hood's Bay, that he was to find his most sympathetic subjects. It was here that he found those ever-varying problems of atmosphere which he delighted to unravel and explain by the medium of his brush, and to produce those exquisite harmonies of cloud and sunlight which gave him a prominent place amongst water-colour painters past and present. No one could render with such delicate effect the subtleties of sea mist creeping up the hill sides under the influence of the sun, which it obscured, and no one could catch more truly the dominant feature of a scene, and whilst recognising the value of details, would never lose sight of the general effect. It was this desire to see the same scene under different aspects which induced him over and over again to paint the same spots, but always with such variety of light and atmosphere as to make each work independent of the other.

THE Carpenters' Company appears determined to be in the forefront of the technical education movement which is growing so rapidly, and again issues their programme of the annual course of free lectures to be delivered in their large hall in London Wall. This Company aims especially, of course, at benefiting, in every way, the trade and profession of Building and Architecture, and this series of lectures deals, therefore, chiefly with matters connected with Building. Professor Fleming, F.R.S., lectures on the Electric Current, and Professor Banister Fletcher and Roger Smith, whose subjects are Architectural, will appeal to the general public, as well as to those engaged in the building trades. We are informed that Lord Reay, Sir John Lubbock, M.P., and other well-known scientific men, have consented to preside on the different Wednesday evenings.

AT Shakespeare's Cliff the work of removing the coastguard station, owing to the landslip there, was completed on the 8th inst. An examination of the foreshore between Dover and Folkestone shows the remarkable way in which the sea has encroached all along this part of the coast during the last few years. Besides the different falls at Shakespeare's Cliff, there have been enormous falls during the last twenty or twenty-five years at Abbots Cliff, which, like Shakespeare's Cliff, is pierced by a South-Eastern Railway tunnel. During recent years points on the foreshore have gradually disappeared, and it is stated that forty years ago high-water mark on this part of the coast was nearly, or quite, 80ft. further seaward than it is now. In recent years the sea has gained as much as three or four feet in a year. The chief cause of this encroachment is attributed to the loss of shingle, which has drifted eastward, leaving the foreshore quite bare where there was formerly a deep bed of beach. These changes have all taken place in comparatively recent years. A large staff of men are at work on the South-Eastern Railway sea-wall. It is a very substantial structure of concrete, with a foundation resting on the rock, and it will run, it is stated, right away from the east end of Abbots Cliff Tunnel to Folkestone. At the east end of Abbots Cliff the sea washes close up to the railway, but the latter is well protected by sea-walls.



A MEETING on behalf of the restoration fund of St. Mary's Church, Warwick, was held on the 4th inst. The Rev. A. C. Irvine read a report, which stated that under the scheme approved in 1894 the galleries and pews have been removed, the new floor laid, the cleaning and repair of the walls and ceiling completed, and structural preparations made for the erection of the organ, and parts of the instrument ordered. The cost has been considerably more than was anticipated. For the repair and restoration of the Church and tower, £13,637 have been since 1884 contributed and expended. But an additional sum of £2550 is still required to discharge liabilities already incurred and complete the work contemplated. —Lord Warwick moved the adoption of the report, and explained that certain supporters had given a guarantee for £1700, and in addition there were immediate liabilities of between £900 and £1000.

MR. KINETON PARKES, the Principal of the Nicholson Institute, Leek, is to lecture before the Birmingham Ruskin Society (the Society of the Rose) on March 10th, his subject being, "Mr. Ruskin and the Pre-Raphaelite Movement." There will be an exhibition of a large number of reproductions of drawings and pictures by members of the Brotherhood and their immediate followers, many of which were used for the illustration of Mr. Parkes' lecture at the London Institution, on "Rossetti," some two or three years ago.

THE offer made by Mr. J. J. Thornycroft to present to the County Council the model of his father's statue of Boadicea, if the cost of casting the group were defrayed by private subscription, or out of public funds, has met with the sort of reception which seems in this country to be reserved for such generosity. Efforts to raise the necessary sum among Art lovers have been inadequately responded to, and the County Council pleads the absence of any legal power to spend money for such a purpose. Mr. Thornycroft has, therefore, found himself obliged to undertake the responsibility of making up the deficiency in the subscription. Thanks to his public spirit, there seems now some chance that the Boadicea group may become a visible fact, and there is a far more remote chance that, if a Bill, which the council has undertaken to promote, becomes law, some of his outlay may be repaid to him. Still, the episode is distinctly discouraging, and calculated to check the flow of private munificence in Art matters.

MR. ROBERT BURNARD lectured on "Pre-historic Monuments and their Preservation" at Plymouth recently. Mr. Burnard confined his remarks mainly to the question of the preservation of ancient stone monuments, with special references to examples in Devon and Cornwall. It was well known, he said, how ruthlessly these had been pillaged and destroyed in recent years; they need not go further than Dartmoor to find numerous examples of the destruction of kistvaens, and circles, and other interesting prehistoric structures, by the builder and the road mender. The forest of Dartmoor was now well looked after, and the Duchy authorities would not allow any tampering with the antiquities, but the commons adjacent thereto were still the happy hunting-ground of the mender of roads. They knew that recently a stone road and a circle had been destroyed on Sherburton Common—in the locality of Ashburton—a piece of vandalism of which the Newton Abbot District Council was not aware until after the mischief had been done. With every possible care, however, any of the stone monuments must always be in danger, unless they were marked with a "broad arrow." What could be done to protect these monuments? In the first place they should be surveyed. An archaeological survey of the United Kingdom should be undertaken by the Government. After this had been done means must be taken to adequately protect the monuments. Some years ago, in 1882, an Act was passed, mainly through the instrumentality of Sir John Lubbock, entitled the Ancient Monuments Protection Act. This Act consisted of about

a dozen sections, and gave power to commissioners of works and guardians of ancient monuments to purchase ancient monuments, to bequeath them to commissioners, to appoint inspectors, and to impose penalties for vandalism. At the end of the Act was a schedule of the antiquities which were preserved by the Act. In England there were 29, in Scotland 21, and in Ireland 19. The nearest county which benefited by the Act was Somerset. The Act seemed to be inoperative, as the Government steadily refused monuments even when they were offered to them. Having compared this state of things with the excellent provision made in France for the preservation of ancient monuments, Mr. Burnard said what ought to be done was to extend the Act so as to make it impossible for the Government to refuse to accept any monument offered which, in the opinion of a body of experts, was of sufficient interest to demand protection.

MR. ADAMS, the new manager of the Works Department of the County Council, has been engaged for the last five or six years in re-organising the system and the re-construction of the line of the Western Railway of Buenos Ayres. He was for many years engineer on the London and North-Western Railway, during a portion of which period he had charge of the maintenance of the company's stations in London. He also directed the construction of a dock and harbour at Holyhead, and the rebuilding of two viaducts, one at Stockport and the other at Llandulas.

MR. HAMAR BASS, M.P., has intimated his willingness to give £15,000 for providing a Church and vicarage for the proposed new district of All Saints', Burton-on-Trent, on condition that an endowment of £300 per annum is raised. Towards this income Messrs. Bass, Radcliffe, and Gretton have promised £3000, and Lord Burton £2000. Mr. Gretton is erecting a Church, at a cost of £20,000, at Stretton, on the outskirts of the borough; and at Horninglow, another suburb, Lord Burton has deposited £10,000 for a Church, on condition that a similar amount is raised for endowment.

A DEPUTATION representing the United Government Workers' Federation recently waited upon a number of members of Parliament at the House of Commons to lay before them grievances regarding their employment, with a view to raising discussion when the votes involving these matters came before Parliament. The deputation, about twenty in number, represented practically all the associations of Government employés except those engaged at Woolwich. Several speakers advocated increased wages, a minimum wage, provision for widows and orphans, the abolition of classification, the abolition of contracting and sub-contracting, the granting of civil rights to public servants, and the rearrangement of hours of attendance, and complained of reductions in pay to provide for pensions, and the slow rate of promotion. Sir Charles Dilke, in reply, said that the Committee on the Fair Wages Resolution had been reappointed, and if any cases as to improper conditions under the contracting system were forwarded to him he would bring them before the Committee.

SINCE the settlement of the bricklayers and labourers' strike there has been unusual activity in the building trade in all parts of Leeds. The mildness of the winter has favoured the pushing forward of contracts that had accumulated during the long dispute, and at the present time there is a prospect of abundant work. As is the case in other townships in the city, Armley is progressing rapidly, houses rising in every direction. Only recently between 20,000 and 30,000 square yards of land, off Wiring Field, and with entrances from Town Street and Tong Road, was privately sold, the intention of the purchaser being to erect workmen's dwellings on the property. The Armley Old Cricket Field has again changed hands. A portion of this estate, with a frontage to Armley Road, has been sold to the Leeds School Board, and that authority

will shortly commence to build a new school there. The remaining land will be laid out for the erection of houses of a superior class, each dwelling having a front garden. The other side of Armley Road will also be further developed. It is understood that a mill which was lately gutted by fire is coming into the hands of the builder, and the site, as well as a large quantity of land behind, will be utilised for building purposes. Several open spaces set apart some months ago for the erection of both scullery and through houses are being fast filled up by the builder. The large estate adjoining Armley Park is likewise being rapidly developed.

M. SVORONOS, the director of the Numismatic Museum in Athens, has expressed a conviction that the remarkable bronze statue found at Delphi by French excavators represents, not Hiero, the Tyrant of Syracuse, but one of the Kings of Cyrene. He bases his theory on Pausanias' comparative study of the coinage of Cyrene, the ancient province of Africa. In his opinion the statue is the work of the sculptor Amphon, of Gnossus, in Crete. According to Pausanias, it was erected at Delphi by Arcesilaus, the last King of Cyrene—the ruler who was eulogised by Pindar, whose verses are inscribed on the pedestal. M. Homolle, the Director of the French Archaeological School, disputes the theory of M. Svoronos, whose conjectures have attracted considerable attention.

ONE of the most interesting old buildings in the county of Somerset—the venerable landmark near Weston-super-Mare called Woodspring Priory—has narrowly escaped destruction by fire, after an existence of nearly seven hundred years. This ancient priory is now, and has been for many years, used as a farmhouse. It was erected in 1210 by William de Courtenay, a relative of the De Tracy, one of the murderers of Archbishop à Becket. Although the sheep-bell has replaced the vesper-bell of old, portions of the original edifice still remain to testify to the grandeur and massive character of the structure. The tower retains much of its original style, and the ruin is, in consequence, a source of considerable attraction to visitors to Weston.

A GENERAL Assembly of the Royal Scottish Academy was held on the 10th inst.—Sir George Reid, president, in the chair—to elect a member in room of the late Mr. J. Denovan Adam, and two honorary members. Three associates were nominated for the vacancy—Messrs. P. W. Adam, G. Ogilvy Reid, and A. Roche. In the first vote, with the proxies of absent electors counted, the principal figures were: Mr. Reid, 18; Mr. Adam, 16; and Mr. Roche, 12. In the second vote one or two candidates who had received less than seven votes having been struck off, the poll stood: Mr. Reid, 20; Mr. Adam, 19; and Mr. Roche, 8. Mr. Roche having been dropped the final division, in which only those present take part, was: Mr. Adam, 21, and Mr. Reid, 20. The two honorary members elected were Sir E. J. Poynter, President of the Royal Academy, and R. Rowand Anderson, LL.D., Architect. Dr. Rowand Anderson, it may be recalled, was at one time an Associate of the Royal Scottish Academy, but resigned his connection with it in 1883. His election now as an honorary member is a recognition of the admirable work he has done in the interval as an Architect, and as honorary director of the Edinburgh School of Applied Art.

At the Stockholm Exhibition this year, the year 1897 will be noteworthy in the history of the Scandinavian North. The great Industrial Hall, which has a floor surface of 16,000 square metres, is the greatest wooden building that has ever been constructed. Its great cupola rises to a height of about 100 metres, and is surrounded by four minarets, containing prospects bridges. Another of the principal buildings of the Exhibition is the Northern Museum, with its provisional addition, destined for the Cultural Exhibit. On the shore of Djurgårdsbrunnsviken, with more than the half of it built out over the water, lies the



Swedish and Danish Fishery Hall, a most original building, designed by Eugen Thorburn. Norway, with its enormous fisheries, will build its own fishery hall. Great viaducts lead to the other parts of the Exhibition grounds. Here another view opens before the eyes of the visitor, the beautiful panorama of Stockholm's famous harbour and its charming environs. The principal building of this section of the grounds are the Machinery Hall, a giant building of iron and glass, having a floor surface of 10,000 square metres, and the great Art Hall.

A PARISH meeting was held at the Town Hall, Upton-on-Severn, a few days ago, for the purpose of considering what should be done with the Old Church, which has now been disused for fourteen years, and is rapidly going to decay. It was remarked that the present state of the Church was a disgrace to the parish, and an eyesore to anyone entering the town. This would increase unless something was done to put it in repair, or pull down all except the tower. The monuments in the Church must be preserved with due care. Another speaker would have been glad to see something done in time past so as to retain the building for the purposes for which it was erected. It was too late now, and they had to choose between restoration and demolition. He moved a resolution asking that a faculty be obtained, and the Church taken down, leaving the tower only. An amendment, however was carried authorising the appointment of a Committee to decide upon the necessary repairs, and to get estimates from local builders.

AN interesting discovery has just been made at Luton. Excavations were being made in Waller Street, when the workmen came across two brick cavities, extending about 5ft. beneath the pavement. The floor of one is laid with dark blue tiles, while the arched roof is covered with red tiles and bricks. On the floor were found a quantity of bones and cows' horns, as though the spot had been a place for the disposal of refuse. It is computed that the tiles, cement, and bricks, are at least 1000 years old. The cavity is believed to be a hypocaust, or an oven, and was in use at the time of the Roman occupation.

At a meeting of the German Archaeological Institute, held in Athens, M. Dragoumis, the former Minister for Foreign Affairs, who is an enthusiastic amateur of Greek antiquities, read a paper describing the discovery of an interesting inscription on one of the steps of a marble staircase in a peasant's dwelling on the island of Salamis. The inscription consists of the first two lines of the epitaph composed by the celebrated poet Simonides for the tomb of the Corinthians who lost their lives at the Battle of Salamis. The lines are carved in Corinthian characters, and differ but slightly from the text of the epitaph as contained in the Greek anthology. On the strength of this discovery it is hoped that it will now be possible to discover the exact place of burial of the Corinthians who played a leading part in the famous sea-fight. At the same meeting Dr. Zahn exhibited a newly found potsherd, inscribed with the name of Themistocles, at the time when he was ostracised in 471 B.C. This is the only fragment of the kind yet discovered which bears the name of the great general and politician.

THE loan exhibition of pictures, which is to be opened at the Guildhall in the latter part of April or the beginning of May, will be a Victorian Exhibition, inasmuch as it will only contain works produced during the present reign. It is hoped that some of the best examples of the leading English artists during that period will be among the exhibits. It is understood that the Queen has consented to lend the celebrated "Roll Call" for the exhibition.

A NOVEL railway waggon has been built at Moscow for the Trans-Siberian line, and will shortly be dispatched thither. This is the "church waggon." In form it is like the

ordinary long first-class carriages on two four-wheeled bogies; but the window-frames are surrounded with mouldings in the Byzantine church style. Inside, two-thirds of the length are taken up with the triple entrance-door and the standing space for the congregation, the other part being devoted to the officiating priests. There are the usual railway carriage doors at either end.

ON behalf of Sir Henry Brownrigg, plans were recently submitted to the County Council for the erection of a theatre seated for 800 people at the junction of Norris Street and St. Alban's-place, Haymarket. Although the Committee was willing to sanction the scheme, it was withdrawn to allow further consideration of the site. The same procedure followed a few weeks later, and the Committee, having had three opportunities of examining the proposal, recommend it for the approval of the Council.

THE bill promoted by Sir F. Dixon-Hartland for the solution of the London water difficulty was issued to Members of the House of Commons. It proposes the amalgamation of the eight metropolitan companies, and the creation of districts somewhat on the lines of the Gas Act of 1860. Within six months of the passing of the measure the companies north and south of the Thames are to prepare schemes; and within one year the Chelsea, Grand Junction, and West Middlesex companies are to be united into one company, the Kent, Lambeth, and Southwark another, and the East London and New River a third. Power is reserved the New River Company to remain a separate undertaking, and in that event the East London Company would amalgamate with the western companies. The board for the control of the new companies would consist of three directors from each of the component companies, and two others appointed by the Board of Trade. An arbitrator would be chosen to settle whatever disputes might arise, this functionary to be either an ex-Lord Chancellor, a Law Lord, or a Member of the Judicial Committee of the Privy Council. It is claimed that the scheme would benefit the ratepayers by making any future water famine impossible, reducing and equalising the charges, and removing the rival interests of the inner and outer circles.

PROFESSOR H. HEKKOMER, R.A., opened the eighth spring exhibition of oil paintings and water-colour drawings at Oldham. About 350 works were hung, the Artists represented including Sir E. Burne-Jones, J. J. Shannon, J. S. Sargent, Briton Riviere, F. Hall, David Murray, Isaac Cooke, Robert Fowler, H. La Thangue, and Miss Henrietta Rae.

THE first of four popular lectures, in connection with the Arts Faculty of University College, Liverpool, was delivered on Friday evening by Mr. D. S. McColl, the well-known Art critic, and an appreciated exhibitor at the New English Art Club. He gave an interesting sketch of English painting in the Victorian era, and incidentally hinted that he was not very sanguine that success will attend the present efforts to promote decorative and applied Art.

SOME further particulars of the proposed re-building of the Windsor Station of the Great Western Railway, in commemoration of the Diamond Jubilee, are to hand. The directors intend to lay out a sum of £60,000 on the project. The works include provision for three, instead of two, platforms, as at present, and provide for a reception-room, to be called the Queen's Room, together with a suite of apartments for the convenience of guests arriving at or departing from the Castle. The Queen's Room will be ready by June, and will be of Bath stone, with a domed glass roof. Internally, it will be panelled with teak. In the rear of this will be a covered way of 80ft. span, where the guards of honour will be drawn up. The rest of the station, the contracts being only just let, will not be finished until toward the close of the year. A handsome elevation will be provided in

what may be called the Victorian Renaissance style, of red brick and Bath stone, and the Thames Street approach will include a roomy covered way with circular roof.

MR. J. MASON, Architect, of Wolverhampton, has received instructions for plans and working drawings for a residence in Waterberg, Transvaal, South Africa, the cost of which will be between £4000 and £5000. Some idea may be gained of the class of building from the fact that the external walls of bricks are 27in. thick, the internal 18in., the roof being galvanised iron, slates not being used in that country.

ARCHAEOLOGY, like the physical sciences, scores a brilliant triumph occasionally. Our own generation has witnessed the outcome of Schliemann's self-sacrificing labours, the discovery of a lost Aristotelian manuscript, the musical reconstruction of a hymn to Apollo, and many additions to our knowledge of ancient Egypt, the Holy Land, and the East. But all these revelations, great as may be their value, must yield in personal interest to that strange relic of the past which Professor Dörpfeld unearthed a few days ago from the sacred soil of Athens. Whilst digging to the north-west of the Areopagus, the famous site of the Supreme Court of Justice, the spade turned up a humble potsherd impressed with the words "Themistocles Phrearrhos." Little doubt is felt that this fragment of tile served to record one of the six thousand votes by which the fallen statesman was condemned to ostracism in 471 B.C.

THE excavations which have been carried on at the Plemmyrium promontory at Syracuse during the past fortnight, under the direction of the Conservator of Monuments, the Chevalier Reina, have led to the discovery of the foundations of a colossal antique tower, which is believed to date from the Greek epoch. These foundations consist of enormous blocks of marble and Egyptian granite, which are joined together with marvellous art, not a trace of cement being perceptible. Portions of columns which evidently used to surround the main building have also been found. These also were made of solid blocks of marble and granite. Excavations to isolate completely the *Ara* near the Greek theatre have also been resumed, and have resulted in the discovery of fine relics of antique Art, such as a bronze statuette, various vases, lamps, and coins.

THE Local Government Board has sanctioned loans to the amount of £7000 for carrying out the sewerage and sewage disposal works at Knaresborough. Two sections of the work have been completed.

M. FAURE opened recently the continuation of the Rue Béaumur, planned long ago by Haussmann, but only now executed. This gives a wide and straight thoroughfare from the Bourse to the Square du Temple. The cost has been 47 million francs, but the sale of building sites is expected to reduce the net cost to 39 millions.

MRS. EMMELINE FISHER, of Abbotsbury, Newton Abbot, who died recently, has bequeathed £2000 for the furnishing of Newton Cottage Hospital, which is in course of erection. This is in addition to the £5000 she gave some time ago towards the building of the institution. She has also left a library of about 40,000 volumes to the Exeter Museum.

SIR JOHN LLEWELYN, M.P., having written to the Board of Works in connection with the agitation for an improvement of the plans of the proposed new post-office at Swansea, has received a reply informing him that the plans are only in a preliminary stage, and the views of the Corporation will receive the fullest consideration.

At Lynton and Lynmouth the Esplanade and Pier question is just now very much talked about. It seems hardly credible that the local body should have built an esplanade which has cost thousands of pounds without first obtaining a lease of the rights of the foreshore? Yet this is stated to be a fact. The ratepayers are anxiously awaiting some explanation.



### THE GLASGOW AND WEST OF SCOTLAND TECHNICAL COLLEGE.

THE annual report has just been presented to the Governors. It states that the past year has been more than usually interesting in the history of the Glasgow and West of Scotland Technical College, as being the centenary of the foundation of Anderson's College, which received its charter of incorporation from the magistrates of the City of Glasgow on June 9th, 1796. Besides being the oldest member of this composite institution, the interest attaching to Anderson's College—apart from the fame of its medical school, now a separate institution—lies in the fact that it was the progenitor of Mechanics' Institutions and the pioneer of technical education in this country. The centenary was celebrated, on the evening of Oct. 22nd, by a public banquet, which was attended by a numerous company, including representatives of the leading industries and local institutions, besides the Governors and principal members of the teaching staff of the College. The remarkable growth of the institution since its foundation is best exemplified by the fact that the number of subjects taught in the College has risen in the day classes from 16 in 1887 to 39 in 1896, and in the evening classes from 34 to 65; the number of students, from 1793 to 3327; of enrolments, from 2946 to 5061; and the amount of class fees, from £2220 19s. 6d. to £4237 18s. 6d. In Allan Glen's School also the curriculum has been considerably extended, both on the literary and on the scientific side—the latter more especially in the laboratory and workshop courses; and the number of pupils on the roll has risen from 439 to 637. Of course, these additions were not possible of attainment in the premises taken over by the Governors at the amalgamation, as each institution was found to be

#### WORKING UNDER CONSIDERABLE PRESSURE

and difficulty; and the increased accommodation now provided has cost, in the case of the College, an expenditure of about £6000 on alterations and reconstruction of our own buildings, and an annual expenditure of £261 for rented premises; while in the case of the School the additions to the building have cost £10,563. The only changes which have taken place in the governing body during the past year have been the appointment of Mr. David Thomson, Architect, to succeed Mr. Honeyman, who retired at last annual meeting; and of Mr. John M. Martin, of Auchendennan, to succeed the late Rev. Dr. Burns, whose death was intimated at the same annual meeting. The report enters into details concerning the work of the past year, and gives particulars respecting the number of students. Last year there was a slight set-back in the number of day students, but this has been much more than compensated for by the advance observed this year, which is the highest on record, both for day and evening students. With regard to the day classes, which show a net increase of 105 entries; the most conspicuous advance is in Mathematics, which showed the largest growth last year also. The increase in Mechanical Engineering, which appears next highest in amount of growth, is mainly due to a larger number taking the full course, while there are fewer taking the sub-sections or special courses. The proportionately large increases in the number of students taking the Mining and Geological Laboratory and the Lectures in Mineralogy justify the steps taken by the Governors a few years ago to improve the curriculum in Mining. Apart from the falling off in the number taking special courses in Mechanical Engineering, referred to above, the only classes which show a reduction are the Wood-workshop, the lectures under the Young Chair, and the course in Practical Photography. In the evening-class enrolments, which show a net gain of 338 this session, Professor Gibson's classes in Mathematics head the list with an increase of 72; Mr. Longbottom's classes in Mechanics come next with an increase of 65; the Art and Signwriting classes follow with 57; and Build-

ing Construction is still advancing, with 50 students more than the large increase shown last year. Taking Professor Jamieson's classes in Electricity, Electric Lighting, and Telegraphy together, his enrolments show an increase of 91; and Professor Henderson's classes in Chemistry, theoretical and practical, show a total increase of 50. The

#### OTHER MORE NOTEWORTHY ADDITIONS

are—20 in Professor Watkinson's Laboratory, 15 in the Cabinet-workshop class, and 14 in Professor Rowden's Drawing classes. With the exception of the reduction of 25 in Professor Blyth's class in Theoretical Mechanics, the fallings off are unimportant, and are spread over many departments. The question of site for the proposed new buildings of the College has at length been practically settled. In the selection the Governors were bound to consider (1) the convenience of evening students, (2) the extent of ground, and (3) the price. And among the various sites suggested, these considerations were most nearly realised by the piece of ground belonging to the Corporation situated in North Street, and adjoining the St. Andrew's Hall. The Bellahouston Trustees have arranged with the Corporation to hold this site for the building of a Technical College for a period not exceeding two years from Whitsunday, 1897.

### THE CLERKS OF WORKS' ASSOCIATION.

THE members of the Clerks of Works' Association held its annual dinner at the Holborn Restaurant. Mr. Beresford Pite (president of the Architectural Association) was in the chair, and was supported, among others, by the president of the Association (Mr. W. S. Woolacott), Professor T. Roger Smith, Mr. J. E. Drower, Mr. F. Dashwood, Mr. Stanton W. Preston (clerk to the Carpenters' Company), Mr. Alderman Taylor, L.C.C. (president of the Croydon Master Builders' Association), Mr. T. B. Whinney, Mr. J. G. Peacock, Mr. W. J. Plume, Mr. J. Brady, Mr. P. J. King, Mr. J. Spooner, and Mr. J. Plowman.—Mr. J. Brady, in proposing "The Health of the Architects and Surveyors," spoke of the difficulty one branch of the building trade would experience without the co-operation of the others.—Response was made by Professor Smith, who remarked on the strain involved upon the Architect in designing and planning his buildings on paper. When the next stage came, however—that of the erection of the building—the Architect wanted someone who would be as eyes and ears to him. That someone must be—if they would allow him to say so—a man who had spent his life in a different class of work from the Architect; he was the Clerk of Works. As a body, Clerks of Works were a most intelligent set of men, and he had every reason to believe that the coming generation would be equally intelligent and practical, for, in the course of his work as an examiner, he had come across some very promising young fellows.—Mr. F. Dashwood proposed "The Worshipful Company of Carpenters." They could not, he said, fail to feel indebted to the Carpenters' Company for their good work in the cause of technical education, and for their endeavours to enable young mechanics to improve themselves in the various branches of their trade. In the old days of long apprenticeships, almost the only things that boys were taught to do, comparatively speaking, were to sweep up the shavings, stir the glue-pot, turn the grindstone, and fetch the beer; but now, thanks to the beneficent work of such institutions as the Carpenters' Company, young men were taught, by means of technical education, to improve their knowledge in all branches of the trade, and to do work which the masters of the older days would not have dreamt of teaching them.—Mr. Preston, in reply, pointed out that there were 233 students at Titchfield Street, and the Carpenters' Company were very grateful to think that their efforts were so well appreciated.

### IMPORTANT SANITARY ACTION.

IN the case of *De Sziemanowicz v. Hateley*, heard before Mr. Justice Wills and a common jury, last week, the plaintiff claimed damages for a breach of warranty and for a fraudulent representation by the defendant that the drains at 67, Chatterton Road, were in a proper sanitary condition. The defendant denied the warranty and the misrepresentation, and alleged that there was nothing wrong with the drains. It appeared that the plaintiff, who is employed as a sorter at the Post Office, took the house in question on September 25th, 1893. On his inquiring about the state of the drains, the defendant said: "The drains have just been done on the latest sanitary principle, and are in a good sanitary condition." The house was a six-roomed one; the plaintiff went to live there with his wife and children; they had living them a Mr. and Mrs. Woodhouse, with their child, and a Mr. Wakelin, the plaintiff's father-in-law, as lodgers. The plaintiff's wife was taken ill at Christmas, 1893, and in the early part of 1894 was obliged to attend the hospital. She was suffering from a wound in the hand, which obstinately refused to heal. The children were afterwards taken ill; two of them died of broncho-pneumonia following on whooping-cough, and the other of the same complaint following on an attack of measles. The drains were tested and the smoke-test applied; it was found that the smoke escaped into the house. The drains were subsequently taken up and found to be leaky in the joints, and in a very bad condition. Confirmatory evidence was given by the plaintiff and his wife, after which witnesses, who had applied the smoke-test and taken up the drains, were called to prove the state of the drains. The main drain had not been jointed, and the sewage matter had leaked out into the soil. Medical evidence was also given in support of the plaintiff's case. Dr. Bailey attributed Mrs. Sziemanowicz's illness in 1895 to the bad state of the drains, and an outbreak of measles might be due to the same cause. It was submitted, on behalf of the defendant, that there was no evidence of a warranty. The agreement under which the plaintiff took the house was in writing; if a warranty was given it must appear in the written contract. Parole evidence could not be given to vary the terms of that contract. If the plaintiff relied on a representation as to the state of the drainage, then to fix the defendant with liability it must be shown that it was false. There had been no suggestion that the defendant knew or had any means of knowing that the drains were wrong. If, however, the defendant had made a representation innocently, believing it to be true, he would not be liable. That was the defendant's case. He had had work done to this house in 1893, and he believed that the drains were all right; and he had good reason for that belief. It was not suggested by the plaintiff that Mr. Hateley knew that anything was wrong with the drains, and after having had all this work done in 1893 it could not be said that he was reckless in saying that he believed them to be all right. The defendant stated that he owned several houses. The one in question had been constantly occupied, and no complaint had ever been made as to the drains until the present action was brought. He denied that he had said "that the drains had just been done on the latest sanitary principle," as alleged by the plaintiff. The only thing he said was that he believed the drains were all right. He detailed the work which had been done in 1893. Further evidence was given, and in summing up Mr. Justice Wills put the following questions to the jury: (1) Did the defendant tell the plaintiff that the drains had just been done on the latest sanitary principle, or that they were in good sanitary condition? (2) Were such statements as were made, made by way of warranty and intended to be acted on? (3) Were they untrue? (4) Were they made dishonestly? The jury answered all the questions in the affirmative, and assessed the damages at £65. Judgment was entered accordingly.



## Professional Items.

**ABERDEEN.**—Messrs. Livermore Brothers have now instructed Mr. John Rust, Architect, to accept tenders for the erection of a new Empire Palace Theatre in Bridge Place, on the site of the hall destroyed by fire. The contracts amount to over £10,000.

A special meeting of the Aberdeen Parish Council was held on the 15th inst., to consider a report from the Works Committee on the proposal to provide new offices for the Council. The report of the Works Committee recommended the purchase of the Savings Bank and the site of the new School Board offices. It also dealt with the advisability of altering the present offices, and with two other sites in Union Terrace, and the site in Schoolhill and Belmont Street, which was recently under the consideration of the Council. It was found that the present building could not be altered, and that the cost of the property fronting Castle Street (£2000) was too high. With regard to a site on the north end of Union Terrace, with frontages to Silver Street and Skene Terrace, it was found that the building, owing to the circular nature of the feu, would be costly; the site immediately to the north of the School Board site was found too small, and it was reported that one of the proprietors at Schoolhill had sold his property. The committee therefore gave their recommendation in favour of the site between the Savings Bank and the School Board offices. The cost of the properties is £3700, but the building material which could be used in the erection of the Council's offices was valued at £400. The matter was deferred.

It is stated that a property in Woolmanhill is being brought under the notice of the Post-office authorities as a site for the new Aberdeen head Post-office. The property referred to is the almost square piece of ground bounded by Woolmanhill, John Street, North St. Andrew Street, and St. Andrew Street. The price which is mentioned for the ground is £7000. With regard to the Dee Street site, steps are being taken which will enable a definite offer to be laid before the Post-office authorities on an early date.

**BELFAST.**—The erection of a new post office has been commenced at the rear of the central postal and telegraph buildings in the little narrow artery which stretches from Berry Street to Garfield Street, and bears the somewhat historic title of Charlemont Street. The new edifice will be a large, plain, three-story brick building, connected on the third flat with the rear of the present postal establishment in Royal Avenue with a spacious gangway bridge across Charlemont Street, in the same manner as the shop, warehouse, &c., of the Workshops for the Blind are joined to their dépôt in the same thoroughfare. On the ground floor there will be the receiving office for parcels and also the waiting-room for the telegraph messengers. The entire of the second floor and a portion of the third will be devoted to the sorting and despatch of parcels, while the remaining portion of the latter not occupied with parcels will be used as stores, and here there will also be a dining-room for the sorting clerks and telegraphists, together with the kitchen. When the new block of buildings has been completed there will necessarily come a rearrangement of the present apartments. It is to be regretted that the new edifice will not be one of much larger dimensions, that it is not being made to cover the entire space away over to Smithfield. The contractors are Messrs. H. and J. Martin, of Belfast, who are carrying out the work under the supervision of Mr. Cochrane, of the Architectural Department of the Irish Board of Works.

**CARDINGTON.**—During the week, workmen from the firm of Messrs. Taylor, Loughborough, have been taking down the bells of the Parish Church, which were hung in 1772. They will be sent to Loughborough to be touched up and toned, whilst the tower of the

Church, it is understood, is to be rebuilt, and the Church itself renovated and reseated, with better warming arrangements.

**COATBRIDGE.**—The trustees of the late Provost Alexander, Coatbridge, have applied for power for the erection of an hospital, to be called the Alexander Hospital, in Blair Street, for which the deceased left £30,000. The plans, which were passed, have been prepared by Mr. A. McGregor Mitchell, Architect, Coatbridge, and show a handsome set of buildings in the old Scottish baronial style of Architecture. The cost will be about £8500, and there will be thirteen beds for patients meeting with accidents in the districts of Old and New Monkland and Shotts. The buildings will cover 1½ acres of ground near Gartsherrie and Drumpellier Station, N.B.R., and will include nurses', doctors', convalescent, &c., rooms.

**COVENTRY.**—Plans prepared by Mr. W. Hattrell have been accepted for a new Wesleyan Chapel to be erected at the corner of Eagle Street and Stoney Stanton Road. The estimated cost is about £4000. The present chapel, on a part of the same site, is a comparatively recent erection, and is intended to be used as a Sunday-school.

**GLASGOW.**—Mr. Dobson's High School Building Construction Classes were on Saturday last shown over the Lancashire Insurance Buildings, which are now in course of completion. Started in May last, no time has been lost in its erection, as many as 200 masons and 100 hewers being engaged on it at times. The main entrance to the offices will be from West George Street. They will occupy this entire frontage on the street level, in addition to the basement. Fronting Renfield Street will be shops, with business premises in the flats above, which may be reached by the main staircase, or hydraulic elevator placed in the well. The five odd stories which it is in height give it a very imposing appearance, the Architecture being Venetian in character. The ground the building covers ranges between 6000 and 7000 square feet, the red stone it is built with coming from Locharbriggs Quarry, Dumfries. Mr. James Thomson is the Architect, and the building is expected to cost close on £30,000.

**GLOUCESTER.**—At a meeting of the Improvement Committee of the Gloucester City Council, plans of a new Theatre and Opera House, which a London syndicate are about to erect on the site opposite the Municipal Schools in Brunswick Road, were submitted and passed. The plans, which have been prepared by Mr. John P. Briggs, of Effingham House, Arundel Street, Strand, are for an imposing building of brick and terra-cotta. Seating accommodation will be provided for 1500, and from each seat there will be a clear and uninterrupted view of the stage. The latest lines have been followed in regard to comfort, exits, electric lighting, and ventilation.

**HOLBECK.**—The plans for the erection of the proposed new theatre at Holbeck have been submitted to the Leeds Stage Plays and Music Licenses Committee. Some time ago, it will be remembered, these plans came before the Building Clauses Committee, and objection was made to the limited number of exits shown. Subsequently an interview took place between representatives of the Building Clauses Committee and the Architect of the building, when alterations were made in the plans to meet the wishes of the Committee. The Building Clauses Committee sanctioned the plans, and Mr. Reynolds has now carried out the improvement.

**MORLEY.**—The Corporation has decided to erect a set of public baths in the borough. The site selected for the purpose is a sloping piece of ground fronting on to Fountain Street, and immediately in front of the site for the proposed electric generation station. Out of the fifteen plans that were sent in, the committee having charge of the scheme has chosen

those submitted by Messrs. Holtom and Fox, of Dewsbury, the firm of Architects who, some years ago designed the bath premises at Burnley. To be built of Morley stone, the front elevation of the building will not be unattractive. In the centre, the building is to be two stories high; the rest of the structure will be a single story. The estimated cost of carrying out the scheme of the Corporation is £6,000.

**MOSELEY.**—At a recent meeting of the committee, the designs for a new Church, lecture hall, &c., to cost £6000, at the corner of Chantry Road, Moseley, were considered, and out of seven sets of designs submitted, those of Messrs. de Lacy Aherne and Arthur E. McKewan, A.R.I.B.A., were placed first.

**NEWCASTLE.**—The opening of the new Recreation Hall at the Royal Victoria Schools, Newcastle, took place on the 12th inst. Mr. W. L. Newcombe was the Architect, and the contractor, Mr. Pringle, of Gateshead. The hall is 50ft. in length by 20ft. in width inside. It is well ventilated, lighted and heated, and internally and externally is of very attractive appearance. The lighting apparatus has been fixed by Mr. Percy, of Barras Bridge, the heating has been done by Messrs. Emley and Sons, while the racks and other fittings were put in by Messrs. Worley and Son, of Benwell.

**PAISLEY.**—Offers for the erection of the new Technical School in George Street have been accepted as follows:—Mason work, Messrs. John Bryce and Co., Paisley; joiner work, Messrs. J. and W. McInnes, Paisley; plumber work, Messrs. Hunter and Goudie, Paisley; slater work, Messrs. James Jeffrey and Co., Paisley; plaster work, Mr. D. T. Hutchison, Paisley; tiler work, Messrs. Galbraith and Winton, Glasgow; iron work, Messrs. P. and W. McLellan, Limited, Glasgow; cement and paving work, Mr. John McKenzie, Glasgow; heating and ventilation, Mr. William Key, Glasgow. The building, it is expected, will cost about £20,000. The main fronts are to be built of stone from Cullalo Quarry, Fife shire, and the corridors, cloak rooms, lavatories, vestibules, &c., will be laid with terrazzo. The Architect is Mr. T. Graham Abercrombie Paisley.

**PATRICROFT, NEAR MANCHESTER.**—It is proposed to considerably add to this important workhouse by the addition of wards for imbeciles and sick and infirm inmates, altogether providing further accommodation for about 300 paupers. A number of Manchester Architects are engaged upon competition plan for this purpose.

**SWAFFHAM.**—The spire of the Parish Church has been examined by Messrs. Milne and Hall Architects, of London, and found to be unsafe. Plans and specifications have been prepared by the Architects, and the work has been entrusted to Mr. George Jeffries, builder, and we understand will be commenced at once. It is anticipated that the general design of the spire will be unaltered, although more carved work will be executed in the open part of the lantern, and eight carved gargoyles supplied to take off the water at the base of the spire which will, it is supposed, improve the appearance of the spire. It is understood that the cost will be over £400.

**WELLINGTON, HEREFORDSHIRE.**—A new schoolroom, to accommodate fifty-four infants which has just been erected for the Wellington School Board, was completed and opened last week. The new room adjoins the present classroom, and is divided by folding glass doors, which can be thrown into one large room when occasion requires. In addition new cloakroom, lavatory, offices, and other accommodation has been added. The new wing is of red brick, with Bath and local stone dressings and strong courses. The work has been carried out by Mr. Wm. James, builder, of Bromyard, from the plans and under the superintendence of Mr. Ernest G. Davis, Architect, of Hereford.



**WORCESTER.**—The Countess of Coventry has laid the foundation-stone of the new Nurses' Home at the Worcester Infirmary. The works are being executed by Messrs. Wood and Sons, Worcester, from the designs of Messrs. Lewis Sheppard and Son. The building, which will cost about £4000, is being erected in Wheeley's Gardens, adjacent to the Infirmary. It will be a three storeys, and thirty-two bedrooms will be provided for sisters and probationers. A covered way will afford direct communication between the home and the Infirmary.

#### SOCIETY MEETINGS.

**London and Middlesex Archaeological Society.**—A number of the members of this association recently paid a visit to the Church of St. Michael, Wood Street, under the escort of Mr. Philip Norman. Mr. Norman pointed out to the visitors several of the interesting features of the building, and his observations were productive of much food for reflection. On the 9th inst. the members assembled at the London Institution, under the chairmanship of Canon Benham, and listened to a disquisition by Mr. C. Welch (Guildhall librarian) upon the Roman remains recently discovered in Threadneedle Street in connection with the works of the Central London Railway. The pottery—comprising several large fragments of a broken amphora, together with two beautifully modelled vessels found inside—was placed on a table for the inspection of the members. Mr. Welch had experienced considerable difficulty in piecing all the available material together, but his efforts had resulted in a large measure of success, and the specimens—unique in many respects, and certainly of beautiful proportions—were inspected with keen interest.

**Society of Antiquaries of Scotland.**—The usual monthly meeting of the Society of Antiquaries in Scotland was held in Edinburgh, Mr. James Macdonald in the

chair. The chief paper, by Sir Arthur Mitchell, gave an account of a group of Bronze Age burials at Ardoch, near Bunnessan, in Mull. One of these graves, which he himself examined, contained a complete skeleton in good preservation, enclosed in a short cist. In two of the other graves Bronze Age urns were found. Three skulls were obtained and examined by Sir William Turner, who found that they were well-proportioned, and showed no sign of degradation. They were the skulls of young persons, probably of the female sex, and their capacity was equal to that of modern skulls of the female sex at the same period of life. Sir Arthur Mitchell, in another paper, treated of the distribution of cruse lamps, and the peculiarities of the contrivance for suspending them. He showed specimens from France, Italy, Germany, Holland, Spain, and other places, and stated that it was probable it would be found all over Europe and North Africa—in other words, all over the Roman area. He then discussed at length the curious contrivance of hook and spike which everywhere persistently repeated itself, and concluded by showing that exactly the same pattern appeared in the hanging arrangement of the lamps found in the ruins of Pompeii, in the catacombs of Rome, and in excavations made at Roman stations in England. He showed how this affected any conclusion which might have been drawn from a study confined to Scottish cruses as to what had suggested this form, and as to the purpose which it now or formerly had served.

**Sheffield Society of Engineers.**—A lecture was given recently at the Technical School before the members of this society on the "Deterioration by Fatigue in Steel," by Mr. Thomas Andrews. The chair was taken by the president, Mr. Thomas W. Sorby. The lecturer for many years past has made a special study of the various aspects of the loss of strength in iron and steel by reason of use. The information acquired in the course of these elaborate researches enabled him to formulate a specification for modern steel rails calcu-

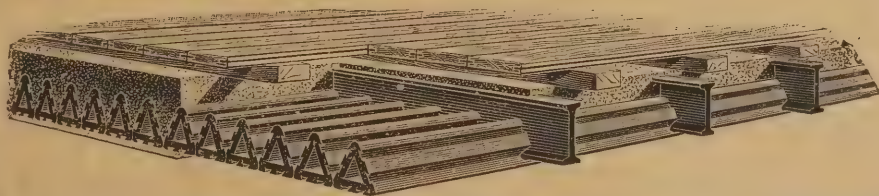
lated to promote both durability and safety in rail service. These matters were fully described and illustrated in the course of the lecture. The lecturer, in treating of the causes of the loss of strength in steel rails, gave lantern illustrations of numerous rails which he has investigated. The difference between the loss of strength from mechanical abrasion and the deterioration of the ultimate crystalline structure of the metal under the fatigue of stress, consequent on the presence of internal micro-flaws, was shown. The effect of low temperature in reducing the impact resistance of rails, the influences of corrosion, and the manner in which vibratory stress induced microscopic internal growing flaws in rails, were also demonstrated.

**Dundee Institute of Engineers.**—Mr. Andrew Sproul, President of Aberdeen Mechanical Society, delivered a lecture in the Technical Institute on the 11th inst., under the auspices of the Dundee Institute of Engineers, his subject being "Glimpses of the Philosophical and the Practical in Engineering."

**Philosophical Society of Glasgow: Architectural Section.**—At a meeting of this Society, held last week, Mr. P. Macgregor Chalmers in the chair, a lecture was delivered by Mr. George G. Paton on "The Law of Scotland in regard to Mutual Gables." After referring to the origin and history of such gables, Mr. Paton dealt among other points with: Where they can be built; whose property they are when built; to whom, by whom, to what extent, and when the payment for the half built on the adjoining ground falls to be made; what operations as regards repair, re-construction, alterations, and additions can be made by one proprietor without consent of his neighbour. The lecturer pointed out that in burghs, and where there was to be a continuous line of building in a street, the privilege of erecting a mutual gable prevailed; that the true view seemed to him to be not that the builder of the gable is at first

# HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders.

## CONSTRUCTIONAL STEEL AND IRONWORK.

GRANITIC STEPS AND PAVING, ASPHALTE, &c.

## HOMAN & RODGERS, ENGINEERS,

LONDON {Offices: 17, GRACECHURCH STREET, E.C.  
{Works: RATCLIFF, E.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

MANCHESTER {Offices: 10, MARSDEN STREET.  
{Works: WEST GORTON.

Telegraphic Address: "NAMOR, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.

## ECONOMY IN BUILDING.



# B. WARD & CO.,

15, Gt. George St., London, S.W.  
And at CARDIFF, etc.

PATENT STABLE PAVING.  
PAVING.

FIREPROOF STAIRCASES.  
ARTIFICIAL STONWORKS.  
FIREPROOF FLOORS.

WOOD BLOCK AND MOSAIC PAVING.

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others.



the sole proprietor of it, or that the gable is at any time common property, but that each neighbour is from the first the proprietor of only the half built upon his own property with a common interest in the whole, though the one who has built the gable has a right to exclude the other using the gable until he has been repaid a share of its cost, and that this right was a real and not a personal right; that if the builder has disposed his property, his singular successor is the person who is entitled to receive payment when it is due, though in his conveyance there be no mention of the gable, and the claim on emerging is entitled to a preferable ranking should the adjoining owner be then bankrupt; that the obligation to pay transmits against singular successors; that there is a presumption that no payment has been made till use of the gable by permanent buildings has been taken, but, whenever payment has been made, the owner of the vacant ground is free to use the gable when he chooses, and were second payment to be made in error, repetition of it would be obtained; that where there is a contract to pay the half, the half is construed as the half of the whole gable, but where there is no contract, it would appear that he is bound to pay the half only to the height to which he builds; that where there is a contract, the presumption is in favour of immediate payment, but where there is no contract, payment is not exigible till use is taken; that each proprietor is bound to see after the repair of the gable, and in the case of urgency the one may act without the consent of the other; and that one proprietor may, without consent of the other, alter or add to the gable, provided no injury is done to the gable or to the neighbour's property. A vote of thanks was

accorded to Mr. Paton for his instructive lecture.

**Edinburgh Architectural Association.**—The Association, by permission of the Edinburgh School Board, visited on the 13th inst. the new school at Broughton, under the leadership of Mr. Robert Wilson, Architect. The school is built upon the site of Blackfield House, and consists of a central block with a wing at each side. The central block contains the principal class-rooms, entering from a combined boys' and girls' staircase, and in the wings are the teachers' private rooms and cookery and laundry class-rooms. There is a total accommodation for 1,358 children, provided at a cost of about £24,000, exclusive of the site. In the basement are situated the gymnasium, swimming bath, boiler house, and engine room. Externally the building is a very satisfactory example of School Architecture. The visit was brought to a close by a vote of thanks to Mr. Wilson.

**The Architectural Association of Ireland.**—A meeting of this Association took place on Tuesday, 16th inst., at the Grosvenor Hotel, Dublin. The president, Mr. R. Caulfield Orpen, in the chair. There was a large attendance of members. Mr. Frederick Batchelor delivered a lecture on "Hospitals and Hospital Construction," which we publish in the supplement to this week's issue. In the discussion which followed, Mr. George Ross, Mr. George Sheridan, Surgeon Jameson-Johnson, M.D., and others, took part. Mr. Batchelor, having replied, the proceedings terminated with a vote of thanks. The next lecture will be on March 2nd, when Mr. W. Kaye-Parry will deliver a lecture on "Drainage and Sanitary Construction."

## KEYSTONES.

THE Prince and Princess of Wales have fixed Saturday, May 22nd, at 3.30, for the opening of the Blackwall Tunnel.

WORK in connection with the reconstruction of the sheds destroyed by fire at Fairfield shipbuilding yard, and the repair and renewal of damaged plant, is proceeding rapidly. The company is already enabled to restart 1800 men, but about 1000 are still idle.

At a cost of £450 the Leeds Church Extension Society has secured a site for a proposed new Church on the Victoria Park Estate, midway between the Churches of Bramley and Kirkstall.

THE offer of Mr. Drummond, amounting to £2063, for the erection of new offices at Dunoon Pier, has been accepted by the Burgh Commissioners—the work to be completed within three months.

THE Public Health Committee of the Edinburgh Town Council has resolved by a majority to recommend the Council to empower the committee to get estimates for the erection of an hospital of 600 beds.

It is rumoured that a new opera-house is to be built in the suburbs of London. Several enthusiastic admirers of Wagner are, at any rate, considering a scheme for erecting a little theatre on the Bayreuth model within a few miles of London.

It is stated that the great loss of shingle which has taken place in recent years, along the foreshore between Folkestone and Dover, has been most marked since the construction of the pier at Folkestone. This has acted as a groyne, and the effect is shown in a remarkable way by the enormous accumulation of shingle which has grown on the west side of the pier.

## J. J. ETRIDGE, JR.

SLATE MERCHANT,  
SLATER AND TILER.

ESTIMATES GIVEN FOR

### SLATING AND TILING,

To be Executed by Contract in any part of ENGLAND.

### Penrhyn-Bangor, Oakeley-Portmadoc

And other descriptions of Slates ready for immediate delivery to any Railway Station.

Applications for Prices, &amp;c., to

**BETHNAL GREEN SLATE WORKS,**  
Bethnal Green, London, E.

### THE BATH STONE FIRMS LTD.

BATH,

FOR ALL THE  
PROVED KINDS OF **BATH STONE.**  
**FLUATE,** for Hardening, Waterproofing, and Preserving Building Materials.

**LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

**IRON FENCING.**  
**BAYLISS, JONES**  
**AND BAYLISS.**  
**WOLVERHAMPTON.**  
LONDON SHOW ROOMS: 159 & 161 CANNON STREET. CATALOGUES FREE.



### THOMAS ADAMS & SONS LTD.,

D.y Oak, Mahogany &amp; Teak, Red &amp; Pine Deals, &amp;c.

Large Stock of Floorings and Match Boardings.

BLOCK FLOORING A SPECIALITY.

TIMBER YARDS AND SAW MILLS—

CRESCENT WHARF, CAMBRIDGE STREET, BIRMINGHAM.

Depôt for Bricks, Slates, and Building Material,

BREWERY WHARF, CAMBRIDGE STREET.

## SLATES. BRICKS.

VELINHELI, BANGOR, PORTMADOC, GREEN, &amp;c.

GOOD STOCKS ON HAND.

COMMON WIRE CUTS.

Large Quantities. Prompt Delivery.

**GIBBS BROTHERS,**  
LOUGHBOROUGH.

FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

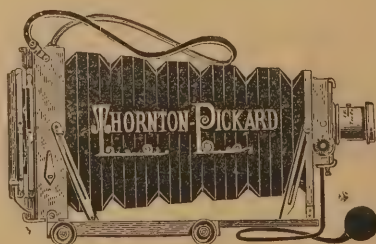
Telephone No. 77 (HUP).

DO  
YOU  
WANT  
TO BUY  
RIGHT?

**HYDE & CO**  
**GEO. HYDE & CO**

DO  
YOU WANT  
SPEEDY  
DELIVERY

**173 & 175, KENNINGTON CROSS  
LONDON, S.E.**



**THE  
THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND  
SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM





Correspondence.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Having taken in your valuable paper for many months, I have often wondered why you have never opened a few columns for students, say for building construction, model specifications, or constructional details, or such like. It appears to me that since the paper has been enlarged the opportunity presents itself very forcibly. Could you not spare say a column and a half weekly for one of these suggestions, which I think would make the paper worth a great deal more, and many of your readers would appreciate a move in this direction very much? Such articles that I have mentioned have appeared in both *The Builder* and *Building News*, I think. Hoping you will not think it presumptuous of me.

Believe me,  
Yours faithfully,  
STUDENT.

Hereford, February 20th, 1897.

[This suggestion shall receive every consideration.—Ed.]

Will some correspondent or our Editor kindly inform me the usual procedure in articling a pupil to an Architect. The usual number of years, salary given, cost of articles, and by whom is the expense borne.

PUPIL.

THE Poulton-le-Fylde Congregationalists have decided to erect a new Church to take the place of the present building, erected in 1809.

The Czar has ordered the expenditure from the Imperial Exchequer of 65,000 roubles for the erection of a residence for the students of the Women's Medical Institute recently established in St. Petersburg.

ST. ANDREW'S CHURCH, West Wrating, which has undergone extensive restoration at a cost of £1300, was re-opened a few days ago. The old-fashioned high pews have been removed, and the Church has been re-seated with pitch-pine benches. The roof has been substantially repaired, the pulpit and font restored, and a stained glass window has been placed in the chancel by the Frost family, of Wrating Hall.

Announcements.

**Editorial.**

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

**Publishing.**

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayments.

**Advertising.**

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two.

Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

Editorial and Publishing Offices:  
Effingham House, Arundel St.,  
Strand, W.C.

KEYSTONES.

MR. WILLS, of the firm of Messrs. Price and Wills, contractors, Barry Dock, has already employed a number of workmen in connection with the new dry dock to be constructed for the Barry Graving Dock Company. These are chiefly engaged in preliminary excavations.

MESSRS. Reynolds and Eason have just sold by auction the Old George IV. Tavern, in Portugal Street, Clare Market, the scene of the Lowten incident in "Pickwick." After spirited bidding the property was disposed of for £7550.

MOTOR carriages driven by compressed air are to be introduced into New York in April next by the New York Cab Company. Compressed air as a motive power is free from the odour which some dislike in petroleum, and

its weight is practically nil, a fact which gives it an advantage over electricity, as well as gasolene. The dead weight of the air-holder cannot be so great as that of accumulators.

New gas offices in Leeds Road were recently opened by the Chairman of the Gas Committee of the Huddersfield Corporation. The Corporation has converted into offices several buildings which they bought some time ago from the trustees of Messrs. James Learoyd and Sons for £800. The premises are at the north-west corner of the gasworks, and the whole area taken over is 1542 yards. Between £500 and £800 has been expended in converting the premises into offices.

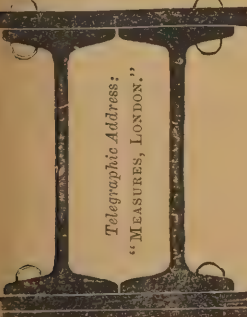
Trade and Craft.

HEAVY RAILWAY EXPENDITURE.

The Lancashire and Yorkshire Railway Company's estimates of the capital required in the event of their Bill receiving the sanction of Parliament shows total estimated expenditure £1,584,100, which, with the exception of £16,900, will be wholly expended upon widenings of their existing lines. Of this sum £357,000 will be spent on widenings in Yorkshire, £156,400 in Lancashire, and £1,053,800 upon fifteen miles of widenings extending from Todmorden in Lancashire to Brighouse in Yorkshire. The following are the details of the expenditure in Yorkshire: Widening from Bradley Wood to Heaton Lodge, near Mirfield, £48,600; at Mirfield, £131,600; from Dewsbury Junction to Thornhill, £29,800; from Horbury to Wakefield, £139,500; at Normanton, £7500; and diversion of Bird's Royd Road, Brighouse, £16,100.

PENRHYN QUARRY DISPUTE.

A mass meeting of quarrymen was recently held at Bethesda to consider the renewed invitation issued by Lord Penrhyn's agent to the men to apply for work at his quarries. Resolutions were carried declaring that Lord Penrhyn entirely ignored the principle for which the men were contending, that they were determined to secure the recognition of their legal right to carry on negotiations with the managers of the quarries, that they could not apply for work individually, and that they



# MEASURES BROTHERS, LTD.

## LONDON.


SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

Have now in their Town Stock 6,500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.

Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.



# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF BASEMENTS, AREAS, CORRIDORS, &c.

THE MOST EFFICIENT AND ECONOMICAL FOR TRANSMITTING DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT INCREASED COST.

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



## "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation falling on anything which happens to be below.

## WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

## WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS



were willing to submit all the points in dispute to be settled by the Board of Trade.

#### WAGES AND HOURS OF LABOUR IN 1896.

An article published in the "Labour Gazette" gives some particulars respecting changes of wages and hours of labour in 1896. It shows that the total number of separate individuals affected by changes in rates of wages during the year, so far as reported, was about 601,200. Of this number 375,000 received a net increase, 168,700 sustained a net decrease, and the wages of 57,500, although affected by upward and downward changes during the year, stood at the same level at the end as at the beginning. The estimated effect of all the changes on the weekly wages of the total number of workpeople affected was an average increase of 10d. per head. The particulars with respect to changes in hours of labour show that, though the net result of all the changes in 1896 was a decrease of nearly three-quarters of an hour in the weekly working hours of the total number of workpeople affected, the number whose hours were increased largely exceeded that of those whose hours were reduced. This is accounted for by the slight increase in the hours of labour recognised in the London building trades. This alteration, though very small, affected a large number of operatives, and nearly outweighs the decreases recorded in the building trades, so that the net reduction in this group of trades was very much less than in either of the three preceding years. So far as reported, the eight hours' day was conceded to about 1400 workpeople during 1896, of which number 900 were in the employ of local authorities. Particulars were received of three cases of reversion from eight hours to longer hours of labour, affecting 250 workpeople.

#### LYTE'S WOVEN METALLIC STAIR-TREAD.

This is a new material, which, from inspection, seems quite capable of sustaining its claims for durability and giving a good foothold. It is also easy to fix, as it simply requires to be nailed down on the tread, and can be readily bent over to form a nosing. It is composed

of lead rods about one-eighth of an inch diameter, each with a steel wire core. These are laid side by side, and woven together with plain steel wires of about 18 B.W.G. The lead is then partially flattened by rolling so as to make an even surface. We understand this material is being used and is giving satisfaction at the Army and Navy Stores, Harrod's Stores, Sloane Square Station, and elsewhere. It is also made with brass wire for ship use, and in either form should be very suitable for the steps of trams and omnibuses. Full particulars can be obtained from Messrs. Easton, Anderson, and Goolden, Limited, of 3, Whitehall Place, S.W., and the fact that it has been taken up by this firm is some guarantee of its value.

#### ELECTRICAL AND MECHANICAL EXHIBITION AT NEWCASTLE.

An Electrical and General Engineering Exhibition was opened on the 15th inst. at Newcastle. A spacious building has been erected in Northumberland Road, and has been filled with machinery and miscellaneous trade exhibits from the most eminent local and national firms, and even from Continental manufacturers. It is curiously interesting, in many features, to compare this Exhibition with that which was held on the Recreation Ground in 1887. The comparison suggests many useful object lessons. It is only by such a contrast that improvement is to be observed, and, though the interval is only a decade, the difference is striking. The advance that has been made is strikingly marked as to electrical machinery; and it is that which gives the Exhibition its chief interest. The display of electrical machinery is the best, by far, that has ever been seen, at one time in one place, in Newcastle. The mysterious power, with wonderful possibilities yet before it, is applied to all sorts of purposes that were not thought of a generation ago. In this display local firms have the principal place, and their exhibits are sufficient testimony to the enterprise of Tyneside firms and the skill of Tyneside workmen.

#### A DEFECTIVE ROOF.

At the Birmingham County Court on the 17th inst. an action was tried in which the Gospel Oak Iron Company, Limited, of the Mitre Works, Wolverhampton, sued Messrs. Smallwood and Co., brass and metal manufacturers, Montgomery Street, Sparkbrook, for work done and materials supplied in connection with the fixing of an iron roof over a portion of the defendant company's works. The original claim was for £82 1s. 6d., but as judgment was given in the High Court for £76 1s. 6d., the amount now in dispute was only £6, and the defendant company claimed this reduction on the ground that the roof had not been properly constructed, and admitted rain. It was stated on behalf of the plaintiffs that no complaint about the roof was made until they pressed for payment of their account, and subsequently a post-dated cheque was sent, which was returned because it was accompanied by a condition that the alleged defects should be remedied. It was only in exceptionally severe weather that a little rain found its way through the ventilating space at the top. Several of the employees of the defendant company gave evidence to the effect that on wet days a considerable amount of rain got through, as the ridge covering the ventilating space was too narrow. His Honour held that the roof was defective, and gave a verdict for the plaintiff for £3.

#### TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

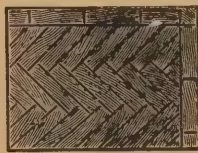
BECKENHAM.—For the erection of a wall, Alexandra Recreation Ground, for the Urban District Council. Mr. John Angell, engineer.  
H. E. Stringer ... £284 9 7 | Thomas and Edge,  
H. Heathfield ... 228 0 0 | Woolwich\* ... £218 0 0  
\*Accepted.

#### THE SMOKELESS FIRE Co. Ltd.,

Sole Proprietors of Marsh's Patents

#### COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.



#### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM JOINERY WORKS,

Clapham Junction, S.W.

Used on the New TOWER BRIDGE.

**MASON'S PATENT**

**UNWEARABLE, NON-SLIPPING STAIR TREADS.**

Non-Slipping Stairway Entrance Covers, Hydrant, Manhole, Inspection, and other Covers.  
Coal Plates, &c.  
Contractors to H.M. War Office and the Admiralty.

—THE SAFETY TREAD SYNDICATE, LTD.,  
15, Barbican, London, E.C.

#### ORNAMENTAL RED CRESTING AND FINIALS.

SEMI-ENCAUSTIC PAVING TILES

RED AND BUFF CHIMNEY-POTS.

GLAZED SOCKET PIPES.

Illustrated List on Application.

**STANLEY BROS. (LTD.) NUNEATON.**

GLAZED SINKS.  
Salt Glazed Bricks.  
BROWN & DRAB GLAZED BRICKS  
(Largely used for Hospitals, Schools, &c.)  
WHITE AND COLOURED ENAMELLED BRICKS.  
Blue Bricks, Quarries, Copings, Kerbings, Roofing and Ridge Tiles, Fire Bricks, &c.

**GODWIN'S TILES**

For PAVEMENTS WALLS HEARTHES &c

AS USED BY THE Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGBORDING WORKS, WITHERINGTON,**  
Patronised by Royalty. | Established 1848. | Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!

#### ILLUMINATION BUCKETS IN ALL COLOURS.

Commemorating the 60th year of Her Majesty's Reign.

SEND YOUR ORDERS EARLY

To

**J. YOUNG & CO.,** Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.

Telephone No. 4712 (Hop).

Telegrams:—"YOUNGS, KENNINGTON CROSS."

#### WIRE DEVICES,

With Patent Wire Clips, to hold Bucket Lamps, in Crowns, Monograms, Letters, Feathers, and Window Blinds.

WRITE FOR DRAWINGS AND PRICES.





\* Accepted

LISTS FREE ON RECEIPT OF TRADE CARD.



**CHARLTON.**—For paving, &c. Woolwich-road, for the Lee Board of Works. Mr. John Rowland, Surveyor, Board of Works offices, Old Charlton, Kent. Quantities by Surveyor:—  
Thos. Adams ... £4,250 11 6  
Fry Bros. ... 4,218 11 10  
W. H. Wheeler ... 4,250 2 10  
Universal Works Construction Company, Ltd. 3,883 8 7  
[Surveyor's estimate, £4,056 7s. 1d.]

**CROYDON.**—For the erection of an isolation hospital, Beddington Corner, Carshalton, for the Rural District Council. Messrs. R. M. Chart and Son, architects, Union Bank-chambers, Croydon. Quantities by Messrs. Franklin and Andrews, 25, Ludgate Hill, E.C.4.:—  
W. Wallis ... £18,995  
Lorden and Sons ... £17,000  
Rice and Son ... 18,690  
D. Waller ... 16,990  
Peters and Son ... 18,600  
J. Burges ... 16,200  
Joselyne and Young ... 18,336  
A. Bullock ... 15,970  
Goulder ... 17,834  
Burnard ... 15,965  
J. Smith and Sons ... 17,777  
Page ... 15,934  
Potter ... 17,750  
D. Stewart and Sons, Wallington\* ... 15,878  
Longley and Co. ... 17,449  
[Accepted.]

**GOLSPIE (Sutherland).**—Accepted for the construction of water supply works, Lairg, for the Sutherland County Council. Mr. John Baxter, C.E., Clynelmilton, Brora. Quantities by Engineer:—  
T. Munro, Wick ... £261 18 1

**HADDINGTON (N.B.).**—For the construction of two miles sewers, &c., Gullane, for the County Council. Messrs. Thomson and Wright, C.E., 22, Rutland-square, Edinburgh:—  
Andrew Waddell ... £1,687 4 11  
John Martin ... £847 19 2  
Archibald Fraser ... 1,614 17 2  
Lawrence Kelly, Edinburgh\* ... 784 17 7  
John Morris and Son ... 876 2 7  
[Accepted.]

**KINGSWEAR.**—For additions to "Byndart," Kingswear, for Major C. P. Dean. Messrs. Norman G. Bridgman and Walter H. Bridgman of Torquay, Paignton and Teignmouth, Architects. Quantities by Mr. Vincent Catermole Brown, of Paignton:—  
H. Webber & Sons £212 0 0  
R. C. Pillar ... £198 2 6  
James Short ... 210 0 0  
E. P. Bovey\* ... 198 0 0  
E. Pike ... 200 0 0  
[Accepted.]

**KINGSWEAR.**—For a villa residence for Mrs. Walker, Messrs. Norman G. Bridgman and Walter H. Bridgman, of Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Catermole Brown, of Paignton:—  
R. T. Pillar ... £795 0  
H. Webber and Sons £710 0  
G. Webber and Maun-der ... 700 0  
S. Blachford ... 750 0  
E. P. Bovey\* ... 683 0  
[Accepted.]

**LONDON.**—For new shop-front and interior trade fittings, from plans prepared by Mr. D. H. Waddell, architect, 20, High Holborn:—  
Sage and Co. ... £267 10  
Drew and Cadman\* ... £264 10  
Spreckley ... 712 10  
[Accepted as amended.]

**LONDON.**—Accepted for erecting two cottages in Winchelsea-road, Tottenham, for Mr. T. E. Baker:—  
H. Knight and Son, Tottenham ... £500

**LONDON.**—For alterations, additions, and repairs to "The Lord Derby" public-house, Woodpecker-road, New Cross, S.E. Mr. W. Stewart, architect, 4 and 5, Aldgate, E.C.1.:—  
Harris and Wardrop £2,559 0  
H. L. Holloway ... £2,043 0  
Cox ... 2,498 0  
W. Harbrow, South Bermondsey\* ... 2,035 7  
Burman and Sons ... 2,307 0  
W. Gladding ... 2,275 0  
[Accepted.]

**LONDON.**—For the erection of new factory at Bromley-by-Bow, E., for Messrs. Kemball, Bishop and Co. Messrs. Wigg, Oliver and Hudson, architects, 7, Bedford-row, W.C., and 80, Lemon-street, E. Quantities by Messrs. Goodman and Simpson:—  
H. A. Bishop ... £2,975  
W. Shurmur ... £2,493  
W. Gregar and Son ... 2,694  
Atherton and Dolman\* ... 2,370  
M. Patrick and Son ... 2,630  
[Accepted.]

**LONDON.**—For alterations and additions to shop and premises, Nos. 116 and 118, The Grove, Stratford, E., for Messrs. Howes Bros. Messrs. Wigg, Oliver and Hudson, architects, 7, Bedford-row, W.C., and 80, Lemon-street, E.:—  
J. Jarvis and Sons ... £879  
Battley, Son and Atherton and Dolman\* ... 815  
Holness\* ... —  
[Accepted.]

**LONDON.**—Accepted for the erection of fireproof staircase, &c., to factory, Durdham-street, Whitechapel, E., for Messrs. S. Schneiders and Sons. Messrs. Wigg, Oliver and Hudson, architects, 7, Bedford-row, W.C., and 80, Lemon-street, E.:—  
Brown, Son and Blomfield ... £490

**LONDON.**—For alterations and additions to the "General Havelock" public-house, Peckham, S.E. Mr. W. M. Brutton, architect. No quantities supplied:—  
Bryan ... £1,909  
Barton ... £1,441  
H. Wall and Co. ... 1,084  
Tyerman ... 1,404  
J. O. Richardson ... 1,467

**LONDON.**—For the construction of an underground convenience, High Holborn, for the St. Giles District Board of Works. Mr. Geo. Wallace, Surveyor, 197, High Holborn, W.C.:—  
Thomas and Edge ... £4,202  
C. W. Killingback and Neave and Son ... 3,957  
Co., Camden Town\* ... £3,697  
W. Thompson ... 3,919  
[Accepted.]

**LONDON.**—For wiring, &c., in connection with the installation of the electric light at Blackwall Tunnel, for the London County Council:—  
Laird, Wharton, and Down, Ltd. ... £4,700

**MELMERSBY (Penrith).**—For the execution of water-supply works, for the Rural District Council:—  
J. and W. Scott, Penrith ... £440 12 6

**MEXBOROUGH (Yorks.).**—For the execution of road works, Hall-gate and Cross-gate, for the Urban District Council. Mr. G. F. Carter, Surveyor, Council Offices, Mexborough:—

	Hall-gate.	Cross-gate.
Wm. Hobson	£417 13 6	£316 0 11
C. A. Walker	403 8 2	301 6 8
G. Eyre	380 0 0	281 0 0
F. Eyre, Sheffield (accepted)	343 11 10	267 6 0

**MOVILLE (Ireland).**—For the erection of two dwelling-houses, for Mr. Jas. M'Laughlin, Londonderry, and Mr. P. Glackin, Moville. Mr. Foster Nolan, architect, Greencastle, co. Donegal:—

	Per house.	Per house.
Daniel Gillespie	£407 10	Charles Doherty ... £363 0
James Gallagher and Sons	435 0	D. McDermott, Moville, co. Donegal* ... 350 0
Michael M'Daid	365 0	[Accepted.]

**NEWPORT (Sap.).**—For the erection of school-buildings, Edmond, for the Committee of Managers. Messrs. J. R. Veall and Son, architects, Wolverhampton. Quantities by the architects:—

Willcock and Co.	£1,169 8 3	Bradney and Lloyd	£951 4 0
T. Pace	1,104 4 11	J. G. Muirhead	883 10 1
G. Bullock	1,076 8 6	E. Whittingham	869 15 6
A. Roper	1,029 2 6	Newport, Salop* ... 855 11 11	
H. Gough	1,023 16 9	Tommy Bros. ... —	
G. K. Downing	975 0 6	[Accepted.]	

**NEWPORT (Mon.).**—For alterations and additions to Victoria Inn, Newport, for Messrs. Ind Coope and Co. William Graham, Hitchcock and Co., architects and surveyors, Newport:—

W. Price	£725 0	G. H. Griffiths	£560 0
J. Francis	640 0	A. Hazell	560 0
A. E. Parfitt	640 0	R. H. Parkyn	553 0
J. Jenkins	635 10	C. H. Reed	536 0
T. G. Diamond	620 0	E. Jordan	530 0
W. A. Linton	590 0	D. J. Davies	519 10
J. T. Morris	570 0	J. Charles	488 0
D. Parfitt	567 0	All of Newport.	

## LIFTS

Hydraulic, Steam, Gas,  
Electric, or Hand-Power.

## M. T. MEDWAY AND CO.

ALBERT WORKS,  
ROLT ST., DEPTFORD, S.E.

SAFETY . . .  
.. ECONOMY..  
... SPEED.

**OLNEY (Bucks.).**—For additions, &c., to school-buildings, for the School Board. Mr. C. Dorman, architect, 51, Abington-street, Northampton:—  
J. P. White ... £1,330  
M. Clayton ... £1,035  
J. H. Coleman ... 1,289  
G. F. Sharman ... 990  
W. Whitbread ... 1,150  
J. C. Sharman ... 943  
J. T. Wingrove ... 1,139  
G. E. Fathers, Bedford\* ... 924  
Rootham and Jeakings ... 1,137  
[Accepted.]

**PAIGNTON.**—For a villa residence for Mr. William Tozer. Messrs. Norman G. Bridgman and Walter H. Bridgman, Torquay, Paignton, and Teignmouth, architects. Quantities by Mr. Vincent Catermole Brown, of Paignton:—  
G. Webber and Maun-der ... £508 10  
H. Webber and Sons ... 485 0  
Smaridge and Curtis ... 498 0  
H. Harris\* ... 460 0  
[Accepted.]

**PAIGNTON.**—For works at Primley House, for Mr. H. C. Belfield.

**Drainage and Sanitary Work.**  
Messrs. Norman G. Bridgman and Walter H. Bridgman, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Catermole Brown, of Paignton:—  
R. Harris ... £365  
G. Webber and Maun-der ... £290  
C. and R. E. Drew ... 307  
H. Webber and Sons\* ... 260  
E. Pike ... 300  
[Accepted.]

**For Fixing Grates.**  
H. Webber and Sons (accepted) ... £27 12

**For Painting and Papering.**  
S. Tucker ... £130 0  
H. Webber and Sons\* ... £94 0  
Mitchell and Son ... 114 0  
J. Thomas and Son ... 90 10  
[Accepted.]

**REDBOURN (Herts.).**—For the re-erection of "Bylands," Redbourn, Herts., for Mr. J. M. Ashforth. Mr. David Burnett, architect:—  
Thompson & Beveridge £2,035  
Marriage and Co., The Oval, Croydon\* ... £1,510  
C. Ance ... 1,950  
C. Miskin ... 1,837  
S. C. Smith ... 1,470  
F. Hall ... 1,625  
[Accepted.]

**SOLIHULL.**—For the erection of ambulance depot at the Infectious Diseases Hospital, Lyndon End, Solihull. Mr. A. E. Curran, surveyor, Solihull:—  
S. Turner ... £1,130  
H. W. Thompson ... £800  
J. Freeman ... 820  
H. Gregory ... 760  
[Surveyors' estimate, £750.]

**SOUTHELD (Essex).**—For works at the London Hotel, Southend-on-Sea, for Mr. A. Willson. Messrs. Burles and Harris, architects, Clarence-street, Southend. Quantities by Mr. Henry Bushell, F.S.I., 33, New Bridge-street, City:—  
Contract A.—Structural Alterations and Decorative Works.  
A. B. Symes ... £735  
F. Woodhams ... 592  
F. Dupont ... 725  
T. Whur, Southend\* ... 590  
Contract B.—Bar Fittings and Hard Wood Finishings, &c.  
Brown, Kreuse and Co. ... £960  
Lascelles and Co. ... £735  
A. E. Symes ... 887  
F. Dupont, Colchester\* ... 730  
[Accepted.]

**SOUTHELD-ON-SEA.**—For wood-paving, Clarence-road, for the Corporation. Mr. Harold Harlock, Borough Surveyor, Clarence-road, Southend:—

	s. d.	The Improved Wood- s. d.
The Acme Wood-Floor- ing Co.	13 0	Faving Co., 46, Queen
Wm. Griffiths	11 4	Victoria-street, E.C.*
		10 6

**STANMORE.**—For the erection of a house on the Stanmore Park Estate, Stanmore, Middlesex, for Mr. W. S. Prichard. Messrs. Boehmer and Gibbs, Architects, 11, Spring-gardens, S.W.:—  
McCormick ... £5,050  
L. Whitehead and Co.\* ... £4,800  
Bailey ... 4,950  
[Accepted.]

**ST. ANNE'S-ON-SEA.**—Accepted for providing and laying pipes, &c., for the Urban District Council. Mr. H. Bancroft, C.E., 88, Mosley-street, Manchester:—  
Josiah Dule, Northwich ... £698 1 2

**WARRINGTON.**—For the construction of four streets and thirteen passages, for the Corporation. Mr. Thomas Longdin, Borough Surveyor, Town Hall, Warrington:—  
William Heaton\* ... £367 13 0  
F. T. Bennie\* ... £24 12 9  
Thomas Stringer ... 324 13 2  
[Accepted.]

**WEMBLEY.**—Accepted by the Wembley Park Company for the construction of exhibition buildings at Wembley Park, London:—  
T. J. Hawkins, Ashford, Middlesex ... £5,000

**LONDON PLATE-GLASS INSURANCE CO. LTD.**

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

MODERATE RATES. PROMPT REPLACEMENTS.

SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited

Liberal Terms for Business Introduced.

**BRICKS. LIME. CEMENT.**  
**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

**PILKINGTON'S**  
WORKS:  
CLIFTON JUNCTION,  
NEAR MANCHESTER.  
**TILES.**

MANUFACTURERS OF HIGH CLASS TILES.

For Floors, Halls, Hearths, Grates and Furniture.

\* EVERY VARIETY OF TILE WORK FOR

**CHURCHES, PUBLIC BUILDINGS AND**

**PRIVATE RESIDENCES.**

London Show Rooms:

Lyric Chambers, 45, Whitcomb Street W.C.

Manchester Show Rooms:

37, Cross Street.



## BLACKMAN VENTILATING CO. LTD.

Specialists in

**VENTILATING AND WARMING.**

63, FORE STREET, LONDON, E.C., and Branches.

**R. P. de RIDDER, Heating and Ventilating Engineer, &c.**

Fairfield Street Fairfield, Liverpool.—TELEGRAPHIC ADDRESS, "DERIDDER, LIVERPOOL."

DE RIDDER'S PATENT "SMALL PIPE SAFETY" Hot Water Heating Apparatus

For Buildings of every Description.

Patronised by Her Majesty's War Office, The London School Board, The Hanley School Board, The Paignton School Board, The Mersey Docks and Harbour Board, The Leading London and Provincial Architects, &c. Approved by the Principal Insurance Companies.

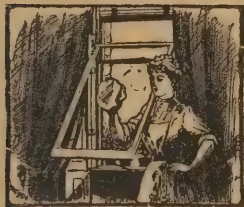
PLANS AND ESTIMATES FURNISHED FREE OF CHARGE ON APPLICATION



# "The Builders' Journal" Advertisers.

Names and Addresses with the page on which their Announcements appear.

Adams & Co. ... ..	viii	Couzens, G. and F., Cardiff ... ..	—	Jones & Attwood, Stourbridge and London ... ..	i	Rockingham Railway and Jarrahdale Timber Co., Ltd. ... ..	—
Adams, Robert, London ... ..	xv	Cox, Sons, Buckley & Co., London ... ..	—	Jones, James, Birmingham ... ..	v	Safety Tread Syndicate, Ltd. ... ..	xii
Adams, T., & Sons, Ltd., Birmingham ... ..	x	Dennis, Henry, Ruabon ... ..	—	Jones and Willis, London ... ..	iv	St. Pancras Iron Co., London ... ..	vii
Albion Clay Co., Ltd., London and Burton-on-Trent ... ..	—	De Ridder, R. P., Liverpool ... ..	xiv	Kauri Timber Co., Ltd., London ... ..	—	Self-Loek Roofing Tile Co., Ltd. ... ..	—
Anaglypta, Darwen ... ..	vii	Doulton & Co., Lambeth ... ..	i, ii	Kaye, Joseph, & Sons, Ltd., London ... ..	i	Skidmore, Thos., & Son, Wolverhampton ... ..	i
Ashmore, Benson, Pease & Co., Ltd., Stockton-on-Tees ... ..	—	Easton, Anderson & Goolden, Ltd., London ... ..	viii	King, John, Liverpool ... ..	—	Smokeless Fire Co., Ltd., London ... ..	xii
Attwood, J., Stourbridge ... ..	i	Eastwood & Co., London ... ..	xiv	Lewis, J., London ... ..	—	Stanley Bros., Ltd., Nuneaton ... ..	xii
Ball, H. A. ... ..	xiii	Ellis, Partridge & Co., Leicester and London ... ..	—	London Plate-Glass Insurance Co., Ltd. ... ..	xiv	Stiff & Sons, London ... ..	iii
Barnett, Edward, Walsall ... ..	—	Elsley, Thomas, London ... ..	—	McNeill, F., & Co. ... ..	xiii	Strode & Co., London ... ..	i
Barrows & Co., Ltd., Banbury ... ..	—	Elterwater Green Slates ... ..	—	Maw & Co., Ltd., Jackfield ... ..	—	Szerelmey & Co., London ... ..	iv
Bath Stone Firms, Ltd., Bath ... ..	x	Etridge, J. J., Junr., London ... ..	x	Mayfield, J. T., & Co. ... ..	—	Talbot Co., Leeds ... ..	vii
Batchelar, J., & Co., London ... ..	x	Ewart & Sons, London ... ..	—	Measures Bros., Ltd., London ... ..	xi	Thornton-Pickard Manufacturing Co., Altrincham ... ..	x
Bayliss, Jones & Bayliss, Wolverhampton ... ..	x	Farmiloe, G., & Sons, London ... ..	—	Medway, M. T., & Co. ... ..	xiv	Twyford, Ltd., Hanley ... ..	—
Bennett, John, London ... ..	—	Farrar, E., & Co., London ... ..	—	Mellows & Co., Sheffield ... ..	—	Vigers, Bros., London ... ..	—
Blackman Ventilating Co., Ltd., London ... ..	xiv	Fawcett, M., & Co., London ... ..	—	Minton, Hollins & Co., Stoke-on-Trent ... ..	—	Walton, Frederick & Co., London ... ..	—
Blundell, Spence & Co., Hull ... ..	—	Gibbs Bros., Loughborough ... ..	x	N. A. P. Window Co., London ... ..	iii	Ward, B., & Co., London ... ..	ix
Boote, Ltd., T. & R., Burslem ... ..	—	Glover, F. A., & Co., London ... ..	—	National Opalite Glazed Brick and Tile Syndicate, Ltd. ... ..	—	Warings, Ltd., London ... ..	—
Brady, G., Manchester ... ..	—	Godwin, William, & Son, Withington ... ..	xii	Oates & Green, Ltd., Halifax ... ..	vi	Waygood, B., & Co., Ltd., London ... ..	i
Briggs, W., Dundee ... ..	—	Granite Silicon Plaster Co., London ... ..	—	Parker, Robert, & Co., Liverpool ... ..	—	Webb & Co., London ... ..	—
Burmantofts, Leeds ... ..	viii	Gregory, Thomas, & Co., London ... ..	xii	Patterson, J. & H., Manchester ... ..	i	Wilkinson, W. B., & Co., Ltd., London ... ..	—
Cakebread, Robey & Co., London ... ..	—	Grundy, John, Ltd., London ... ..	—	Perkins, A. M. & Sons, Ltd., London ... ..	—	Williams, G. A. & Son ... ..	—
Candy & Co., Ltd., London and Newton Abbot ... ..	—	Hartley and Sugden, Ltd., Halifax ... ..	—	Pilkington Tile and Pottery Co. ... ..	xiv	Wilson & Co., London ... ..	xi
Carter & Co., Poole, Dorset ... ..	—	Hentschel, C., & Co., London ... ..	i	Pulham & Son, London ... ..	—	Woollams, Wm., & Co., London ... ..	—
Charteris & Longley ... ..	i	Homan & Rodgers, London ... ..	i, ix	Red Star Glass ... ..	—	Wragge, Geo., Manchester ... ..	—
Claridge's Asphalte Co., Ltd. ... ..	—	Hope, Henry, Birmingham ... ..	—	Rendle, W. E., & Co., London ... ..	—	Wright, G., & Co., Rotherham ... ..	—
Cobbett & Co., London ... ..	—	Hyde & Co., G., London ... ..	x	Roberts, Adlard & Co. ... ..	i	Young & Marten, Stratford ... ..	i, ii
		Itter, A. W., Peterborough ... ..	—	Robson & Co., Sunderland ... ..	—	Young & Co., J., London ... ..	xii



THE  
**N.A.P.**  
Safety Windows  
supplied by the  
N.A.P. Window Co., Ltd.,  
159, Victoria St., S.W.

THE  
"Top Bolt"  
PATENT  
For the Alteration of  
Existing Windows.

## CONTRACTS OPEN.

### BATH URBAN SANITARY AUTHORITY. TO STONEWARE PIPE MAKERS AND OTHERS.

The Sanitary Committee of the above Authority are desirous of receiving TENDERS for the SUPPLY of GLAZED STONEWARE SEWER PIPES, GULLY TRAPS, &c., during One or Three Years, at the option of the Committee. The probable quantity required annually will be about 1000 feet of 12in., 4000 feet of 9in., 2000 feet of 6in., and a small quantity of 15in., 18in., and 24in. Pipes, with Junctions, Bends, Channel Pipes, and Gully Traps.

The Pipes, Traps, &c., to be of the best quality and make, supplied from time to time, in such quantities as may be required, and delivered into Dog-lane Corporation Yard, in Bath.

Tenders upon the printed forms to be obtained of the City Surveyor (no others will be accepted), sealed, and endorsed "Tender for Pipes," and addressed to the Chairman of the Sanitary Committee, to be sent in to the City Surveyor's Office, Bath, on or before TEN o'clock in the forenoon of TUESDAY, MARCH 2nd, 1897.

A sample 6in., 9in., 12in., and 15in. Pipe, 9in. Gully Trap (to trap not less than 2in.), also a Street Gully, the maker's name marked on each sample, to be deposited free of cost, at the City Surveyor's Office, Guildhall, Bath, before SATURDAY, FEBRUARY 27th next. For these 20s. will be paid, such then to become the property of the Committee.

The Contractor will have to execute a Contract to be prepared by the Clerk to the Urban Sanitary Authority. The Committee do not pledge themselves to accept the lowest or any Tender.

By order of the Committee,

CHAS. R. FORTUNE,  
City Surveyor.

Guildhall, Bath,

February 3rd, 1897.

The lowest or any Tender will not necessarily be accepted.

### ASYLUMS' COMMITTEE OF THE LONDON COUNTY COUNCIL.

TO BUILDERS AND CONTRACTORS.  
The Asylums Committee are prepared to receive TENDERS for the FOUNDATIONS of the Seventh County Lunatic Asylum, to be erected on the Horton Estate, Surrey.

d

## STIFF & SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS,  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS,  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

For Illustrated Price Lists apply to

## JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.

Instructions for Tender and forms of Tender and contract, with specification and schedule of prices, and other schedules thereto annexed, can be obtained from the Clerk of the Committee, 21, Whitehall-place, S.W., on or after FEBRUARY 1st, 1897, on payment of £5 for each copy, for which a receipt will be given, and the drawings can then be inspected at the office of the Architect, Mr. G. T. Hine, 35, Parliament-street, S.W., between the hours of TEN and FIVE. The amount deposited will, after the Committee have come to a decision upon the Tenders received, but not before, be returned to the tenderer, provided he shall have sent in a bona-fide Tender and shall not have withdrawn the same.

Tenders must be on the printed form, and be accompanied by the forms of contract and schedules thereto and bond.

The Tender and accompanying documents completed in accordance with the instructions, must be enclosed in

the authorised sealed cover, endorsed "Horton Asylum Foundations," and be delivered at the office of the Committee, 21, Whitehall-place, S.W., not later than TWELVE o'clock at noon, on MONDAY, MARCH 1st, 1897, after which no Tender will be received.

Any Tender not made on the printed form or not filled up and complete in every particular in accordance with the instructions will be rejected.

The Committee do not bind themselves to accept the lowest or any Tender.

The contractor will have to enter into a bond in the penal sum of £3000 with two approved securities each in the sum of £1500 as security for the due performance of the contract.

R. W. PARTRIDGE,  
Clerk of the Asylums Committee.  
Asylums Committee Office,  
No. 21, Whitehall-place, S.W.  
February 9th, 1897.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Feb. 27	<b>BUILDINGS—</b>		
27	Renovation of Reformed Presbyterian Church, Faughan		William Barker, 25, Orchard-street, Londonderry.
27	Parish Church, Brynmawr, Breconshire		Nicholson and Hartree, Architects, Hereford.
27	Artificer's Work, Cairo, Alexandria, to March 31, 1898	War Department	Commanding Royal Engineer's Office, Head-quarters, Cairo.
27	Three Houses, Albert Roysds-street, Rochdale		Bamford and Brocklebank, Surveyors, 58A, Yorkshire-street, Rochdale.
27	Retort House and Coal Stores, Grimesthorpe, Sheffield	Sheffield United Gas Light Company	F. W. Stevenson, Engineer, Gas Works, Grimesthorpe Station.
27	Stone Culvert (300yds.), Bideford	Corporation	W. B. Latham, Engineer, 13, Victoria-st., Westminster, S.W.
27	Alterations to the Town Hall, Andover	Corporation	Borough Surveyor, Andover.
27	Erection of Bandstand, Armagh		H. C. Parkinson, Architect, Armagh.
27	Gate Lodge at Asylum, Belfast	Commissioners	A. T. Jackson, 5, Corn-market, Belfast.
27	Works for Nurses' Home, Bradford	Board of Management of Bradford Infirmary	Milner and France, Architects, Bradford.
27	Mortuary, Folkestone	Joint Committee	Borough Engineer, Dover-road, Folkestone.
27	Works at Lighthouse, Kingswear, Dartmouth	Harbour Commissioners	E. H. Back, Architects, Dartmouth.
27	Engine House, &c., Rishworth (Yorks)	Ryburn Mill Company, Limited	R. Horsfall, 15, George-street, Halifax.
27	Three Houses, Howard Cross-street, Rochdale	J. Kershaw	H. S. Nicholl, 1A, Mount-street, Rochdale.
Mar. 1	Erection of a Pavilion, Newport	Royal National Eisteddfod of Wales	B. Lawrence, Austin Friars Chambers, Newport.
1	Restoration of Church Tower, Culmington, Salop		Rev. D. E. Holland, Culmington, Bromfield.
1	Public Conveniences, Taunton	Corporation	J. H. Smith, Municipal Buildings, Corporation-st., Taunton.
1	Foundations, Horton Asylum, Surrey	London City Council	G. T. Hine, Architect, 35, Parliament-street, S.W.
1	Works and Materials for 1 or 3 Years from April 1st, 1897, Hornsey.	Urban District Council	E. J. Lovegrove, Engineer, Council Office, Southwood-lane, Highgate, N.
1	Works, &c., to March 31st, 1900, Home District, London, S.W.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
1	Public Library, Canterbury	Corporation	A. H. Campbell, Architect, 28, St. Margaret-st., Canterbury.
1	Additions, County Court House, Londonderry	Official	A. C. Adair, Architect, Court House, Londonderry.
1	Schoolhouse at Castlederg		Rev. J. Connolly, Urry, Strabane.
1	Station Buildings, Clantarf, co. Dublin	Great Northern Railway Company	Company's Engineer-in-Chief, Amiens-street, Dublin.
1	Shops and Houses, Gateshead	A. Cameron	J. G. Crane, 50, Grainger-street, Newcastle.
1	Enlargement of Killing Rooms, &c., Glasgow	Corporation	A. B. McDonald, City Chambers, 64, Cochrane-st., Glasgow.
1	Works for Mill Premises, Morley	A. Glover	T. A. Battery, Queen-street, Morley.
1	Dining-Hall at the Workhouse, Stanwell (Middlesex)	Guardians	Board Room, Union Workhouse, Stanwell.
1	Alterations, &c., to Schools, St. Bees (Cumberland)	School Board	J. Howes, Architect, Workington.
1	Institute Buildings, Canterbury	Corporation	A. H. Campbell, Surveyor, 28, St. Margaret-street.
1	Shops and Houses, High-street, Gateshead	A. Cameron	J. G. Crane, Architect, 50, Grainger-street, Newcastle.
1	Erecting Hall Keeper's Rooms, Vestry Hall, Camberwell	Vestry	O. S. Brown, Vestry Hall, Camberwell, S.E.
1	Building Underground Conveniences, Southend-on-Sea	Corporation	H. Harlock, Clarence-road, Southend.
2	Materials, Lambeth, S.E., for 1 Year, March 25th	Vestry	J. P. Norrington, Surveyor, Vestry Hall, Kennington Green S.E.
2	Works, Uffington Station (Berkshire)	Great Western Railway Company	G. K. Mills, Secretary, Paddington Station, W.
2	Almshouses (4), Rotherham	Trustees of Mary Bellamy's Charity	J. E. Knight, Moorgate-street, Rotherham.
2	Passenger Station, St. Anne's Park, Brislington, Bristol	Great Western Railway Company	Company's Engineer, Bristol Station.
2	Sheds	Leyton Urban District Council	W. Dawson, Town Hall, Leyton.
2	Fire Station, Tottenham	Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
3	Sewage Disposal Works, Uckfield	Urban District Council	G. M. Lawford, Engineer, 13, Victoria-st., Westminster, S.W.
3	Winter Garden on Pier, Southend-on-Sea	Corporation	Thompson and Greenhaigh, Architects, Bank-chambers, Southend.
3	Hall and other Buildings, Hereford	Hospital Board	Nicholson and Hartree, Architects, Hereford.
3	Pavilion at Hospital, Mortan Banks, Keighley	Guardians	Judson and Moore, York Chambers, Keighley.
3	Dispensary and Doctor's Residence Tuam (Ireland)		County Surveyor, Galway.
3	Construction of Window Garden on Pier	Southend-on-Sea Corporation	Thompson and Greenhaigh, Bank-chambers, Southend.



## JONES &amp; WILLIS,

MANUFACTURERS OF

## Wrought Metal Work, Architectural Carving and Joinery

For Ecclesiastical Purposes, Domestic and Public Buildings,

## Lighting Appliances, &amp;c.

Estimates given to Architects' own Designs.

Work can be inspected during execution.

OFFICES AND SHOWROOMS:—79, Edmund Street, Birmingham; 43, Great Russell Street, London, W.C  
Concert Street, Bold Street, Liverpool.

WORKS:—Eagle Works, Hornsey, N.; Porchester Street, Birmingham.

DAMP WALLS CURED. BY MASONRY PRESERVED  
SZERELMEY STONE LIQUID,

Which absolutely Waterproofs and Preserves Bricks, Stone, Plaster, Cement.

IT HAS STOOD THE TEST OF TIME.

Approved and Adopted by Her Majesty's Government for MANY YEARS.

EASILY APPLIED, SMALL COST, RELIABLE.

FORTY YEARS' EXPERIENCE.

## PORCELAIN PAINTS

For Interior and  
Exterior Decoration.  
Beautiful Glazed  
Surface.

Do not Chip.

Non-Poisonous.

## SZERELMEY'S

HIGH-CLASS PAINTS.

## IRON PAINTS

For Wood or Iron.

GREAT - -

- - DURABILITY.

Prevent Corrosion.

Offices and Works: ROTHERHITHE NEW ROAD, S.E.

Telegrams:

"SZERELMEY, LONDON."



COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
March 4	Laundry Drying Arrangements, Islington	Guardians	Mr. Musto, St. John's-road Workhouse.
" 5	Works, Repairs, &c., to March 31st, 1900, Royal Engineers' District, Dublin.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 5	Dispensary, Doctor's Residence, &c., Mullingar (Ireland)	Guardians	J. Harton, Clerk, Workhouse, Mullingar.
" 5	Alterations, Municipal Offices, Rotherham	Corporation	R. J. Lovell, 46, Queen Victoria-street, E.C.
" 5	Dispensary and Residence, Mullingar (Ireland)	Union	J. Kenny, The Dispensary, Loughnavalley, Mullingar.
" 6	Infectious Diseases Hospital, Kibble Bank, Burnley	Burnley Joint Hospital Board	F. S. Button, Blannel-street, Burnley.
" 6	School, Gigha (Scotland)		H. Douglas, Gigha, Argyllshire.
" 6	Extensions of City Hospital, Coventry	Corporation	G. and J. Stane, Architects, Little Park-street, Coventry.
" 6	Isolation Hospital, Lydiard Millicent	Rural District Council	R. J. Beswick, Fleet-street, Swindon.
" 6	Widening Bridge, &c., Mannington		W. Stead, County Surveyor, Northallerton.
" 6	Stone Bridge, Sutton Bridge		W. Stead, County Surveyor, Northallerton.
" 6	Constable's House, Yarm (Yorks)		W. Stead, County Surveyor, Northallerton.
" 8	Works to March 31st, 1900, Royal Engineers' District, Belfast.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 8	A Building at Colchester		W. C. Street, 7, Victoria-street, S.W.
" 10	Alterations to Workhouse, Park-road, Gosport (Hants)	Guardians	H. A. F. Smith, Architect, Star-chambers, High-st., Gosport.
" 10	Laundry House, Baths, and Lavatories	Holborn Union	C. E. Vaughan, 25, Lowther-arcade, W.C.
" 11	Laboratory	Essex County Council	County Offices, 78, Duke-street, Chelmsford.
" 13	Restoration of Roof, St. Blazey Church, Cornwall		Edmund Sedding, Architect, 12, Athensum-st., Plymouth.
" 15	Bishop's Palace, Londonderry	Committee	S. P. Close, Architect, 53, Warring-street, Belfast.
" 15	Works, &c., to March 31st, 1900, North-Western District, Liverpool.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
Apr. 1	Repairs and Materials (Triennial Contracts)	War Department	Commanding Royal Engineer (in each district).
No date,	Residence, Buxton, Derbyshire	F. Smallman	W. Sugden and Son, Architect, Hanley, Staffordshire.
"	Boarding House, West Park, Harrogate	G. Goodrich	A. A. Gibson, Architect, Yorks, Bank-Chambers, Harrogate.
"	Additions to Chapel, Danby End, Danby (Yorks)		J. W. Taylor, Architect, Newcastle-on-Tyne.
"	Schools, France-street, Blackburn		O. Hill, Architect, Albert-square, Manchester.
"	Houses, Wood Royd Estate, West Bowling, Bradford		S. Robinson, Architect, Cheapside, Bradford.
"	Infirmary, Nurses' House, Porter's Lodge, Kingston	Union	W. H. Hope, Union Offices, Portsmouth-road, Kingston-on-Thames.
ENGINEERING—			
Feb. 27	Pumping Machinery, Hamburg	City Authorities	Secretary's Office, Rathaus, 1, Stock Zimmer, No. 34.
" 27	Retort House, Coal Stores, &c., Sheffield	United Gas Light Company	Fletcher W. Stephenson, Offices, Commercial-st., Sheffield.
" 27	Cast Iron Tank and Castings, Grimesthorpe Station, Sheffield.	United Gas Light Company	T. W. Stevenson, Gas Offices, Commercial-street, Sheffield.
" 27	Stone-built Culvert, &c., Bideford	Corporation	C. W. Hole, Town Clerk, Bideford.
March 1	Tank and Cast Iron Pipes, Northleach (Gloucestershire)	Rural District Council	Witts and Phillott, 12, Promenade, Cheltenham.
" 1	Pumping Engine and Boiler, Ipswich	Waterworks Committee	H. Roberts, Manager, Waterworks, Ipswich.
" 1	Heating Apparatus, Cologne		Engineer, Städtischer Herzungs Ingenieur, Hochbauamt Zim 18 Alter Pothof Köln a Rh.
" 13	Reservoir, &c., Stockport	Corporation	A. W. Fowler, St Peter's-square, Manchester.
April 13	Harbour Work Extensions at Ostende	Provincial Administration	Brussels, Rue des Augustins, 17.
PAINTING AND PLUMBING—			
Feb. 27	Plumbing Work, Asylum, Enniscorthy (Ireland)	Commissioners	C. A. Owen, Architect, 16, Molesworth-street, Dublin.
" 27	Painting Sunday School, Waterloo (near Ashton-under-Lyne).		— Copeland, Oldham-road, Waterloo.
March 17	Painting and Repairs	London County Council	Architect's Department, Spring-gardens, S.W.
ROADS—			
Feb. 23	Street Works, Stanley (Durham)	Stanley Urban District Council	J. Routledge, Surveyor, Council Office, Stanley.
" 23	Kerbing, Tar Paving, Meta'ling, Forest Hill, S.E.	Lewisham Board of Works	E. Wright, Clerk, Board of Works Office, Catford, S.E.
" 27	Street Works, Hoole (Cheshire)	Urban District Council	C. A. Ewing, Architect, 22, St. Werburgh-street, Chester.
" 27	Material and Haulage, 1 Year, to March 31, 1898, Bridgend	Glamorgan County Council	T. Lloyd Edwards, Town Hall, Bridgend.

# JONES' REVERSIBLE SASHES.

NEARLY 200 OF THESE SASHES ARE USED AT KING EDWARD'S NEW GRAMMAR SCHOOL, NEW STREET, BIRMINGHAM.

This invention is most simple in its action; nothing is added to interfere with the original features of the sash and frame, and it is warranted not to get out of order.

No Springs, Pivots, or extra woodwork required.

The windows can be cleaned, the glass repaired and woodwork painted, inside the room.

The Fittings can be had from the Inventor, in Brass, 8s. per set.

Old Sashes can be made reversible, from 5s. extra.

In preparing new Sashes and Frames no extra cost is incurred.

These windows are most suitable for high buildings, and are a preventative against accident.

## DESCRIPTION.

Part of one inside bead is hinged, to allow the bottom sash to be taken out of frame.

Part of one parting bead is of brass or iron, attached to the pulley style with slot plates.

The cords are attached to lower part of sash styles, and act as centres to reverse the sashes.

Further particulars can be obtained by applying to the Inventor—

JAMES JONES, 317, Albert Road, Aston, Birmingham.





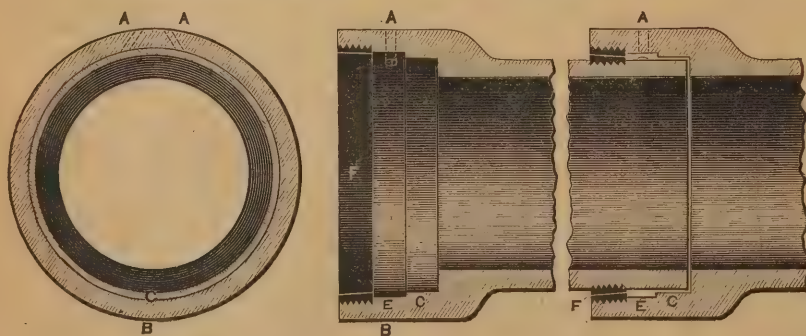
## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
" 27	Kerbing, Channelling, &c., Caversham	Urban District Council	Surveyor, Bridge-street, Caversham.
" 27	Street Improvement Works, Penarth	Urban District Council	E. J. Evans, Surveyor, Penarth.
" 27	Team Works, Southowram (Halifax)	Urban District Council	Rhodes and Evans, Commercial Bank-chambers, Halifax.
" 27	Repaving Footpaths, Stamford	Corporation	J. Richardson, Borough Surveyor, Stamford.
March 1	Materials for 1 Year, Hendon, N.W.	Urban District Council	S. S. Grimley, Surveyor, Public Office, The Burroughs, Hendon, N.W.
" 1	Flints and Carting, Steyning (Sussex)	Steyning, East, Rural District Council	E. Cripps, Clerk, Council Office, New Shoreham.
" 1	Flints and Carting, Steyning (Sussex)	Steyning, West, Rural District Council	E. Cripps, Clerk, Council Office, New Shoreham.
" 1	Paving, &c., Bishop Auckland	Urban District Council	Surveyor, Town Hall Buildings, Bishop Auckland.
" 1	Works and Materials, Sheffield	Highway and Sewerage Committee	C. F. Wike, Town Hall, Sheffield.
" 1	Paving Streets, Camberwell	Vestry	O. S. Brown, Vestry Hall, Camberwell, S.E.
" 1	Granite, Rag Stone, Tar Paving, Lime, Cement, &c., Camberwell	Vestry	O. S. Brown, Vestry Hall, Camberwell, S.E.
" 1	Services and Materials, Hendon	Urban District Council	S. S. Grimley, Public Offices, The Burroughs, Hendon, N.W.
" 2	Road Materials, Bath, 1 Year, to March 26, 1897	Urban Sanitary Authority	C. R. Fortune, Surveyor, Guildhall, Bath.
" 2	Materials, Wakefield, 1 Year, to March 31, 1898	Rural District Council	F. Massie, Tetley House, 47, Kirkgate, Wakefield.
" 2	Street Improvements Works, Bromley	Urban District Council	J. H. Norman, Council offices, Bromley.
" 3	Whinstone Metal, Year, to Sept. 1898, Glasgow	Corporation	A. Wilson, Surveyor, Alexandria, Glasgow.
" 3	Levelling, Kerbing, Paving, &c., Kingston-on-Thames	Rural District Council	H. A. Winsor, Clerk, Claterton House, Kingston.
" 3	Granite, &c., 1 Year, to March 31, 1898, Gainsborough (Yorks.)	Rural District Council	R. Maxwell, North Marsh-road, Gainsborough.
" 3	Team Labour, Hardingstone (Northampton)	Rural District Council	District Surveyor, Horton, Northampton.
" 3	Road Making, Hove (Sussex)	Middlesex County Council	Town Surveyor, Town Hall, Hove.
" 3	Cartage of Broken Granite, London	Middlesex County Council	F. H. Pownall, County Surveyor, Guildhall, Westminster, S.W.
" 3	Granite, London	Middlesex County Council	F. H. Pownall, County Surveyor, Guildhall, Westminster, S.W.
" 3	Sewering, Levelling, &c., Middleton (Lancs.)	Corporation	W. Welburn, Town Hall, Middleton.
" 3	Asphalte, Portland Cement, Lime, &c., London	St. Saviour's Board of Works (South-wark)	G. R. Norrish, Offices, Emerson-street, Blackfriars, S.E.
" 5	Making-up Pelham Road, Wanstead, N.E.	Urban District Council	W. Blewitt, Clerk, Offices of Council, Wanstead, N.E.
" 5	Material till March 31, 1898, Castleton	Urban District Council	R. J. Webster, Surveyor, Castleton.
" 5	Street Works, Crewe	Corporation	G. Eaton Shore, Earle-street, Crewe.
" 9	Maintenance and Repair, 1 Year, Maidstone	Kent County Council	F. W. Ruck, Surveyor, 86, Week-street, Maidstone.
" 9	Granite, East Retford	Corporation	J. D. Kennedy, Borough Surveyor, Retford.
" 9	Road Maintenance and Repair, Maidstone	Kent County Council	F. W. Ruck, 86, Week-street, Maidstone.
" 10	Materials (various) Fulham	Vestry	Town Hall.
" 18	Materials, 1 Year, to March, 31, 1898, Belper	Rural District Council	R. C. Cordon, Duffield, Derby.
Feb. 27	<b>SANITARY—</b> Sewerage Works, Midsomer Norton	Urban District Council	W. F. Bird, Market Hall, Midsomer Norton.
" 27	Sewerage, Midsomer Norton	Urban District Council	W. F. Bird, Market Hall, Midsomer Norton.
" 27	Removal of Night Soil, Beverley	Corporation	Borough Surveyor, Beverley.
" 27	Removal of Refuse, Swansea	Rural District Council	C. B. Haynes, 8, Fisher-street, Swansea.
Mar. 1	Sewering, Shipley	Urban Sanitary Authority	F. Puffitt, Church-street, Hunslet, Leeds.
" 2	Sewer Pipes, Bath	Rural District Council	C. R. Fortune, Guildhall, Bath.
" 2	Sewer, Halifax	Corporation	Council's Engineer, Clifton, Brighouse.
" 2	Removal of Refuse, Hove (Sussex)	Rural District Council	Town Clerk, Town Hall, Hove.
" 2	Removal of Refuse, Llandaff	Rural District Council	M. Warren, Queen's-chambers, Cardiff.
" 3	Stoneware Drainpipes, Traps, &c., Hove	Corporation	Town Surveyor, Town Hall, Hove.
" 3	Sewage Disposal Works, Uckfield (Sussex)	Urban District Council	G. M. Lawford, 13, Victoria-street, Westminster.
" 6	Sewerage Works, Crosby, near Maryport	Cockermouth Rural District Council	J. B. Wilson, Court-house-buildings, Cockermouth.
July 31	Sanitary Improvement Works, Oporto (Portugal)	Corporation	Municipal Town Hall, Oporto.
Mar. 2	<b>SEWERAGE—</b> Pipe Sewers, Manholes, &c., Leyton	Leyton Urban District Council	W. Dawson, Town Hall, Leyton.
Feb. 27	<b>STEEL AND IRON—</b> Sheet and other Iron (200 tons), Lisbon	Royal Portuguese Railway	Engineer, Company's Stores, Santo Apollonia Station, Lisbon.
" 27	Repairs to Iron Room, Markyate (Beds.)	Urban District Council	— Wilson, Gasworks, Markyate.
" 27	Cast Iron Pipes (1200 tons), Portland	Urban District Council	E. J. Elford, New-road, Portland.
" 1	Cast Iron Quoins, &c. (20 tons), Cairo	Chef du Service Administratif	Inspector of Irrigation, 1st Circle.
March 2	Steel Rails (1000 tons), Ottawa (Canada)	International Railway	High Commissioner for Canada's Office, London.
" 3	Railing (1000 lineal yards), Atherton (Lancs.)	Urban District Council	D. Schofield, Clerk to the Council, Atherton.
" 15	Rails (2665 tons), Bucharest	Direction of the Roumanian State Rail-ways	

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Mar. 1	Plans and Estimates for Laying out Cliffs, &c., Felixstowe	£50, £15	Commissioners.
" 20	Designs for Town Hall, Enniskillen (co. Fermanagh, Ireland)	£50, £20, £10	
" 31	Railway Stations, Christiania	Kroner 10,000, 4000, 2000, 1000	Railway Offices, Department of Public Works, Victoria-terrace, No. 8, Christiania.
" 31	Designs for Public Halls and Municipal Offices, Govan		Commissioners of the Burgh.
April 17	Plans and Designs for Assembly Hall, &c., Guernsey	£100, £50	States of Guernsey.
July 1	Designs for Water Supply, Elne (France)		La Mairie, Elne, Pyrénées Orientales.

## GREEN'S PATENT TRUINVERT PIPE.



AA—Holes for pouring in cement or composition.  
BB—the strengthened and Lengthened Socket.

CC—Inner Socket and Rest.  
EE—Chamber for cement or composition.  
FF—Stanford Joint in new position.

This pipe secures TRUE ALIGNMENT OF INVERT, INCREASED STRENGTH IN THE SOCKET, THREE GAS AND WATERTIGHT CONNECTIONS AT EVERY JOINT, and while allowing for a slight settlement when first laid, forms an ABSOLUTELY RIGID JOINT directly the cement sets.

## POINTS.

- 1.—GAS AND WATER-TIGHT JOINTS EASILY MADE UNDER WATER.
- 2.—TRUE ALIGNMENT OF INVERT.
- 3.—SOCKET THE STRONGEST PART OF THE PIPE.
- 4.—NO SPECIAL JUNCTIONS REQUIRED.

OATES & GREEN, Ltd., Halifax.



# Surveying and Sanitary SUPPLEMENT.

FEBRUARY 24TH, 1897.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.

BY ALEXANDER DREW.

(Continued from page iv.)

No. II. OF SERIES.

IN taking up the real work of the series, the first points to be considered are the dead and live loads. The dead load is made up of the weight of covering and that of the framework itself, with occasionally such additions as that due to a ceiling supported by the trusses. The live loads, again, are those due to snow and wind, or to such accidental loadings as from swings in a gymnasium, or from shafting or hoists in a workshop, &c.

Taking the first, the dead or steady load, a table is here given in which are noted the average weights per square (of 100 sq. ft.) for various styles of covering, and also the minimum slopes at which these ought to be set; this table is compiled, with some slight modifications, from several text-books. It will be noticed that to those coverings which can be best and readiest laid with close and practically watertight jointings, are given the least slopes; while for such materials as slates and tiles, which cannot be so accurately and carefully jointed, considerably steeper slopes are noted, so that the rain may the quicker run off. The steepest slope of all is that given to thatch, where the rain must be made to find its way off at once, or leakage would certainly

Covering.	Weight per Square.	Minimum Slope.
Copper (.022 in. thick)	1 Cwt.	4°
Lead (5 to 8 lbs)	4 1/2 to 7 1/2 "	"
Zinc (13 to 16 zinc gauge)	1 1/2 to 1 3/4 "	"
Corr'd Iron (22 to 16 B.W.G.)	1 1/2 to 3 1/2 "	10°
Slates	5 1/2 to 9 "	21 1/2°
Tiles, when wet.	9 to 15 "	26 1/2°
Boarding (per 1" thickness)	3 "	"
Timber Framing {for Slates or Tiles}	5 to 6 "	"
Thatch (average)	6 "	45°
Asphalte felt	1/2 "	4°
1/4" Glass & Framing	3 "	15°
Lath & plaster Ceiling	9 "	"

take place. Asphalte felt is noted at a very flat slope, because it is almost invariably painted or tarred over after being laid, thus insuring tight joints. Several tables give a minimum slope of about four degrees for corrugated iron, it is here noted as ten degrees, the reason for this change being that it is very difficult to form really close joints with this material, on account of the irregularities which are always met with in the several corrugations.

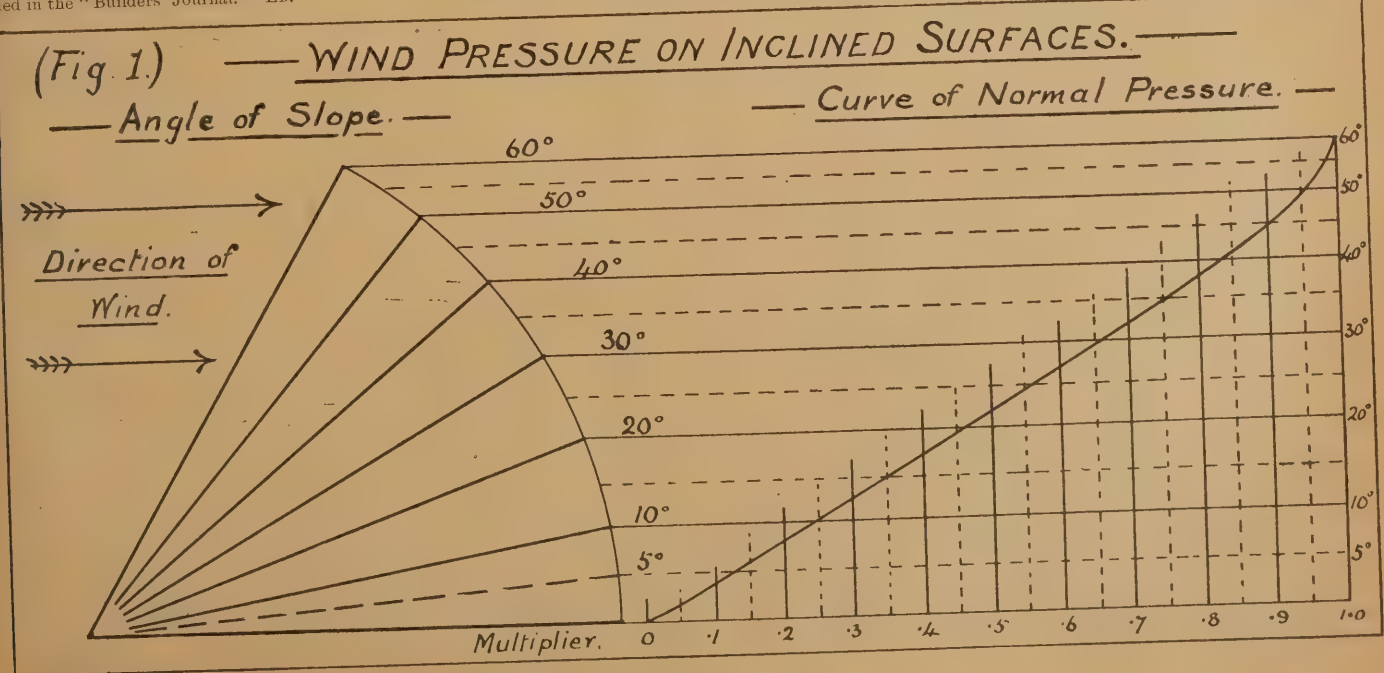
Keeping clear for the time being of all-iron coverings, which will fall to be considered later on, there should be no difficulty, with the help of the table just given, in determining

the total weight of the covering to be supported by the roof trussing, for with the distance apart of the trusses settled, and the pitch or length of the slopes decided on, the total area to be carried by one truss, and the consequent weight of the same, is a simple matter of calculation.

Coming now to the question of the live or moving loads, that due to snow is of comparatively little importance in this country, for when the roof is subjected to very heavy wind-pressure, the snow would almost invariably be blown off altogether. It is a very frequent practice to make no allowance whatever for snow loading; but should this be considered desirable, 2lb. to 3lb. (certainly not more than 5lb.) per sq. ft. is more than ample. Of course, should the formation of the roof be such that there is a possibility of snow collecting at any point to a dangerous extent (such as in the valley of a double-span building, or behind some parapet wall), allowance would then, of course, be necessary. Freshly-fallen snow weighs only about one-tenth that of an equal bulk of water; but if this lies for some time, and particularly if it be subjected to alternations of thaw and frost, it may become considerably solidified, and its weight in this way much increased. It is very unlikely, however, that anything above 12lb. per sq. ft. allowance need be made, even under conditions of this nature.

In the case of wind-pressure, authorities differ very considerably. It is said that a pressure of 90lb. per sq. ft. has been registered at Bidston, near Liverpool, but this is extremely exceptional, and is no doubt largely due to the configuration of the ground in the neighbourhood of the Observatory. At the Edinburgh Observatory the wind-pressure

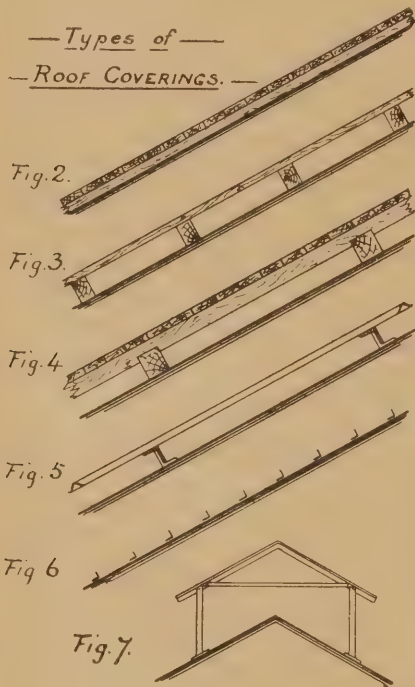
A lecture delivered before the members of the Edinburgh Architectural Association, and exclusively published in the "Builders' Journal."—Ed.





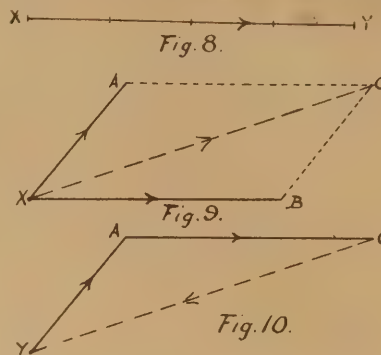
seldom exceeds about 25lb., while in Glasgow the maximum noted has been 47lb. per sq. ft. At the Forth Bridge again, during its construction, wind-gauges were erected on the Island of Inch Garvie, on which the centre pier of the bridge now rests. Of these the largest was 300 sq. ft. in area, and it carried two smaller gauges on its surface, each about 18in. diameter; one in the centre and the other at the right-hand top corner, when facing the gauge. Near to this large gauge a smaller one was set (both of these being fixed and facing in the same direction), while a third, similar to this last was also set near. It however was arranged to revolve, and always faced in the direction of the wind. Notes were kept for about seven years of the pressures recorded, and leaving out of account two cases in which it was proved that the registering arrangement had become deranged, the highest pressure on the revolving gauge showed only 35lb per sq. ft.; on the small fixed gauge on three occasions the pressure rose to 41lb., while in the case of the large fixed gauge, only on one occasion was 35lb. registered; on another 27lb.; while on all others the pressures were considerably lower. As an indication of how much this pressure may

—Types of—  
—ROOF COVERINGS.



vary at different points on a reasonably large surface, it was noted on one occasion that while 19lb. per sq. ft. was the average pressure for the whole surface (of 20ft. by 15ft. or 300 sq. ft.) the centre gauge indicated 28½lb., while the corner one registered 22lb. per sq. ft. As a further proof of this uneven distribution of wind-pressure, it might be noted that while the bridge was being constructed, two revolving gauges were set up on each of the supporting towers, and readings on these compared with one another; it was frequently found that a difference of 10lb. to 12lb. was indicated, sometimes the one gauge and sometimes the other showing the higher pressure. According to the Board of Trade regulations, 56lb. per sq. ft. is recommended for use in calculating the strength of bridges, &c.; but when it is considered that 35lb. to 40lb. per sq. ft. distributed over the side surface of any ordinary railway carriage in use in this country will overturn the same, such an allowance as 56lb. will be admitted as too high for ordinary requirements; in practical use 40lb. should be ample.

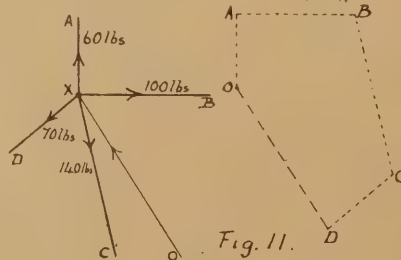
These various pressures are taken as acting on a vertical surface, or one set at right angles to the direction of the wind; but when the action takes place on an inclined surface, the result is, of course, different. What is made use of in calculating the strains on roof framework is the *normal pressure*; i.e., the equivalent pressure acting at right angles to the slope of the roof covering. Tables of this



pressure for varying slopes, and more or less complicated formulae, are to be found in various books, but the simple diagram here shown (Fig. 1) will be found much more convenient, and quite accurate enough for practical purposes. On the left is shown a series of slopes varying from five to sixty degrees, on the right is drawn the curve of normal pressure. In using this diagram it is only necessary to note the particular slope under consideration, find the point in the curve level with the upper end of this slope line, and dropping the eye vertically downwards, read off the multiplier there noted; the assumed wind-pressure multiplied by this number will give the actual normal wind-pressure required. Thus if the slope be 30 degrees the multiplier is practically 65, which for 40lb. wind-pressure, gives 26lb. per sq. ft. as the required normal pressure.

It is undoubtedly true that the configuration of the ground will alter the direction of the wind, and, to a certain extent, in this way modify the normal pressure on the roof; in some cases even increasing the actual pressure from that calculated by the table; but it is also true that if the roof be supported on a wall of reasonable height, this will generally reduce the normal wind-pressure by apparently deflecting the current upwards and over the slope. For all practical purposes, however, such refinements cannot be considered, and the totals given by this table will be found sufficiently accurate for all general purposes.

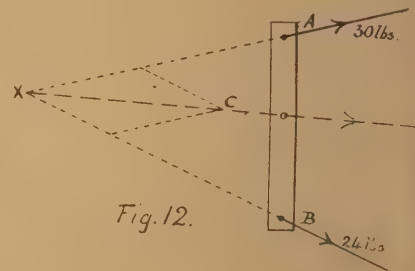
Being now in a position to determine the total dead and live loads to be supported by the roof-framing, the next point of importance is the question of how these loads are transferred to the trusses; Figs. 2 to 7 illustrate the usual variations in this. Fig. 2 shows an arrangement which is seldom adopted; the trusses are placed comparatively close together, say from 5ft. to 7ft., and the sarking, running longitudinally, is nailed directly to a



strip of wood fixed along the top of the rafter; in this way the load is distributed along the full length of the rafter. In Fig. 3 is shown a series of timber purlins set comparatively close together, and carrying vertical sarking; here the load is transferred to the rafter at a number of points. Fig. 4, again, indicates an arrangement of heavy timber purlins placed wide apart, supporting in their turn jack rafters and longitudinal sarking; the load points are in this case few and wide apart. Fig. 5 shows an arrangement almost identical with the last, but for an all-iron covering, while Fig. 6 is practically an intermediate position between that of Figs. 2 and 3, the small iron or steel purlins being placed about 9in. to 15in. apart, and the covering of slates or special tiles tied to these by means of copper wire. This latter arrangement is frequently used abroad where timber may be scarce or liable to decay, or to the attack of

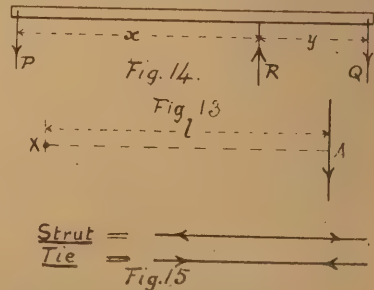
the white ant, or it may be used to form a fireproof roof. In Fig. 7 is indicated a ventilator: in such a case as this its weight would be calculated separately, the one half being taken as acting at each point of contact with the rafter, while the wind-pressure on the same would be allowed for, as will be shown later on. The variations in the stress due to these several modifications in arrangement of roof covering will be treated later on, so that no further reference need at present be made to these figures.

The next point for consideration is the methods by which the stress on the various members of a roof-truss may be determined, and for practical purposes only two are at all made use of—the *Graphic or Stress Diagram Method* and the *Method of Moments*. To understand these, it will be best to begin by a brief statement of the general principles of Graphic Statics. Statics is the particular branch of Kinematics which treats of the effects or actions of forces which tend to balance one another, or to keep the structure on which they act at rest. This, of course, is the condition in which we wish our framing to remain. Whatever loads or forces may act on our roof-framing, it must be designed to safely resist these. A force is generally defined as that which causes or tends



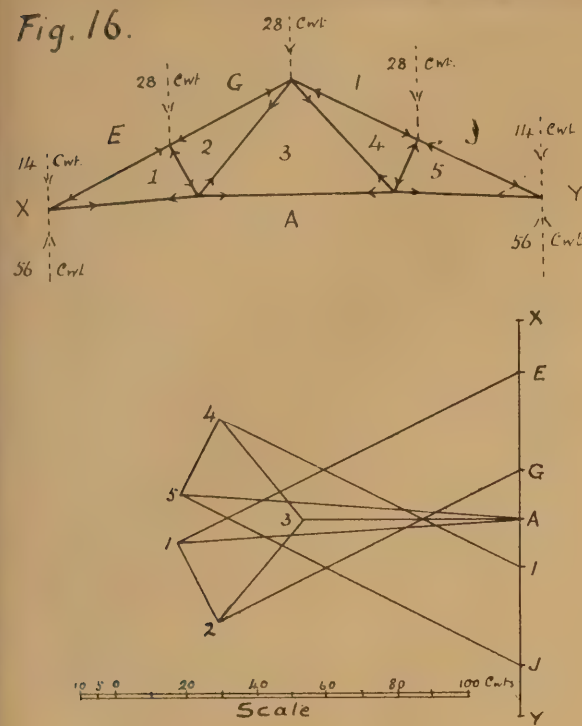
to cause motion in a body on which it acts; but while one or more forces may have this tendency, it will be readily seen that an additional force might be applied, or the existing forces might be re-arranged, so that their combined actions would balance or neutralise one another. In treating of forces graphically or by the drawing of lines, it is necessary to see first how a force can be represented. There are three points which must be known before a force can be said to be fully understood—its magnitude, its direction, and its point of application. Now, a straight line can be drawn from any given point, and in any given direction, and if its length be drawn to any scale proportionate to the magnitude of the force it is desired to represent, this line will almost fully represent that force, the one point yet in doubt being the direction in which the force acts; this latter point is generally indicated by placing an arrow-point somewhere on the line. Thus, Fig. 8 will clearly represent a force of, say, 4lbs. (being drawn of a length proportionate to 4), acting at a point X, and in the direction X Y.

If it is desired to add together two or more such forces, no difficulty need be experienced so long as these are acting in the same straight line, for it will be self-evident that should they be all acting in the one direction it is only necessary to add their values together; or if this be done graphically, to draw in succession



lines representing in length and direction each of these forces, beginning each succeeding line where the previous one ended. Should some of the forces be acting in opposite directions to the others, they still may be added together





algebraically, all acting in one direction being added, and all acting in the other direction being also added together, and the less subtracted from the greater; the result gives the value of the sum of the several forces, the direction of action being, of course, that of the larger sum. Should it be desired to show this graphically, it is done by drawing in succession all the forces acting in one direction, and from the finishing point of these drawing backwards in succession the various opposite forces. The line joining the finishing point with the starting point will then represent to scale the sum of the several forces.

When the forces under consideration do not act in the same straight line, the method is different, but equally simple. In Fig. 9 is shown two forces (X A and X B) acting at the one point X. To determine the value of a single force, which would have the same effect as these two forces acting together, it is only necessary to complete parallelogram X A C B, and draw the diagonal X C; this latter to the same scale as the forces X A and X B are drawn will give the value of the single force required. By reference to Fig. 10 it will be seen that this operation may be still further simplified, for it is only necessary to begin at any point Y drawn in succession Y A and A C parallel and proportionate to the two forces; then, by joining C and Y, the same result is arrived at as before. The first method is generally spoken of as the *Parallelogram of Force*, the second the *Triangle of Forces*.

There is a point here which should be carefully noted: in the case of these two forces it is possible to determine a single force which will have the same effect as the two separate forces acting together; but if this is so, it will be readily understood that another force, equal to this single force, but acting in the opposite direction, will not only balance this single force, but would equally balance or neutralise the two original separate forces. To the first in these single forces is generally given the name of *resultant*, and to the latter, the *equilibrant*, or *balancing force*: this latter is the one which is made most use of in statics. Referring to Fig. 9, the direction of action of the single force required to balance the two separate forces is that shown by the arrow-point, that is to say it is acting from C to X. Now in drawing the triangle, Fig. 10, if the several lines are drawn continuously till the starting-point is returned to (that is Y to A, A to C, and finally C to Y), the direction in which the last, or closing line is drawn will give the direction of action of the equilibrant or balancing

force: this point should be very carefully noted, as its value will be apparent later on. It is also worth noticing at this point, that these three forces under consideration are in equilibrium, or balanced, and they can be represented in direction and magnitude by the three sides of a close polygon: this is true in all cases of balanced forces acting in the same plane at one point. Fig. 11 represents four forces acting at one point, X, the irregular dotted figure to the right represents each of these four forces drawn in succession from a starting point O, O A being proportionate and parallel to the force X A; A B to force X B; B C to X C; and C D to X D. To complete or close in this polygon, the line D O is necessary, and this to the scale used in representing the other forces will give the equilibrant or balancing force. In this system of four forces the direction in which the last line is drawn, that is from D to O, gives the direction of actions of this equilibrant, which is shown by a light line, O X. The *Polygon of Forces*, as this method is generally called, may be used to determine the equilibrant for any number of forces acting at a given point.

Thus, in any system of forces acting in the same plane at one point, if the lines representing the several forces do not close, this system is not in equilibrium, and will require the addition of an extra force which is represented in direction and magnitude by the line required to close the polygon to produce equilibrium.

It is occasionally necessary to make use of another consideration in treating of forces, and that is, that for purposes of calculation we may consider a force as acting at any point along its line of action. Thus if a man be pulling a waggon by means of a long rope, the effect will be the same whether he pulls close up to the waggon or at a considerable distance therefrom; neglecting, of course, the weight of the rope. To illustrate this point, Fig. 12 is intended to represent a beam of wood lying on the ground, to which two ropes were attached, as at A and B. To each of these ropes a force of 30lb. and 24lb. respectively is applied; to determine the combined effect in this case, the dotted lines A X and B X are drawn, and the two forces of 30lb. and 24lb. are assumed as acting at the point of intersection X. The parallelogram of forces may be drawn here, exactly as represented in Fig. 9, and if the diagonal X C be drawn, its length to scale will give the resultant of the two separate forces, and the point where this line intersects the centre of the wooden beam will give the point at which a single rope would require to be fixed, so that when pulled with a force proportionate to the diagonal X C, the beam would act exactly as if under the influence of the two separate and simultaneous forces A and B.

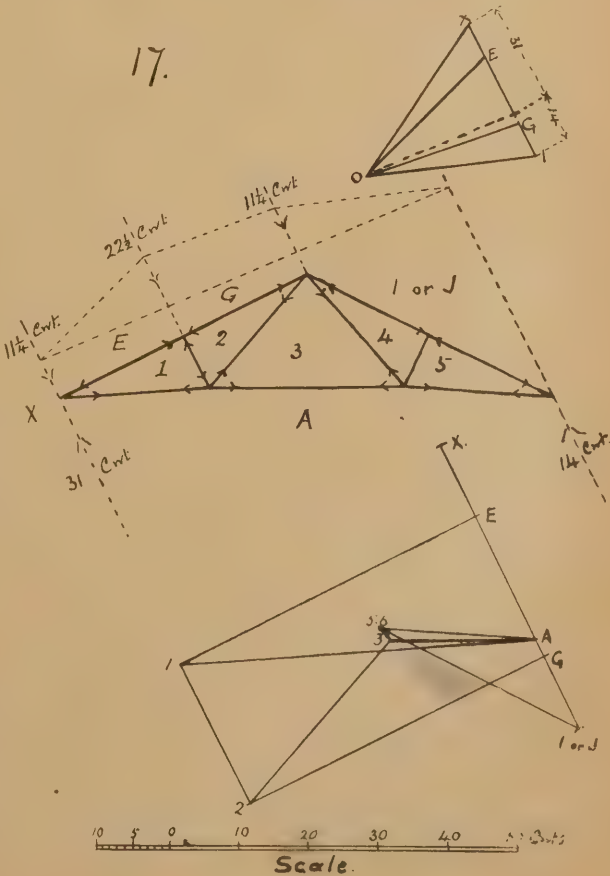
There is another effect or influence which a force may exercise on a body. It might tend to turn the body round a particular point or axis; this is called the *Moment of the Force*. Thus in Fig. 13 the force A, acting at a perpendicular distance l from the point X, would have a moment equal to  $A \times l$

This is best illustrated by thinking of a man turning a winch-handle; the pressure or effort he applies to the handle, multiplied by the length (or leverage) of that handle, will give the moment or turning tendency which he exercises on the spindle. If the pressure he exercises diminishes, the turning tendency or moment will also diminish; or, again, if the length of the handle (or leverage) diminishes, the moment will also diminish. Thus it will be seen that the value of the moment is directly proportionate both to the force and to the leverage. If the force diminishes to nothing, the moment is also reduced to nothing; and equally so if the leverage be reduced to nothing—that is to say, if the point round which the moment is considered be in the line of action of the force, the moment again becomes nothing or disappears. Moments are said to be *right-handed* and *left-handed*, as they tend to turn the body round in the one direction or the other; and two equal moments acting at the same point and in opposite directions will, of course, balance one another. For example, Fig. 14 represents a beam balanced at a point R, and carrying two forces, P and Q, at its two extremities; so that this beam may be balanced at the point R, it is necessary that the moment of the force P about that point be equal to the moment of the force Q about the same point, or

$$P \times x = Q \times y \quad \dots \quad (1)$$

This distance x and y must be measured at right angles to the line of action of the force. The pressure on the point R, or the reaction at that point, is of course equal to  $P + Q$ . Taking advantage of the fact previously noted, that the moment of a force about any point in its line of action is equal to zero, it is an easy matter to calculate any of the three forces noted in Fig. 14, if the value of one or both of the others is known. Thus, given Q and R to determine P, it is only necessary to take the turning-point in the line of action of R, thus getting rid of its moment, when the undernoted formula will give us P.

Equally, if Q is to be determined the same turning point is taken, and the second formula given below is used. Should P or Q be known, and the value of R wanted, the turning-point may be taken in the line of action of Q or of





P, making use of the formula as below noted.

$$P = \frac{Q \times y}{x} \dots \dots \dots (2)$$

$$Q = \frac{P \times x}{y} \dots \dots \dots (3)$$

$$R = \frac{P \times (x + y)}{y} \dots \dots \dots (4)$$

$$\text{or } R = \frac{Q \times (x + y)}{x} \dots \dots \dots (5)$$

The application of the principle of the parallelogram, or triangle of forces (previously described and illustrated in Figs. 9 and 10) to the determining of the stresses in the various members of a roof-truss, is comparatively simple; but before entering on this subject there is one point which should be noted. The various members of a roof-truss may be roughly divided into two classes, *Struts* and *Ties*, the one being called upon to resist compression, and the other tension. There is one axiom in statics which runs: *Action and reaction are equal and opposite.* This may be simply illustrated as follows: If a short block of wood be set upright on a table, and a weight placed on top of same, this block will require to push upwards against the weight with exactly the same force as the weight presses downwards on it, if equilibrium is to be maintained. In the same manner, the lower end of the wooden block must press downwards on the surface of the table with the same force which it exerts upwards against the weight, and, of course, the table itself offers an equal and opposite resistance to the lower end of the block. Thus the action of the block in pushing upwards at the one end is exactly equal to the reaction which it exerts in the opposite direction at the lower end. Again, if a weight be suspended by a cord from a hook inserted in the ceiling, this cord will pull the weight upwards with exactly the same force which the weight exerts in a downward direction, and the cord will at the same time tend to pull the hook downwards with the same force which it exerts upwards against the action of the weight. To readily represent these two different kinds of stress, it is best to place arrow-points on the lines representing these forces in the manner shown in Fig. 15, and it will be noticed that these arrow-points indicate the direction of action of the member itself: a strut tends to push outwards at its two extremities, while a tie acts in the opposite manner, and tends to pull inwards towards the centre. These signs are specially made use of in drawing graphic stress diagrams, as shall be presently seen.

To illustrate the manner in which Stress Diagrams are drawn, Figs. 16 and 17 are here produced. The first deals with the Dead Load Stresses alone, while the latter takes note only of the Live Load Stresses. Considering the first in detail (and leaving out of account for the time being the manner in which the values of the various loads are arrived at, noting, however, that for present purposes all the forces are taken as acting at one or other of the several joints), it will be noticed that at the various points where the several members intersect one another, and at some of which the forces noted also act, the various stresses must be such that they balance one another, or produce equilibrium—that is to say, if these forces were known, and were drawn in succession to scale, they would produce a closed polygon (as previously explained in dealing with Figs. 10 and 11). But a little consideration of the remarks previously made with reference to Figs. 8, 9, 10 and 11 will make it clear that it is only necessary that we know some of these forces to enable us in certain cases to determine the unknown ones. For example, if the point of intersection of rafter and tie at the shoe be considered, there is here two known forces acting in the same straight line, which may be at once combined, with the result that one known force is left, acting vertically upwards. To balance this, there is a certain stress produced in the rafter and in the tie, and we know the directions in which these two unknown forces act, which, of course, must be that of the direction of the two members themselves. By drawing a simple

triangle in which the three sides are respectively parallel to those two members, and to the known vertical force, this latter side being to a scale proportionate to the value of this force, we are enabled to measure off to the same scale the desired forces acting in rafter and tie. In this way it is only necessary to go over the truss, considering each joint in succession, and making use, where necessary, of the forces previously determined to work out the stress on all the members. This process is actually that gone through in producing the diagram shown in Fig. 16, except that instead of drawing each polygon separate, they are all combined into one complete diagram. In drawing such a figure the same principle is gone on, whatever the type of truss and loading may be, so that a careful and detailed examination of a simple type such as shown should almost be sufficient to illustrate the whole principle.

(To be continued.)

### AN ARCHITECT'S COPYRIGHT IN HIS DRAWINGS.

IMPORTANT CASE.

Neale v. Harmer and others.

The following is a case as reported in the "Times" of the 13th inst. :—

IN the High Court of Justice (Chancery Division), before Mr. Justice Kekewich, Mr. James Neale, Architect, applied by motion for an interim injunction to restrain the defendants, Harmer and Harley, and "Architecture (Limited)," the publishers and proprietors of a monthly magazine "Architecture," from printing and publishing any copies of that magazine containing any drawings taken from the plaintiff's work "The Abbey Church of St. Alban." In 1877 the plaintiff published, by private subscription, a large and elaborate work under the above title, containing about 200 architectural drawings of the details of St. Alban's Abbey in its original state before the recent restoration, together with descriptive letterpress. The work was duly registered as copyright. The editor of "Architecture," being desirous of publishing an article in his magazine upon St. Alban's Abbey, some correspondence took place between him and the plaintiff, the result of which was that the plaintiff gave the editor permission to copy the ground plan of the Abbey from his work, but, as the plaintiff contended, declined to allow him to use any of the drawings unless he (the plaintiff) himself wrote the article. The defendants, however, in the January number of their magazine for the present year, published a long article upon the Abbey, illustrated, not only with the ground plan, but also with three reduced drawings from the plaintiff's work. To these were added illustrations of the so-called "restorations." This article described the Abbey as "an example of what restoration at its worst can do," and as "unfortunate alike in those who built it, and in the amateur Architect who has been allowed to wreak his will upon its massive and clumsy frame." It then proceeded to severely criticise the "restoration." The article had been continued in the February number of the defendants' magazine, but, in consequence of the plaintiff's complaints, without any copies of the drawings in his work, though it was said that the defendants had intended to take several more of his drawings. Mr. Warrington, Q.C., and Mr. Pattison appeared for the plaintiff. Mr. Upjohn for the defendants did not deny that the three drawings in question had been taken from the plaintiff's work, but he contended that his clients had, in fact, obtained a licence to copy the drawings, and in doing so had not gone beyond what was honest, fair, and reasonable. A man writing upon a subject of artistic or scientific interest was bound to notice and deal with previous works upon that subject. This magazine was intended rather for a limited class of persons, Architects and Archaeologists, and in the article complained of the writer proposed to show the extent to which a beautiful building of great archaeological interest might be spoilt by the hands of the ruthless restorer, referring to a well-known gentleman

whom he would not name.—Mr. Justice Kekewich: You need not hesitate to mention Lord Grimthorpe, for his name is in the affidavits. Lord Grimthorpe is quite capable of taking care of himself.—Mr. Upjohn: I am glad I have not Lord Grimthorpe to deal with here. Upon the merits of the present case there was no evidence of the *animus furandi*. It had been decided by the authorities that taking extracts from a work for the purposes of criticism was not piracy. A man was entitled to make a fair and reasonable use of a published work, and the defendants in this case had not exceeded that right, for they had not done anything to destroy or diminish the value of the plaintiff's work or the profits of it. Therefore there had been no infringement. But even if the Court should hold their had been an infringement, it would be a hardship on the defendants to grant an injunction, for that would prevent them from enabling purchasers of later numbers to make up a complete volume by purchasing the January number. He would, however, undertake to keep an account of all sales until the trial.—Mr. Justice Kekewich said that the editor of "Architecture," being anxious to obtain drawings of the old as well as the new part of St. Alban's, wished to do so cheaply, and applied to the plaintiff, the author of this work, which was stated to be a standard work. With regard to the question of licence, he would assume for the moment that there had been no licence. It was said that these three drawings came directly from the plaintiff's book; and that was not denied. Apart from the question of licence, that was entirely wrong. The plaintiff's book was not referred to in the article at all, and his Lordship could not conceive, apart from the question of licence, what right the defendants had to take these drawings and incorporate them in an original work of their own. It was said that three drawings did not form a material part of the plaintiff's work. In one sense that was true. The plaintiff's work was a large one, and it was a very learned work. The test was not so much what proportion of the plaintiff's work had been taken, but rather what proportion of the defendant's work was the plaintiff's; and, turning to the January number of the defendants' work, his Lordship found there were three drawings of St. Alban's, and that all these were taken from the plaintiff's work. The only strictly Architectural examples of the old Abbey were these three drawings. The defendants were availing themselves of the plaintiff's industry and knowledge, and were not exercising any ingenuity of their own, except in copying the plaintiff's work. That, in his Lordship's opinion, was entirely wrong. Then it was said that, with regard to the question of licence, there was a conflict of evidence which he ought not to deal with now. The story of the case, taking the affidavits and correspondence together, appeared to him to be perfectly plain. The plaintiff was applied to, to allow these drawings of his to be used, and he said, "You may use the ground plan, but nothing more." The defendants applied to him again, and he objected to his drawings being used unless he wrote the article himself. He offered, for a certain price, to write the article and to illustrate it. The defendants said that he offered to allow them to take the illustrations at a certain price, but that he did not offer to write the article; but it was impossible to put that construction upon the correspondence. What he said was, "I will write the article, and I will illustrate it." Upon the whole, his Lordship held that the plaintiff was entitled to an injunction as asked, until the trial or further order; but the injunction would not extend to the ground plan.

### NOTICE.

THE articles on Workhouse Planning and the Planning of Small Houses will be continued in our next issue. In the first article on the Planning of Small Houses it was stated: "No. 1—A Terrace House at £70." This should of course have read: "Cube at 1d. = £70."



## IMPORTANT NOTICE.

From a number of enquiries from the Architectural Profession and from Advertising firms, it would appear that some uncertainty exists as to whether or not a publication called "Architecture," against which Mr. James Neale, an Architect, obtained an interim injunction in the High Court of Justice, Chancery Division, before Mr. Justice Kekewich, on the 12th ult., is the same publication as "The Architectural Review," or in any way connected therewith.

The proprietors of "The Builders' Journal" (weekly) and "The Architectural Review" (monthly) beg to state that their publication "The Architectural Review" is not the publication against which the interim injunction was granted, and that they are in no way connected with the offending publication.

The misapprehension no doubt has arisen from the fact that originally the proprietors of "The Builders' Journal" published a publication called "Architecture" for the proprietor, but they ceased to have any connection with it about twelve months ago.

### Another Unsatisfactory Competition.

THE adjudication in the competition for the Longton Technical Schools and Free Lib-

rary, the foundation stone of which was laid by the Prince of Wales in January last, has resulted in the first and second premiums being awarded respectively to the designs labelled "Knowledge" and "Compact," the authors in each case being Messrs. Wood and Hutchings, of Tunstall. These plans were selected by the Assessor, Mr. W. Gilbee Scott, principally on the ground of economy, he being of opinion that many of the schemes submitted could not be carried out for the stipulated amount, viz., £8000. Much dissatisfaction prevails as to the Assessor's decision, especially among those competitors whose designs cube out to less than the premiated ones, the estimate for which is priced out at 4½d. per foot for the main building and 4d. for the back portion. No mention is made of boundary walls or fences. The plan "Knowledge" has many faults which are calculated to remove any impression as to merit having been taken into account in the selection. One entrance, 9ft. wide, leads to the whole building; on the right of this is the borrower's space and lending library, with the reading-room entirely disconnected on the other side, thus preventing any supervision whatever over this room. The entrance abruptly diminishes to a tunnel, 6ft. wide and 47ft. long, conducting to the whole of the remaining departments. No lavatory accommodation has been provided for the library department, although required by the conditions. Possibly this may come under the convenient heading of "future extension." The chemical laboratory is placed in the basement, notwithstanding the fact that there is plenty of land available. The lighting arrangements are distinctly bad and ill-considered, the space for borrowers would have its darkness relieved only by what little light might struggle between the bookcases of the lending library from the windows on the further side, and thence through the space between the indicators on the counter, and through the glazed screen from a window on the adjacent staircase. The reference-room would be far from light, while the Art rooms are lighted principally from the south-east and south-west, no direct north light being obtained. It is nothing new to find a certain amount of "fudging" pass muster in competition perspectives; roofs are "pitched up," chimneys "nudged" into convenient positions, and the figures in the foreground dwarfed to a ridiculous size. The writer recently saw a competitive sketch for a public building

showing a letter-box with a bearded individual walking by, whose hat was distant three courses of Ashlar from the slit. These and many others are common dodges with the "artist," who will undertake to evolve an "eyeable" sketch from your senior pupils' crude elevations; but in this case a block of buildings, containing the lecture-hall, which could not possibly be seen from the station point, is brought into a conspicuous position on the same plane as the main block, presumably to add breadth to the composition. Flues are shown on the plan also, which have no corresponding stack on the elevations. It is decided that the premiated designs shall be submitted to the Technical Instructor to the County Council of Stafford, and to the Science and Art Department, before anything further is done.

118ft. high—a total of 230ft. These piers have sunk panelled work, with trefoil heads; the height to caps is 30ft. and round the caps is cut an inscription from the "Te Deum." The ceiling is formed by oak beams in panels, richly decorated. The nave has a clearstory of ten square headed windows on each side; the aisle windows are of four lights, varied in design on north and south; the west window is of seven lights, 20ft. 6in. across and 28ft. high, and the east window of seven lights 25ft. high and 21ft. across. Over the east window is a niche with figure of St. George—the dragon forming the corbel below figure. The nave and aisles, morning chapel and organ truss, vestry and porches, have open timber roofs of oak handsomely carved. The drop rafters of nave roof are received upon the caps of the shafts which run up from the face of the nave piers; the nave walls above the arcades are sunk



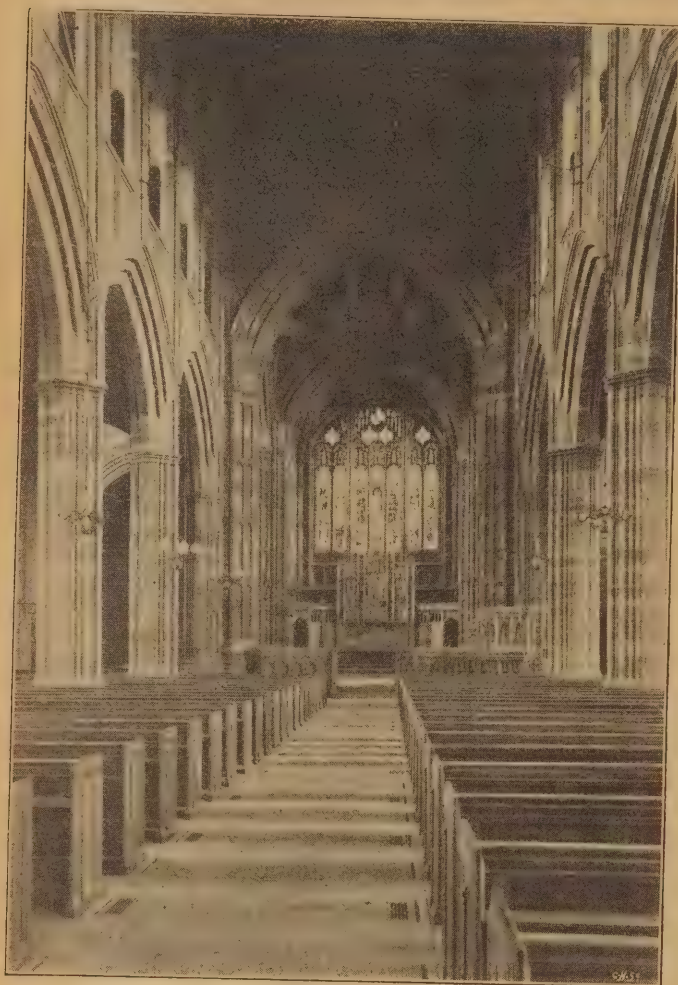
ST. GEORGE'S, HEAVILY, STOCKPORT. WEST END. FROM A PHOTOGRAPH BY J. W. BUCKLEY, STOCKPORT.

### A New Church dedicated to St. George, Heavily, Stockport.

The magnificent Church, dedicated to St. George, Heavily, Stockport, which has been designed and carried out under the superintendence of Messrs. Austin and Paley, Architects, of Lancaster, was opened on Thursday, Feb. 25th. The contracts were signed in Dec., 1891, so that the erection and completion has occupied a period of five years. The Church is situated in Wellington-road, and is designed in the transitional period of Decorated to Perpendicular Architecture. Of almost Cathedral-like effect, it consists on plan of a nave, 112ft. long by 29ft. wide, and 50ft. 6in. high to wall plate; north and south aisles, 19ft. 3in. wide, and 31ft. high to plate; chancel, 68ft. long by 28ft. 6in. wide, of equal height as nave; morning chapel, on north side, organ transept, on south, and vestries. The total length of the Church is 180ft., and the width across aisles and nave, 75ft. At the crossing of nave chancel and transepts are very massive piers, carrying a tower 112ft. high, which is surmounted by a spire

panelled, similar to the Old Coventry Church work. The chancel is groined in stone, with carved bosses of foliage and figures at the junctions of the ribs. The pulpit is of stone, and is built solid with and against the south-west crossing pier; it is semi-hexagonal, and springs from a panelled shaft and base with ribs, the sides being panelled and containing niches with pedestals and figures under canopies, with foliage band running under the moulded cornice. The wing wall is joined to a low screen wall of stone divided by shafts and bands into panels, with tracery heads, surmounted by moulded coping. The font, which is of alabaster, is placed at the west end, and stands upon a well-elevated octagonal platform of Runcorn stone of three steps. The bowl is entirely carved with leaf foliage springing from angle bosses; it is carried by a central shaft with an open arcade round it, and only needs a fine cover to make it perfect. The reredos is entirely of alabaster; the central portion, which stands 18ft. high, is divided into three widths by buttressed towers with canopy tops, the centre panel being the wider,





ST. GEORGE'S, HEAVILY, STOCKPORT. INTERIOR FROM WEST END.

and containing "the Crucifixion" with canopy work above. The two side-panels are subdivided, and contain figures of bishops standing upon pedestals under canopies, the whole surmounted by a battlemented cornice with tracery, paterae, and inscriptions. The shelf is carved with groups of foliage, with the inscription "Sanctus" between; above same are nine panels with delicately carved foliage heads; and the inscription above, running across reredos, "Per pretiosam mortem et crucem tuam, libera nos Domine." The side wings to reredos are canted inwards, and have open archways, giving access to the ambulatory which connects the morning chapel with vestries, and an open arcading with moulded and carved coping on the top of this, and at ends of centre portion are niches containing figures of two bishops. The choir-stalls are of oak, richly carved; the elbows to boys' seats have traceried panels with carved paterae round, and poppy heads containing figures of the Blessed Virgin and Child, St. Michael, &c., amongst the foliage. On the buttresses are seated figures of David with harp, Miriam with timbrel, Tubal Cain and pipes, &c.; on the prayer desk elbows the poppy heads are figures of bishops flanked by angels holding shields. The clergy stalls have "lion's couchant" on elbows, and the men's carved spandrels. The fronts to prayer desk and choir have linen panels with roses and shields in centre, divided by traceried and buttressed mutins, the whole surmounted by a cornice of angels praying, and angels holding shields and scrolls respectively. The stalls stand upon a deep stone sill with sunk tracery band. The organ case, of oak, stands in the south transept, the console being detached and placed on a raised sill immediately behind the choir. It is blown by an hydraulic engine placed in a special chamber below. It is 30ft. high, and has rectangular towers projecting from the front corners, with semicircular front corbelled out on to the ogee-shaped corbels of the towers.

entire Church and morning chapel wherever seated. The east window contains figures of our Lord in majesty in centre, with St. Michael and St. George and Cherubim and Seraphim in side lights. Above, in the tracery, are the mounted figure of St. George and the Dragon—symbol of the good fight—and figures of Fortitude, Justice, Faith, and Charity, and the spirits of the seven lamps before the Throne. The west window contains figures of Solomon, Job, Isaiah, St. John Baptist, Habbakuk, Enoch, and David in lower portion of lights; and in upper portion emblems of Spirits of Wisdom, Understanding, Counsel, Ghostly Strength, Knowledge, True Godliness, and Holy Fear; in the tracery, Pison, Gibon, Tigris, and Euphrates, and the figures of Peace, Long-suffering, Meekness, Temperance, and Chastity. The main altar rails are of oak, with large turned and square balusters at intervals, filled in between with balusters of copper bronze, giving a very rich effect. The top rail is carved with flowing patterns of tracery and carving, with the emblems of the Crucifixion cut in the panels over the large balusters. The one in the morning chapel is

The centre portion next chancel projects with splayed angles, which contain niches with figures of angels playing musical instruments. In the centre of this front is a large semi-circular projecting tower. The western portion is covered over facing the chancel. The pipe shades and heads of panels are richly carved with the rose, vine, pomegranate, &c. The whole is surmounted by a moulded cornice and deep cresting, with turned posts at the angles. The lower portion of the framing has three-quarter turned balusters attached at angles, and linen panels. The morning chapel reredos is of oak, divided by traceried mutins into three panels, the centre containing large carved cross with shield and I.H.S. standing upon a base, and the sides figures of John the Baptist and Isaiah standing upon pedestals. Round each panel in the simple hollow moulding roses are carved at intervals. The moulded outer frame is raised in centre with ogee-curved top forming pediment, a broad band of the vine ornament running round the cornice and pediment of reredos. A panelled and moulded dado, 6ft. high, runs round the

similar, but with wide traceried posts in place of large balusters, filled in between with balusters of oak. The altar tables are of oak, with linen panels and traceried posts—that in the morning chapel has been made by Messrs. O'Kell and Sons, of Stockport. The roofs, seats, and all fittings throughout are of oak. The nave and chancel roofs are covered with slates of a warm brown colour, and the remainder of the roofs with lead. All roofs have stone battlemented parapets. The Church is built of Runcorn flecked stone for external and internal facing and dressings. The porches, aisle passages and space at west end are laid with polished flags; the nave and aisle and chancel-seat blocks and the morning chapel and organ-transept are paved with oak wood blocks, and the chancel pavement and morning chapel inside the altar rails are laid in various coloured marbles in pattern, the steps to the Sanctuary being of red Devon marble. The heating is effected by pipes on the low-pressure system, running in concreted channels under the floors, with grids at intervals, and coils in the aisle window recesses and east and west window sills; there is also a row of pipes all round the clearstory at window-sill level, running through the passage in the walls. Cold air is supplied by outside grids, and, passing over the coils, is injected warmed into the Church. The tower contains a fine peal of ten bells, the weight of the tenor being nearly 30cwt., these have been cast by Messrs. Mears and Stainbank, of London. The cost of the Church has been over £50,000. It will accommodate 1200, but is only seated for 1040. The work has been carried out by the following contractors and firms, Mr. John Hindmarch having acted as clerk of the works: Masonry, Messrs. W. Thornton and Sons, of Liverpool; Carpentry and joinery, &c., J. Hatch and Sons, of Lancaster; Slater, Pickles Bros, of Leeds; Plumber and glazier, Braithwaite and Co., of Leeds; Heating, Mr. B. Harlow, of Stockport; Gas fittings, Messrs. Hardman, Powell, and Co., of Birmingham.

ST. GEORGE'S, HEAVILY, STOCKPORT. THE PULPIT.  
FROM PHOTOGRAPHS BY J. W. BUCKLEY, STOCKPORT.



# Perspective in Every-Day Practice.

By WM. N. CUMMING, A.R.I.B.A.

## INTERIORS.

IN my former article on "Exterior Perspective" I endeavoured to treat the subject as simply as possible, and to avoid all unnecessary and intricate rules, my object being to put such instruction in the hands of the student as would enable him to put a simple building in perspective, deeming this to be all that is necessary for a beginner, and appreciating the discouraging nature of the average work on the subject, which to the young student seems to embody such a profound amount of knowledge that he generally gives it up in disgust, preferring to devote his mental energy to some study of a more congenial nature. In the present article I shall endeavour to place interior perspective on the same basis, applying any rules or suggestions that I gave in my first article, so that the student may be able to continue the subject in an unbroken course. First, then, I shall divide the subject into two parts, viz., "Parallel Interior Perspective" and "Interior Perspective with two vanishing points." Parallel perspective is that in which one side or face of the object is parallel to the picture plane, and the other at right angles or perpendicular to it. To illustrate this we will assume that we have a board, sheet of glass, and loop of wire (as explained in Article No. I., Fig. 2), that the object is a square or oblong box, having one side or end removed; place this on the board so that the sheet of glass is between the eye of the spectator and the object, and so that the open side is presented to the spectator, and the bottom or end of the box is parallel to the picture plane as shown on plan (Fig. 1), where A is the object, B the sheet of glass or picture plane, and C the point of sight or station point. If we now draw on the glass, as shown in elevation Fig. 1, first the outer edge of the box (which will be reduced in proportion to its distance from the picture plane), and then the back or bottom of the box, we shall have a representation of the object as shown, the top and bottom lines being parallel. 1, 2, 3, 4 is the open end nearest the spectator, and 5, 6, 7, 8 the bottom of the box. Join 1-2, 2-6, 3-7, and 4-8, and you will have four sloping

lines which will meet in a point exactly opposite the point of sight, and which is called the "centre of vision," this will also be the vanishing point for all lines perpendicular to the picture plane, and practically the only vanishing point required in order to produce a parallel perspective representation of the interior of any object. In this figure the vanishing point or centre of vision is shown in the exact centre of the object, but any position may be chosen to the right or left of this point (as illustrated by Figs. 2, 3, 4), provided that the extreme ray from the outer corner of the object is not at a greater angle than 30deg. to the central visual ray or line of direction. Before proceeding to explain scale, position of picture plane, application of height lines, &c., I should like to point out one or two things that will strike an observer as being defective in such a rule for producing a pictorial view of a room or hall as we see it in reality. In the first place, then, we cannot deal with a room as we can with a box, in respect that we cannot station ourselves outside a room or hall so as to see the interior, but in order to produce a perspective representation of an interior by rule, we are forced to assume that the end wall of the room has been removed, and that we are able to look into the interior of the room as in the case of the box. Were we to place the station point on plan within the room, it would be found that in order to see the entire room the visual rays would assume such a wide angle that a great amount of distortion would take place. It may then be asked how is it that this is not the case in reality? The answer being that whereas by the rule of perspective we are compelled to assume that the centre of vision is a fixed point, in reality, when we view the interior of a room, we allow the eye to move from one point of the room to another in order to see the various details more clearly, and such is the perfect construction of the eye, that it can be adjusted with the greatest rapidity to every new phase of distance or focus, retaining at the same time for an instant the impression of that portion of the room last looked at, so that we can take in a general view of the whole room in an instant of time. It is also interesting to note that if one stands at the end of a room, looking towards the other, and closing one eye, that if a 60° set square be held with the 60° angle towards the open eye, it is impossible to see objects clearly to the extremities of the angle, and that the area of clear vision is within a much smaller angle than that of 60°. I am speaking, of course, of the average sight, there being, I have no doubt, some

cases in which persons are gifted with a wider angle of vision. I mention this to account for certain slight distortions that crop up when applying the rule of perspective to elaborate interiors, and these slight distortions can only be rectified by a knowledge of how things

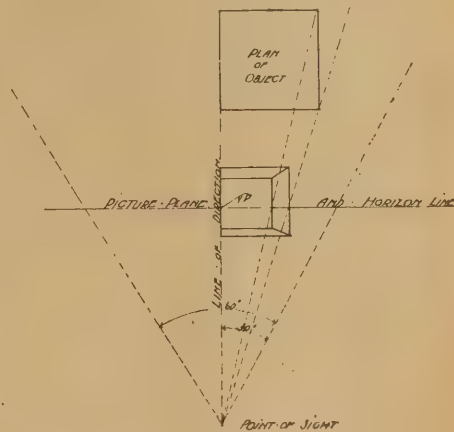


FIGURE 2.

should actually appear—this will come with practice. I shall now endeavour to place clearly before the student the application of the rules of parallel perspective to a simple building. Fig. 5 is the plan, section, and perspective view of a small room, having a door opening in one side. To put this in parallel perspective proceed as follows: Fix the point of sight or station point at any convenient position so as to get a desirable view of the interior of the room: in this case it is about 14ft. from the front end of the room, this end being assumed to be removed for the reasons before stated, and is indicated by the letters P S on plan. Through this point, draw a line parallel to either side of the room and at right angles to the end, this is the line of direction or central visual ray, and as we are dealing with parallel perspective will always be at right angles to the end of the room. Through P S draw a line at an angle of 30° to either side, as shown, and it will be seen that the picture is well within the angle of 60°. Next fix the position of the picture plane—this to some extent will be regulated by the scale to which it is desired the perspective view should be. In the case in point, I have assumed that the plan and section are drawn to the scale of 8ft. to the inch, and also that our picture is to be to the same scale. The picture plane will then be in position as shown, that is, parallel and coincident with the nearest end to the spectator; but suppose it be desirable to double the scale, it is only necessary to refer to the section where P S is the point of sight, H L the horizon line, and P P the original picture plane. If we now double the distance from P S to the original picture plane, that is, to the point P P 2, this then will be the position of the picture plane on which the scale of the picture will be double, or in other words to the scale of 4ft. to one inch. In order to arrive at any other scale we may desire, if we mark off any definite altitude, say 6ft. from the horizon line (as at X) and (through X) draw a visual ray indefinitely, it is only necessary to take a distance of 6ft. with the compasses from the desired scale, and applying the one leg to the horizon line, to move the dividers outwards from the point of sight till this visual ray coincides with the other point; of course keeping in mind that the points of the compasses must be held absolutely vertical one above the other on the paper. Thus the size of the picture may be increased or diminished as desired, and all heights may be put down to scale, insuring greater accuracy and at the same time saving a great amount of trouble. To proceed then, having fixed the position of the picture plane, the point at which the central visual ray cuts the picture plane will be the vanishing point for the sides of the room, and all objects parallel to these sides, draw visual rays through

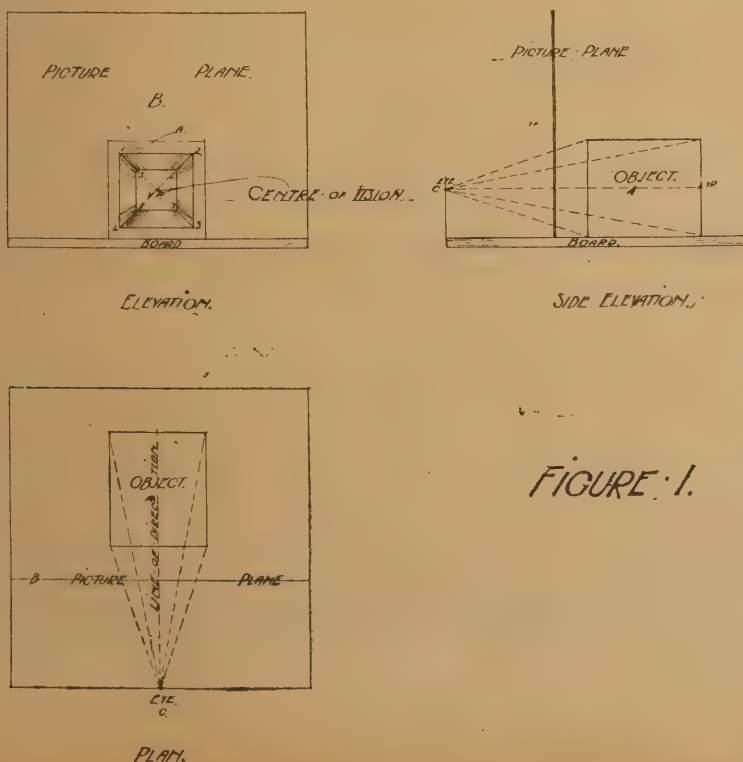


FIGURE 1.

\* This article appeared in the last volume.—Ed.



the various points on the plan as shown, cutting the picture plane, and, having fixed your horizon line as in exterior perspective, erect perpendiculars as shown on the figure, having fixed the picture plane in the figure so that our picture is to the scale of 4ft. to 1in. If we now draw a cross section of the room to the same scale, and the horizon line at, say, 5ft. from the ground line or floor of the room, it is only necessary to draw lines from the section to the vanishing point cutting the perpendiculars erected from the picture plane, and we get the perspective of the room. It is unnecessary to go into detail, as with the student's previous knowledge he will be able to follow the figure without difficulty. It follows, then, from this, that whatever position the picture plane is in, it is only necessary to draw a section of the room to the same scale as the position of the picture plane is fixed for, in order to get the heights for the various parts of the room. It must be kept in mind

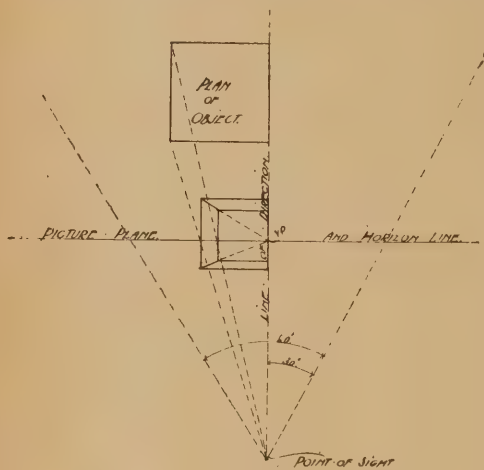


FIGURE 3.

that parallel perspective only applies to the room itself and its several Architectural features, and not to objects within the room which have not their sides parallel to the sides or ends of the room. To illustrate this, I have assumed in Fig. 6 that a box is placed on the floor of the room, and it will at once be seen that this object must be treated separately, as in exterior perspective, having its own vanishing points entirely distinct from the vanishing points of the room itself. Let A B C D be the room as before, P S the point of sight, P P the picture plane, and E the box placed on the floor. We will require two vanishing points for the box. Proceed in the same manner as in exterior perspective—that is, through P S draw lines parallel to the sides of the box, cutting the picture plane in the points V P 1—V P 2, and we have the two vanishing points for these two sides. Produce the line of one side of the box till it cuts the picture plane and you have the height line for this side; then proceed in the same manner as explained in Article No. 1, and you will have the box in perspective as shown. The student should now have gained sufficient knowledge of the subject to enable him to proceed with more elaborate subjects, and before proceeding to explain double-vanish interior, I purpose giving an example of the application of parallel perspective to an interior of a small hall, applying as many methods and suggestions as I have already given as will be necessary for the production of a parallel perspective of the subject. Fig. 7 shows a plan and section of a small hall originally drawn to the scale of 8ft. to 1in. Fig. 8 is a perspective view of the same hall to the scale of 4ft. to 1in. The point of sight, picture plane, line of direction, horizon line, and vanishing rays having been drawn according to the method which I have given above, and with which the student will now be familiar, it only remains for me to point out the method of working out the perspective view to the enlarged scale. This may be arrived at in either of the following ways, viz., setting up a distance of

10ft. on the original picture plane as at T (see section) and through T, drawing an indefinite visual ray from the point of sight and then taking a distance of 10ft. from the enlarged scale with the dividers and placing the one leg of the dividers on the horizon line to move them outwards from the point of sight till the other leg coincides with the visual ray drawn through the point Z (as at P Q), as explained above for Fig. 5, or, as in this case the scale is exactly double, to double the distance from the point of sight to F, which will give you the point G. This, then, will be the position of the picture plane for the scale of four feet to one inch. Now, working to the enlarged scale, first erect a perpendicular coincident with the line of direction, and on this line fix the centre of vision as at C V, and mark off a distance of five feet down from this point, as at H; through the point C V draw the horizon line H L, and through H draw the ground line. The width of the room is twenty feet, and the line of direction is six feet from the left side, and fourteen feet from the right; mark off these distances on the horizon line, and so on continue to draw the section to the enlarged scale, including the section of the arches on the right side and the door on the left. This being accomplished will give you all the heights necessary for the picture, and vanishing these down so as to cut the perpendiculars erected from the picture plane, will give you the perspective representation of the sides of the hall. It will be noted that the arches on the right are put in the perspective by the rule given in Article I, Fig. 12, otherwise the figure will explain itself if the student has carefully followed out my instructions. It only remains, then, for me to explain one or two points about the dome. Produce the lines of the square enclosing the base of the dome on the plan to the left, cutting the left side of the hall in the points D D, and draw visual rays through these points to the picture plane; erect perpendiculars, cutting the line of the ceiling of the hall in the perspective view, and from the extremities of the base of the dome on the enlarged section draw lines vanishing to the centre of vision through the points E E. Where the perpendiculars cut the ceiling line

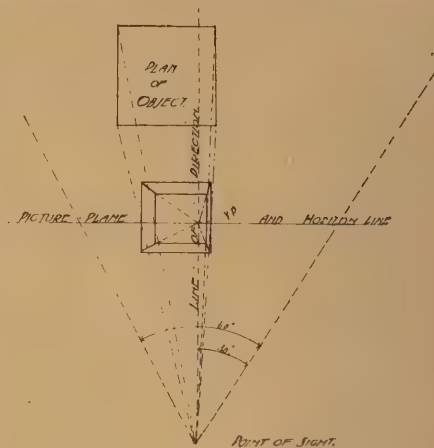


FIGURE 4.

draw parallel lines cutting these two in the points K K; this is the square enclosing the base of the dome in perspective. Draw the diagonals and centres as shown, and vanish the points where the circle of the dome cuts these diagonals, and you have the eight points of the circle. The inner circle on plan is a section of the dome at a higher level, and being put in perspective in a similar manner, serves to further illustrate how the dome may be completed in perspective. If the student will work out examples for himself from the information I have placed in his hands, altering the position of the point of sight, enlarging the scale, &c., he will have no difficulty in becoming proficient in parallel perspective. In Part II. of this article I shall illustrate the application of double vanish perspective to interiors.

(To be continued.)

The opposition to the Bill for destroying two of the Birmingham Churches grows apace, and there is yet hope that it may be defeated.

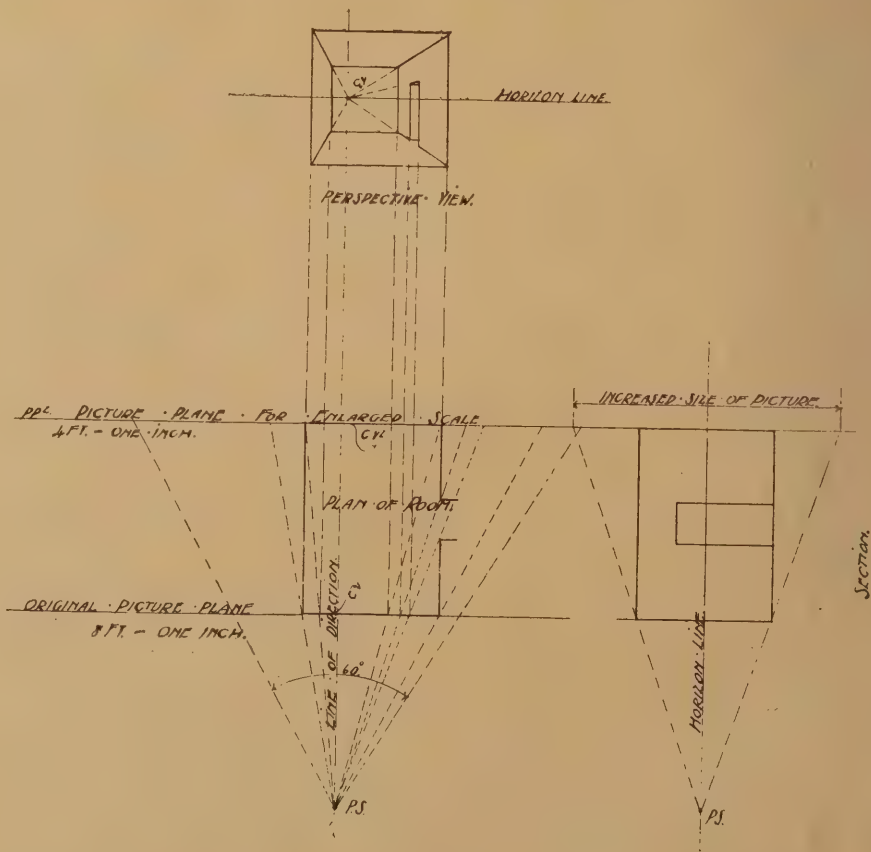


FIGURE 5.



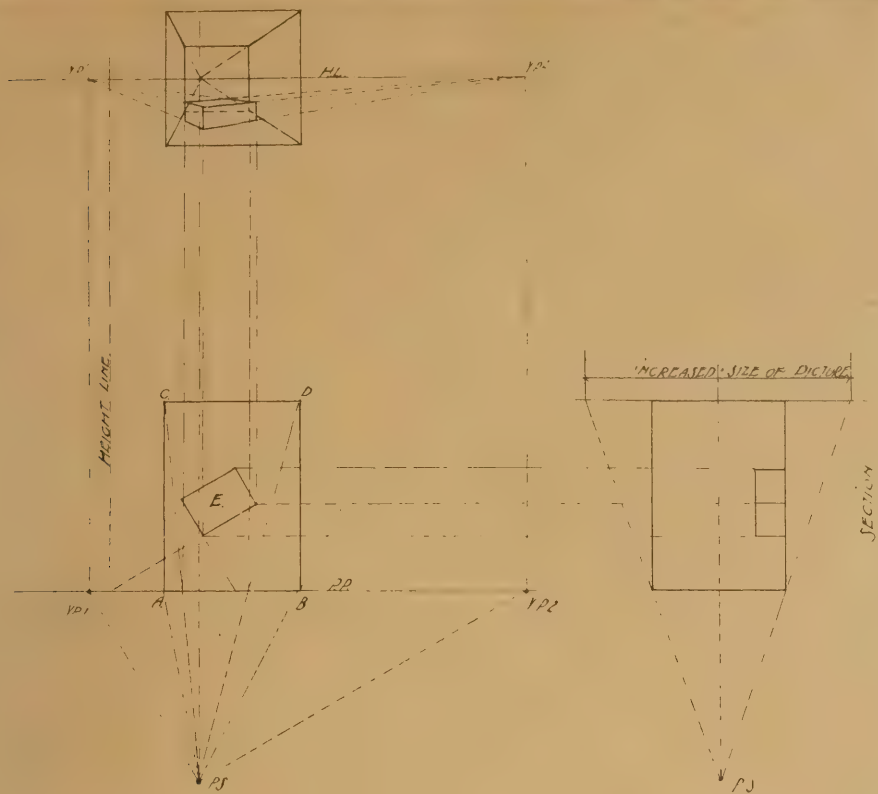


FIGURE 6.

# ECCLESIASTICAL ARCHITECTURE.

BY FRANK CAWS.

WHEN Julius Caesar landed on our shores, Stonehenge, the oldest example of Ecclesiastical Architecture which these islands can boast, was probably in use as a Druid temple. We know next to nothing of the Druids, as to whom or whence they were; and it remains a moot point still whether on their stone altars, such as that at Stonehenge, human victims were or were not offered. The Romans held England for 400 years (off and on), but I am not aware of a single Ecclesiastical ruin in the country which can be traced to Roman origin, though I think tradition ascribes to the ancient church of St. Albans a Roman foundation. The Danes seem to have found no time nor inclination to establish churches in the land; and, indeed, sea-robbers are not of a class who, as a rule, are zealous church builders. But under the Saxons the kingdom grew more settled, and with the first beginnings of Art and Literature we find Architecture taking root in our beloved land. Jacob, a lonely wanderer in the desert—a houseless outcast—reared up stones to God when as yet he had no home of his own. We cannot say the Saxons built churches before they built huts. But of their huts no remnant remains, while not a few Saxon churches, or parts of churches, still witness to the self-denying zeal of our forefathers. The modern Englishman, after visiting Westminster Abbey and St. Paul's, if conducted to the remains of Saxon churches, might feel his lip curling with ignorant contempt for their smallness and meanness. Ignorant I say, because, however small and mean those early efforts of our island race, they are precious as husks, if nothing more, of the germ of our noble and marvellous Cathedral Architecture. There is one essential and very remarkably characteristic difference between the Architecture which took root in these remote islands—remote from the ancient centres of the world's culture—and slowly developed and grew into astonishing vastness and magnificence, and the

much more ancient Architecture of Egypt, Greece, and Rome.

JOHN RUSKIN HAS ABLY POINTED OUT

that while the great Oriental races, and the Romans also, constructed their temples of huge blocks which could not be reared and placed in position without the aid of powerful mechanical appliances, the glorious piles of Cathedral and Church Architecture in the British Isles and Northern France and Germany were built of small stones which could be man-handled. The power of man to adapt himself to his circumstances is singularly marked in this great distinction between Classic and Gothic Architecture. The Saxon churches, which remain to us in a more or less mutilated condition, are like disjointed echoes of the prattle of an infant destined to become a giant. The Saxons employed arches of very small spans, and short, dumpy columns of most undignified proportions. But instead of despising this "day of small things" we will trace the growth of the Cathedral Architecture of the Middle Ages from this uncouth root. The influence of Norman Architecture was already making itself felt in England before William the Conqueror came. It would be a mistake to suppose that all the Norman buildings erected during the reigns of William I., William II., and Stephen—buildings distinguishable by their Norman Architectural character—were the handiwork of only masons imported from the Continent. We are ready at times to boast of the wonderful achievements of Queen Victoria's long and happy reign; and doubtless, in regard to works of civil engineering, they have been unexampled in the world's history. But this is

NOT TRUE OF MODERN WORKS

of Architecture. For nothing that has been done during the nineteenth century in the way of Architecture in the United Kingdom can compare for one moment, either as to

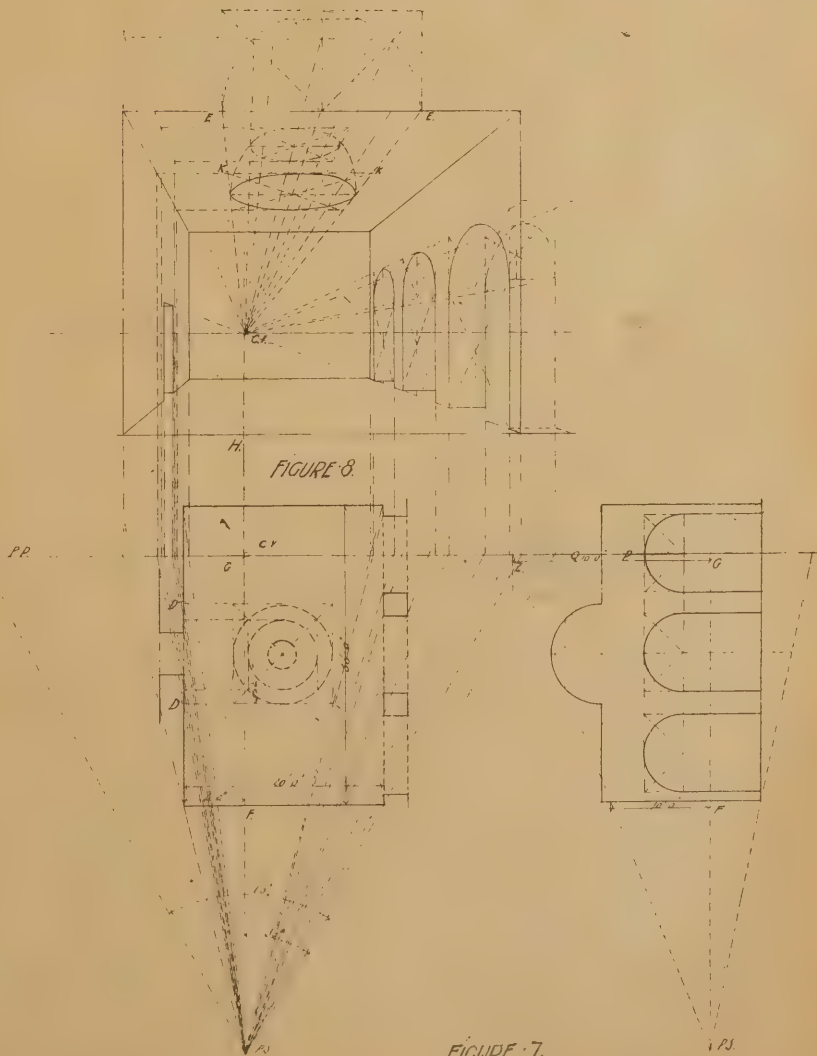


FIGURE 7.



quality or quantity, with the works of Norman Architecture begun, continued, and completed in the 88 years from the Conqueror to the death of Stephen. Churches innumerable, nearly all the castles now existing in this country, and several noble cathedrals! The record is astonishing. The activity of the builders in those days is the more remarkable when we recall the fact that the land was full of petty wars, and society like a repressed fire, ready to break forth into rebellion at any moment against the ruling powers. Take, for example, the County of Durham. The people of Durham treated an envoy of the Conqueror's very much as the people of Cabul treated the British envoy Cavagnari. They murdered him and massacred his escort, so that it is doubtful who lived to tell the tale to the mighty William, who was fighting at the time in Normandy. The rage of the Conqueror on hearing of this knew no bounds. He at once sent an army into Durham County, which harried and massacred the entire population from York to Newcastle, desolating the land and laying it waste. Though the County of Durham is now one of the most densely populated in England, the track of that conquering army is still a comparative waste, and will so remain probably for centuries. Is it not astonishing that, after such universal massacre, the Norman dynasty should witness the building of that most sublime of all our minsters, Durham Cathedral? Where did the men come from who built it? Where did the stones come from? Doubtless the men as well as the stones came mostly from the county, and were to the manner born. They were the remnants of the massacred people. Probably the number actually slain were largely exceeded by the numbers forced to fly from their desolated homesteads and seek refuge, like the poor Armenians to-day, wherever it could be temporarily found. These a few years later would be only too glad to earn a pittance at cathedral building, when they could no longer subsist on their ruined farms. Be this as it may, the startling fact remains that Durham Cathedral—or at least the main body of it, which constituted the first instalment of its huge mass—was erected in the

#### INCREDIBLY SHORT SPACE OF SIX YEARS!

We talk of our forefathers as slow old coaches, and reckon ourselves as mightily sharp in comparison. But our modern St. Paul's took fully five times six years to build, and when completed could not for one moment compare for majesty and sublimity with Durham Minster. The Normans continued the use of the semi-circular arch which the Saxons had commenced, both Normans and Saxons having copied it from those Romanesque buildings (the Architectural *small fry* of Europe) which succeeded the downfall of the Greek and Roman Pagan classic Architectural styles. But the Normans ornamented their arches much more elaborately than ever the Saxons had done, introducing the zigzag or *chevaux de frise* in richly fantastic fashion, as well as the billet-mould and other characteristic ornaments. They also interlaced their arches in decorating what would have otherwise been plain wall spaces, and this intersection of semi-circle with semicircle necessarily introduced, as if by accidental suggestion, the *pointed* arch. But this is only one of the many ways of accounting for the origin of the pointed arch.

Our little systems have their day;  
They have their day and cease to be.

And so the most favoured fashion in

#### ARCHITECTURE

gets supplanted continually by something still more "up to date." The interlaced arching of the Norman period was certainly very beautiful and interesting in all its many varieties of treatment in detail, and one cannot wonder that for a long while it was the rage. But at length people grew weary of it; and then came the pointed-arch period—i.e., the period of the pointed arch *pure and simple*, not intermixed with a procession of overlapping semicircular arches, but quite apart by itself in its own unadorned beauty of severity. It is easy to see that this *earliest* phase of the period of Gothic

Art (known as the Early-English period) is styled the "*Lancet* period," because the narrow, tall, pointed windows are shaped like lancets. The pointed arch when thus first employed in a distinct and separate form had its point very blunt, as the builders felt dubious at first about the stability and propriety of this new shape. But, as time went on, the confidence of the builders increased, and the pointed arches were made sharper and sharper till the end of the "*Decorated*" period arrived. At no period of Ecclesiastical Architecture in this country was the Gothic style so beautifully pure and so severely graceful as in the *Lancet* period, which we may call the *earliest* Early-English period. The Norman Architecture, from which this *Lancet* style emerged, had a sort of barbaric magnificence and splendour, of which the perhaps most notable of the numerous examples are to be found in the cathedrals of Peterborough and Durham. At first, after abandoning the previously constant use of the semicircular arch, the Architects used the pointed arch more and more, and the semi-arch less and less frequently; and very soon the semicircular arch was almost wholly abandoned, and the pointed arch held sway everywhere. But for some considerable time after the semi-arch was discarded the zigzag ornaments and Norman mouldings were employed to decorate pointed arches. Eventually the Architects developed instead a new kind of moulding and various new kinds of decoration (including the dog-tooth), and said good-bye to the zigzag and billet-mould for ever. The period during which the zigzag continued in use as a decoration of the pointed arch is called the *Transitional* period. At St. Cuthbert's Church, Darlington, there is some very

#### LOVELY TRANSITIONAL WORK

of this character. Whitby Abbey may be cited as an example of pure "*Lancet*" of the earliest type, and Tynemouth Priory as an example of "*Lancet*" of a slightly more advanced type. The pure innocence, so to speak, of this earliest Early English was destined soon to lose the bloom of its youth, and as the Architectural age advanced the pointed arch style of building underwent remarkable and very interesting development. Up to this time the windows had, both in the Saxon and Norman times, been placed singly, at more or less regular intervals of space apart, and this continued to be so throughout the early *Lancet* period. But then a new tendency began to develop—a tendency which was destined to revolutionise Architecture in England—viz., the disposition to group windows in twos and threes. This new tendency was less a freak of fancy than an outcome of necessity, and the necessity arose from a new invention or discovery in the great *Art of Roofing*—an art then quite in its infancy. Some genius of a carpenter had been struck with the idea that *every* pair of roof-rafters need not be *trussed*—i.e., tied and braced together to prevent thrust—for if *one* extra-strong and well-trussed pair of rafters (called *principals*) were placed at regular intervals, with strong beams (called "*purlins*") fixed upon their backs longitudinally so as to afford resting-places for the intermediate or "*common rafters*," roofs could be constructed of wider span and with less extravagant use of timber.

#### THIS NEW KIND OF ROOF CONSTRUCTION

had the effect of causing the roof pressures upon the walls to occur at regular intervals of, say 10ft. to 12ft., instead of, as heretofore, equally along the walls everywhere. So the builders found a wall of equal thickness, or nearly equal thickness, at all points of its length was in some places too weak, and in other places too strong, for that new kind of roofing. And they showed their skill and judgment by varying the thickness of the wall to suit the variation of its roof pressures at different parts. Thus where the principal rafters rested the walls were buttressed out and greatly thickened, while at the same time the intermediate walling between buttress and buttress was built much thinner than in the older examples, so that the amount of stone used in a buttressed wall was no greater than in the older style of wall which was thicker and un-

buttressed. In this way it came about that the outer walls became buttressed and "*embayed*" at regular intervals; and in consequence it soon grew to be necessary to group the windows in twos and threes in the thin plain spaces between the buttresses, instead of placing them singly at *equal* spaces apart as in the earliest examples. Having once begun to group their windows, the Early-English Architects rapidly developed this tendency by drawing the openings, as time went on, into closer and closer contiguity, until the wall-space left between openings seemed at length too slender to sustain the solid wall above the window. To correct the weak appearance of these slender pillars, the Architects adopted the plan of throwing one comprising arch above several narrow lancets. This arch had the effect of relieving the narrow mullions of undue load. But the Architects were quick to perceive that the bare space between the relieving arch and the window-tops looked bald and hungry for decoration of some kind. This feeling led to the invention of *window tracery*. At first, plain holes were made through the space (called the "*tympanum*"), and, these failing to satisfy the eyes of those Old English artists, soon tracery began its ever-changeable and always interesting career of developments. To attempt to follow ever so sketchily this development of window tracery, from the birth of it in the day of the Plantagenets to its death in the day of Henry Tudor, would be idle, in the limits of this paper. I must therefore abandon the idea, with which I started, of sketching the bare outline of the development of Ecclesiastical Architecture from the time of the Saxons, through the Norman, Early English, Decorated, and Perpendicular periods of Mediævalism, and through the subsequent stages of Tudor, Elizabethan, Queen Anne, and Georgian Architecture, down to our own day. The subject is a very interesting one, and seems of late years to be attracting more and more of what may be called popular attention, though necessarily those who pursue it must be people with minds of more than average taste and culture. Of the various lecturers who are giving courses on this subject, Dr. Crange, of Cambridge University, author of "*The Churches of Shropshire*," is in my judgment the most worthy of attention. His lectures are such as cannot fail to charm even audiences who have no previous knowledge of the subject, especially when illustrated, as they generally are, by photographic views of many Architectural marvels of beauty and glory, thrown by the limelight on the magic-lantern screen.

PREPARATIONS have been commenced at the Windsor Station of the Great Western Railway for the erection of the "*Queen's Room*" of the new terminus, which is to be finished before June, in readiness for the use of Her Majesty when proceeding to and returning from London during the Jubilee commemoration.

THE Goldsmiths' Company, one of the richest of the twelve great City Livery Companies, has announced its intention of setting aside £20,000, for the purpose of founding a charity for the relief of needy employés in the gold and silver trade in the Metropolis, which large class of workers cannot at present receive any benefit from the funds under the control of the Company.

A SUB-COMMITTEE of the Glasgow Corporation has recommended that the proposal to straighten the Clyde from Rutherglen Bridge to St. Andrew's Bridge should not be entertained at present. The objections are:—The great expense and risk, the recent filling-up of the Flishers' Haugh, and the difficulty in coming to arrangements with riparian proprietors.

A MONUMENT of Bath stone, with a large cross on the top, has been placed over Bishop Thorold's grave in the Water Close of Winchester Cathedral, just beneath the south window of the Lady Chapel. On one side are a mitre and the diocesan arms beside those of the Thorold family, and on the other side is a pastoral staff. The other memorial to Bishop Thorold at Winchester is to be a large stained-glass window in the Cathedral.



## PRINCIPLES OF THE LAW OF RATING AS AFFECTING ENGINEERING WORKS.

### LIVERPOOL ENGINEERING SOCIETY.

A MEETING of this Society was held at Liverpool on the 17th ult., the President, Mr. S. B. Cottrell, in the chair. A paper was read by Mr. Ernest W. Pierce, Assistant Town Clerk, Liverpool, entitled, "Principles of the Law of Rating as Affecting Engineering Works." After referring to the importance and the general want of precise knowledge on the part of the ratepaying public on questions of rating, Mr. Pierce said that the difficulties of the subject were not lessened by the manner in which it is expounded by rating experts and others who make it a special study, and who, speaking from an advanced knowledge of the subject, render that which was before perplexing more incomprehensible; and it was with a view to provoking a discussion, and thereby removing some of the doubt, that he was induced to address them on the subject. The statute, passed in the 43rd year of reign of Queen Elizabeth, which originated the present system of assessment for the relief of the poor, proceeded on the principle that every inhabitant of a parish should contribute to the relief of the poor according to his ability, personal and real property all being rateable alike. Following this, a system of assessment was established in each parish, but in the absence of defined principles there was a marked absence of uniformity in procedure throughout the country. Notwithstanding the statute declared both real and personal property liable to assessment, in practice it was only in a few parishes that personal property was assessed. The establishment of railways and other important undertakings, extending through parishes, rendered it imperative that an

### UNIFORM METHOD OF ASSESSING PROPERTY

should be established—this was done by an Act passed in 1836. This statute defined the method of assessing property at the present day. It did not define the "net annual value" as the rent at which the property is actually let, but "as the rent at which it might reasonably be expected to let"; and it frequently happened that the actual money paid to the landlord did not represent the real letting value of the property. There were many ways by which an owner could receive value for his property other than the payment of rent in coin; and on the other hand the rent paid might be in excess of the actual letting value, and include considerations which are not rateable. The adoption of the hypothetical principle contained in the section established a common standard of value, and afforded a fair and just method of estimating values capable of universal adoption. The various considerations which go to determine "value" were numerous and complex, but were based upon the economical principles upon which exchangeable value is founded. In all cases value should be assessed with due regard to the competition of the imaginary or hypothetical tenant, whose sole object in life was the acquisition of profit or value. The method of estimating the value of undertakings, such as railways, waterworks, and other concerns of a commercial or quasi-commercial character, was by examining the results of their working and taking the gross revenue derived from them as the basis, due regard being paid to other circumstances of the case. The first important provision to bear in mind in respect to the rating of engineering works was sect. 133 of the Lands' Clauses Act, 1847, which required the promoters of any undertaking taking lands charged with land-tax or poor-rate to make good the deficiencies in these from time to time until the works are completed and assessed to the land-tax and poor-rate. In addition it appeared that if a contractor erects large workshops and workmen's cottages in connection with the construction of the works, he was liable to be rated for those properties. In the assessment of railway works it was, in the first place, necessary to arrive at the assessment of the whole undertaking, the gross earnings thereof being calculated on an average of

three years' receipts and expenditure minus the cost of the labour, skill, risk and capital employed in connection with the occupation of the concern. Having arrived at the gross rateable value the statutable deductions were made, also the usual tenant's rates and taxes and the tithe-rent charged, if any, with the annual cost of the repairs, insurance, and other expenses necessary to maintain the works in a state to command rent. The net rateable value of the line, exclusive of such properties as stations, which are rated separately, having been arrived at, it next became necessary to apportion it amongst the several parishes in which the works were constructed. To do this, the expenses incurred in earning the gross receipts in each parish were ascertained, the same process being gone through for each as if the whole line were in one parish. In the case of

### A COMMERCIAL UNDERTAKING

on business for a profit, this method of assessment was probably as equitable as could be devised; but in such cases as a waterworks belonging to a municipal body, prohibited by statute from making a profit, it was doubtful whether it was the correct one to apply. With a body so constituted the gross earnings were the equivalent of the gross expenses; and it yet remained to be authoritatively decided how the rateable value of waterworks, constructed and occupied by a municipal corporation, prohibited from making a profit should be arrived at. In electric-lighting works the same principle of assessing works by reference to their gross earnings was to be found. In the practical application of those principles much difficulty and labour was involved, and much scope left for the exercise of ingenuity on the part of rating experts and of the managers and engineers of such works—especially in that branch which dealt with deductions. Deductions were of two classes—tenants and statutable; and the effect of deducting from the gross earnings, the former was to arrive at the gross rateable value, which, again, minus the statutable deductions, gave the net value. The usual tenants' deductions were enumerated and considered under the heads of working expenses, rates and taxes, law costs, royalties on patents, &c., goodwill, auxiliary ventures, renewals and repairs of tenant's stock, insurance, indirectly productive property, depreciation in stock, and capital. The statutable deductions included tenants' rates and taxes and the tithe rent charge, if any, and the probable cost of repairs, insurance, and other expenses necessary to maintain the hereditaments in a state to command the rent. In the Metropolis a scale of deductions for different classes of property was provided by the Valuation (Metropolis) Act, 1869, but in the country at large it was more indefinite, though the assessment committees of certain Unions had laid down rules similar to those in the Metropolis. Two other modes of arriving at rateable value were by calculations based (1) on the rent actually paid, and (2) on the contractor's theory of rent. The latter was founded on the assumption that because a person has spent a certain sum upon the creation of the property he would have been equally willing to have paid a reasonable percentage on the outlay, plus the average annual cost of repairs, insurance, and depreciation as rent to a contractor willing to erect the property and let it to him. Though applicable in many cases, this principle must be followed with much caution, as

### THE STRUCTURAL COST

was occasionally out of all proportion to the letting value, as, for instance, in the case of country mansions. After dealing with the rating of machinery and plant, Mr. Pierce went on to the subject of the rating of advertisements, which he considered of much practical interest, as it was not an uncommon practice for contractors to earn an honest penny by letting spaces on the hoardings erected around works in course of construction for advertising purposes, and contractors should accordingly be made aware of the provisions of the Advertising Stations (Rating) Act, 1889. It enacts that

ments, but not otherwise occupied, the person who shall permit the same to be used, or (if he cannot be ascertained) the owner thereof, shall be deemed to be in beneficial occupation of such land, and shall be rateable in respect thereof according to the value of such use as aforesaid, and where land occupied for other purposes is used for the exhibition of advertisements, the gross and rateable value of such land or hereditament shall be so estimated as to include the increased value from such use as aforesaid. It therefore behoved contractors to keep a sharp look-out upon their hoardings, as they would be liable to be rated should advertisement bills be posted thereon. After referring to some standard works on rating, Mr. Pierce said he was convinced that a competent knowledge of this branch of law was essential to the educational equipment not only of engineers, but of the public generally, as with the increasing burdens in the nature of taxation which civilization seemed to bring in its train, a knowledge of the system under which those burdens are apportioned amongst the tax-paying public must necessarily tend to a fair and impartial administration, whereby no man would escape his just and careful contribution, and at the same time no man be charged with a greater proportion of the public burden than by the law of the land he is liable to bear. A discussion followed, and a vote of thanks was accorded Mr. Pierce for his paper, to which he replied.

### LONDON'S DEFENCES.

THERE seems to be a widespread misconception as to the nature and extent of works proposed for strengthening the defence of London. Already the assumption that a chain of permanent and costly forts, forming a girdle round the capital, is contemplated, has occasioned a great outcry from those who think that land fortifications are unnecessary so long as we have a sufficiently strong navy. Ten years ago, Sir Edward Hamley explained in a few memorable words what were the needs of the capital for effectual defence. He proposed that we should "mark out round London lines of defence to meet all possible lines of attack upon it, not to be constructed except on the imminence of war, but to be thoroughly planned, and the means of erecting and occupying them kept always ready." Sir E. Hamley's scheme, with slight modifications, was accepted by all the ablest military authorities of that time. It took practical shape after a preliminary survey of the most suitable defensive positions by the purchase of thirteen sites as centres of defence at a cost of £30,000 ten years ago. Since then, under successive administrations an additional sum of £38,000 has been expended on the necessary works for making some of these centres suitable in case of invasion. Nothing like a fortification has been constructed, but simply defensible storehouses, in which trenching tools, camp equipments, and possibly munitions of war may be kept ready for issue in time of emergency to the Volunteers and Militia, on whom the task of defending those positions would mainly fall. Ultimately the positions would have to be strengthened by earthworks, but these need only be thrown up when and where the danger of attack seemed imminent. The essential thing is that each brigade shall know exactly where it would have to assemble if the emergency ever arose, and that it may be sure of finding there the stores and material necessary for placing the position in a state of defence. It is in furtherance of this scheme that the Government now ask for a vote of £96,000 in order that the thirteen central magazines, for which land has already been bought, may be completed. In addition to the mere buildings, it will be necessary to make proper approaches, and form military roads by which to connect the various centres as links in a continuous chain. Of the three centres already completed, two are on the south side of London, and one on the north. The vote now asked for is to complete ten other storehouses as points of concentration for different brigades, all on the south, between Erith and Tooting.



## THE WALLACE ART COLLECTION.

NO greater stroke of testamentary good-fortune has fallen to the nation than the bequest of the late Lady Wallace, of the collection of pictures and other objects of Art formed by the late Marquis of Hertford, inherited and considerably increased by the late Sir Richard Wallace, and now at Hertford House, Manchester-square. The collection is one of the largest and richest ever formed by private persons, and its value at current prices is estimated at several millions sterling. It will probably necessitate an enlargement both of the National Gallery and of the South Kensington Museum. It consists of paintings, sculpture, furniture, and "objects of Art," though perhaps not all of those may be included in this splendid benefaction. The Marquis of Hertford and Sir Richard Wallace were both great collectors, and both had access to the great treasures of Art on the Continent, and command of the best technical counsel when it was needed to supplement any occasional defects of their own all but perfect taste and knowledge. Hertford House is really a

## VAST MUSEUM OF ALL THE ARTS,

rich not only in pictures, but in gold and silver workmanship, Renaissance and rococo furniture, majolica, porcelain and bronzes. The furniture is the spoil of old Versailles and of the other Royal chateaux of France, as their contents were dispersed under the hammer in the course of successive revolutions. The boudoir of the late Lady Wallace is entirely hung with examples of Greuze, and some of its furniture came from the Petit Trianon where Marie Antoinette alternated the part of shepherdess and milkmaid with the part of Queen. Another room is devoted to Gainsborough and Reynolds. A great fresco by Luini is the principal decoration of a third. Rembrandt, Van Dyck, Velasquez, Murillo, Guido Reni, Canaletto, and other great masters of the past occupy one large gallery. The modern school occupies another, and this is said to surpass the Luxembourg in the importance of its French work of our time—a department in which our own National Gallery is at present deplorably weak. It includes twenty-five masterpieces by Meissonier, thirteen by Delaroche, over thirty by Decamps, and four or five by Ary Scheffer. The specimens of

## THE ENGLISH SCHOOL

will make a welcome addition to our stock of Boningtons, that fine English painter whose work did so much to create modern landscape in France, and who has hitherto been far more known and honoured in the land of his adoption than in the land of his birth. Add to all this that the collection of ancient armour is unrivalled in England, and that it includes a suit of the Duke of Alva, and the helmet of a Doge, and we have good reason to congratulate ourselves on the prospect of what is in store for us. The pictures were sometimes shown to visitors at Hertford House; they were frequently shown in select examples at the exhibitions of Old Masters, and a large contingent of them formed one of the principal features of the Art Treasures Exhibition at Manchester. The nucleus of the collection was originally formed at a house in Berkeley Square. The present house in Manchester Square was rebuilt by Sir Richard Wallace, to whom it was bequeathed more as a museum than as a residence. Old Manchester House, as it was first called, was built by the Duke of Manchester in 1776. The second Marquis of Hertford, into whose possession it afterwards passed, was one of the friends of the Prince Regent. The third Marquis was an indefatigable collector, and rather than stand idle, he, at one time, bought the automaton clock from old St. Dunstan's Church, and had it set up, giants and all, at his villa in the Regent's Park. The fourth Marquis left nearly everything to Sir Richard Wallace, who, in his turn, made Lady Wallace his universal legatee. Her death took place the other day; and the reading of her will confirms the early announcements.

## NORTH-WESTERN SANITARY INSPECTORS' ASSOCIATION.

A MEETING of the North-Western Sanitary Inspectors' Association was held at the Royal Institution, Colquitt Street, Liverpool, on the 13th ult., the President, Dr. Francis Vacher, presiding. The following towns among others were represented: Liverpool, Manchester, Wigan, Preston, Birkenhead, Ince, Wallasey, Waterloo, Norden, Priscot, and Whiston. The minutes and correspondence having been disposed of, the names, &c., of thirty-seven new candidates for membership were considered and approved. Draft rules for the newly-formed Association library of works on sanitary and allied subjects were compiled and referred to the next general meeting for adoption. The Council had also referred to this meeting a resolution to change the title of the Association to "The North-Western and Midland Sanitary Inspectors' Association" owing to recent large extensions in the area represented. The question of uniformity in the statistical portion of Inspectors' annual and other reports to the county authorities was also discussed, the meeting affirming the need of such uniformity, and a sub-committee was appointed to inquire into and report on the matter. After some other items of general business had been dealt with, a lecture was given by Dr. Wm. Berry, Officer of Health for Wigan, entitled

## "THE ISOLATION OF INFECTIOUS DISEASES."

Dr. Berry said that, as a small contribution to the knowledge of this important subject, but mainly with the object of evoking a discussion thereon, he was desirous of relating some efforts which had been made in Wigan to cope with infectious disease. When he was appointed to his present position, he found there was an all-round list of infectious cases to be dealt with, viz., smallpox, typhus, enteric, and scarlet fever. The two first-named being the most dangerous, and being of opinion that they were communicable by aerial connection, he decided to use their isolation hospital solely for these diseases, and to try home isolation for scarlet fever and the rest. The responsibility was serious enough; but his Committee helped by giving him a free hand, and his colleagues in the sanitary department were energetic and enthusiastic. From a twenty years' experience in private practice, he knew what was possible in home nursing, and he had found that it was only when instructions were given with a lukewarmness that people do not attempt to carry them out. It was only within the last twenty-five years that hospitals had been erected for preventing the spread of disease; formerly, the fever hospital in large towns was for the purpose of treating infectious patients, not for the prevention of further cases. It was in connection with smallpox, about 1868, that isolation was first advocated in a pamphlet on the subject by Sir James Thompson; now we had come to look upon isolation as a benefit to others rather than to the sufferer. But it was generally agreed that, for all communicable diseases,

## ISOLATION IS AN IMPORTANT PROVISION

in preventing their spread; and he thought it necessary for all towns and districts to have ready hospitals for isolating such a disease as smallpox, and not to introduce them only under the panic of an epidemic. With regard to such diseases as scarlet fever, they were treated differently by different authorities. He would for his purpose divide the current ideas as to isolation into three parts: Complete, efficient, and sufficient isolation. To carry out complete isolation would require a hospital on the top of a mountain, well provisioned for a time, and inaccessible except for the admission of the patients, who would need to be deposited in a lodge for the purpose, and removed by the attendants in the hospital. The nurses and doctor would require to be put in quarantine before commingling with the outside world. Efficient isolation was what is aimed at now, and answered very well. Irksome restrictions were not practised on the patients' friends, and the nurses and doctor were unimpeded in their

coming and going, the same as in an ordinary hospital. But what he termed *sufficient* isolation was the plan adopted in Wigan, with such diseases as scarlet fever. Their pavilions were set aside for smallpox and typhus, and other diseases left to home isolation. On receipt of a notification, the Inspector visited the house, and gave the necessary instructions as to isolation. Revisits were made each second or third day until disquamation had ceased, and then the usual fumigating and cleansing of the house, and stoving of the bedding and clothing followed. During twelve months they had 151 notifications of scarlet fever, and removed to the Sanatorium 43, leaving 108 to be treated at home. In sixteen houses there occurred more than one case, but in one half of these two children sickened about the same time or the day after, so that if the first case had been promptly removed on notification, there would have remained the second one to deal with. He would not deny, however, that isolation in a hospital for the purpose is an important sanitary arrangement for preventing the spread of infectious disease, but, at the same time, it was a costly method for the ratepayers, and it must be remembered, also, that parents and guardians had a duty to perform towards those in their charge, notwithstanding the tendency to relieve them of these burdens. There were always a sufficient number of patients who could not afford "proper lodging and accommodation" for isolation purposes, and these must be removed; but, with regard to those householders who could ensure a sufficient measure of isolation, the Sanitary Authority had no right to make them its debtor by forcing the patient into hospital. That in such circumstances the patient, unless a pauper, became a debtor to the authority was evident from section 132 of the 1875 Public Health Act. After quoting Dr. Wynter Blyth in support of his contention, and referring to the erection of hospitals by joint authorities, Dr. Berry concluded by inviting criticism of his views. A long discussion followed.

THE new set of bells for St. Peter's Church, Titchfield, which have cost £300, have been formally dedicated by the Bishop of Guildford. They are six in number, four of them being old ones recast.

At the Mart, Tokenhouse Yard, Messrs. Debenham, Tewson, Farmer, and Bridgewater recently offered the Princess's Theatre for sale by auction. The best offer made was £20,500, at which price the property was withdrawn.

A MEETING of the Consultative Council of the Building Trades' Exhibition was recently held at the offices, 43, Essex Street, Strand, W.C., Prof. Banister Fletcher presiding. There were present: Messrs. Lewis Angell, Chas. Barry, G. M. Callender, H. Phillips Fletcher (hon. sec.), A. J. Gale, F. T. W. Goldsmith, P. N. Hasluck, E. J. Kibblewhite, Ellis Marsland, H. Greville Montgomery (manager), W. G. Penty (York), H. Riches, Edwin O. Sachs, John P. Seddon, A. H. Ryan Tenison, E. W. Thornton, W. Seckham Witherington, Gilbert Wood. The minutes of the previous meeting were read and confirmed, and the following report was read as to the prizes promised in connection with the Handicraft Competitions: The Tylers and Bricklayers' Company, the Worshipful Company of Carpenters, The Building News, The Building World, The English Mechanic, H. Greville Montgomery. It was agreed to ask Architects and others for the loan of drawings and models of buildings, and it was decided to hold conferences during the Exhibition in the different sections of the Building Trades. It was suggested that various associations connected with the Trades be invited formally to the Exhibition during the time it is in progress. The designs for the poster on view at the offices, for which a premium of £10 was offered, created lively interest amongst those present, and an informal plebiscite of the best design was taken. It was agreed to hold the next meeting of the Council at the Royal Agricultural Hall just previous to the opening of the Exhibition.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





KIRKSTALL ABBEY. SKETCHED BY C. E. MALLOWS.





KIRKSTALL ABBEY. SKETCHED BY C. E. MALLOWS.



1722  
OF THE  
UNIVERSITY OF ALBANY



## NEW ARCADE FOR BIRMINGHAM.

MATERIAL progress has been made in relation to the scheme for the erection of a proposed new arcade at Birmingham, connecting Corporation Street with High Street and New Street. Birmingham is peculiarly situated in regard to its shop accommodation, which, in many respects, is inferior to cities of less importance. The centre of the town is cut off on the south side by the largest railway station in the world; on the east side by the steepness of the ground and the fact that there is no leading thoroughfare into New Street from that quarter of the city; on the west and north-west are situated the professional quarters and St. Philip's Churchyard, which completely sever that part from the rest: while on the north the manufactories hem in the retail shop quarters beyond the Law Courts. Consequently there is no prospect for any great addition to be made to shops within the central area. The land is too valuable, and there is not depth enough between the existing streets to cut fresh ones. Under these circumstances it has occurred to a syndicate that the only way out of the difficulty is to make an additional arcade or covered street between the busy thoroughfares of Corporation Street, High Street, and New Street. The leases of a large area of land in New Street, High Street, and Union Street and Union Passage are falling in, or have already fallen in; and the old property is worn out, and will have to be

## REPLACED BY MODERN BUILDINGS.

It is proposed to make an arcade the same width as the Great Western, starting at the corner of Corporation Street, at the junction of Union Street, Martineau Street, and Cherry Street, and running in an oblique direction across Union Passage, and from thence into High Street, where Britten's shop now stands, with an arm into New Street, coming out opposite the Grammar School. This latter part of the scheme it is not proposed to commence until 1900, when all the leases have expired. The number of new shops in the Corporation Street and High Street section will be about sixty-two, but there will only be an actual increase of about fifty; while the New Street section will contain twenty-two shops in addition to the frontage shops. It is not proposed to pull down the property at the corner of Corporation Street and Union Street, but to pierce the block of which the Temperance Institute and the Public Benefit Boot Establishment are the principal occupiers. Behind this the site of the Old Library (of which the lease has only sixteen years to run) would be absorbed and a slight corner would be taken from the premises of Messrs. Chamberlain, King, and Jones. Beyond this, and about 260ft. from Corporation Street, it is proposed to construct a central dome, from whence the arcade will divide, as before indicated, one branch leading into High Street and the other into New Street. It is anticipated that the passenger traffic from the Aston side of Birmingham and from the Great Western terminus will to a large extent make use of this new thoroughfare, as it will be the shortest way to the markets, the omnibus terminus in New Street, and to the south-east side of the city.

## THE PRINCIPAL LANDOWNERS

are the Corporation of Birmingham, Earl Howe, and King Edward's School, and negotiations are proceeding with them on a satisfactory basis. A number of leasehold interests will have to be acquired, and if the promoters are met in a fair and reasonable manner there appears to be a probability of the scheme being carried through. It is estimated that the income derived from the shops will add something like £10,000 per annum to the ratable value, and thereby provide means to carry on the much-needed widening in Bull Street, High Street, and Steelhouse Lane. The Louvre, in High Street, is at present being rebuilt, and it is contemplated to make still further additions to this undertaking, with an access to the new arcade, when this establishment will become one of the largest

retail shops in the city. The length of the Corporation Street and High Street section will be about six hundred, and that of the New Street section about two hundred feet, and the design, prepared by Messrs. Newton and Cheate, Architects, is in Moorish style, the walls being entirely faced with ornamental glazed tiles, with a gallery over, and a high glass roof. The substitution of tiled or Doulton-ware facings for paint will do away with the necessity of the large annual outlay for painting, and the building throughout will be lit with the electric light. Each shop will have an average depth of from 20ft. to 30ft., with a basement under and stock-room over, the upper floors in the New Street and High Street ends being laid out for offices, &c. Messrs. Walter Ludlow and Briscoe are surveyors to the promoters of the scheme.

## SHEFFIELD'S NEW TOWN HALL.

THE new Town Hall building which Her Majesty will formally inaugurate stands on a site which up to a few years ago was covered with old and unattractive shops, houses, and workrooms. Beauty of outline and richness of treatment, rather than magnificence of proportion and the dignity of vastness, are the qualities which strike you on first getting a glimpse of the building. Externally the most striking feature is the lofty tower, on the summit of which, 200ft. above ground, stands a bronze figure of Vulcan, 7ft. high. The clock with its four illuminated dials has been supplied by Messrs. Potts and Sons, of Leeds. The style of Architecture adopted in the building is the Renaissance, of a distinctly modern character. In the details of the structure, both external and internal, the Architect, Mr. E. W. Mountford, of Buckingham Street, Strand, has introduced symbolic devices which give a special interest to the building. There are four frontages, facing Pinstone Street, Surrey Street, Norfolk Street, and Cheney Row. The principal entrance, which is in Pinstone Street, is flanked on each side by double columns. In the spandrels of the arch are carved figures representing Electricity and Navigation. On each side of the central gable is a carved frieze, 36ft. in length and 3ft. 6in. deep; one portion represents Labour, and contains figures in bas-relief of ironfounders, saw-grinders, miners, and other artisans; and on the other are figures depicting the Arts—Architecture, Painting, and others more typical of Sheffield, such as Electroplating, Modelling, and Ivory-working. The whole of the sculpture has been executed by Mr. F. W. Pomeroy. The marble and stone work of the interior have a striking effect. The vestibule and the grand staircase, approached from the Pinstone Street entrance, are impressive in their cold marble of varied but harmonising hues. The staircase hall, 40ft. square, is, like the vestibule, paved with marble. The staircase itself is carried on arches supported by marble columns, and the walls are lined with a variety of Devonshire, Derbyshire, and Irish marbles. At the head of the staircase is the grand corridor, 150ft. long and 10ft. wide, having marble-lined walls, marble floor, and vaulted ceiling. This corridor gives access to the reception rooms and the banqueting hall. Each room is complete in itself, but the three are so arranged that on great occasions they can be made into one apartment, 155ft. long and 33ft. wide. The Council Chamber is also an admirably designed apartment, 60ft. by 40ft., and lighted on three of its four sides by large traceried windows. Three commodious committee rooms are likewise provided. The total amount expended has been about £167,000. Of this £49,000 must be reckoned as the value of the land; £100,000 as the cost of the building itself, and £18,000 for fittings and furniture. The contractor is Mr. Edmund Gabbutt, of Liverpool.

It is stated that at a meeting of the North-Eastern Railway directors at York, it was resolved to make improvements at the West Hartlepool docks, which will entail an expenditure of about £14,000.

## A GREAT MUNICIPAL ENTERPRISE.

UNLIKE the majority of the schemes which have been undertaken by the London County Council, the extensive improvements taking place in Shoreditch, though now in a fair way towards completion, have as yet engaged but very slight public attention or criticism. The fact applies no less to municipal than to private undertakings, that they who talk least act most. So that although little or nothing has been known, except locally, of any municipal movement in the East End, for the past five years there has been working out on a large scale a practical scheme for the housing of the working classes. By the end of next year it is hoped the entire undertaking will be complete, and an object lesson will then be available to all those, native or foreign, to whom the difficulties of dealing with insanitary areas may occur. The enterprise, in a word, consists in the substitution of good residential dwellings for pestiferous slums, at a maximum of advantage to those most nearly affected, namely, the prospective occupiers, and at a minimum of burden upon the rates. Until about five years ago there existed behind Shoreditch Church, between High Street, Shoreditch, and Church Street, Bethnal Green, an area of about fifteen acres occupied by rookeries and slums of the very worst character. The houses on the site numbered 730, and were occupied by nearly 6000 persons, mostly of the labouring classes. More than two-fifths of the inhabitants lived in one-room tenements, while a greater proportion held a share in two rooms. The average death-rate for this district, during the three years immediately prior to the clearance, was over 40 per annum per thousand. That of the neighbouring districts was 22·8, and that of the whole of London for the same period 18·2. Under the Housing of the Working Classes Acts, the medical officers of the Shoreditch and Bethnal Green Districts made representation of these facts, and as a result the whole area, officially entitled the "Boundary Street Area," was

## CONDEMNED AND CLEARED.

Thus far the Council was but following up the policy of the Metropolitan Board of Works. But while the latter body invariably sold in public market such sites as were cleared in this way, the County Council was so pressed to find accommodation for the occupants whom it had unhoused, that it was a matter of urgency to at once commence the erection of dwellings on the site. The Architect to the Council produced a scheme dealing with the entire area. This was approved and commenced in detail, and although much still remains to be done, it is estimated that by the end of 1898 the whole area of fifteen acres will be covered. When this is the case there will be accommodation for 4600 persons in all as compared with 5719, the number which under greatly congested conditions the original slums on the site harboured. The general plan that has been adopted includes the formation, approximately in the centre of the site, of a circular open space some 300ft. in diameter, with seven streets radiating to the thoroughfares on the borders of the area. A main road opens out of High Street, Shoreditch, by the side of Shoreditch Church, and runs directly to the central circus. This road is 60ft. in width, while the subsidiary streets are 50ft. wide. The centre of the new circus, named after the present Chairman of the Council, "Arnold Circus," is occupied by a terraced mound, formed of the soil removed in sinking the foundations of the new buildings. The mound has a promenade at half its height, and at the top there is a large space which will be in part occupied by a bandstand. The Parks Committee will undertake the planting of this mound, as well as the provision of trees in all the streets on the site. It is worth noticing that the throwing up of this mound, which will form one of the most picturesque features of the scheme, effected a saving to the ratepayers of some £1250 which must otherwise have been expended in the cartage of the soil elsewhere. The buildings are in various stages of completion, some



being already occupied, while others have but lately been commenced.

#### THE PLANNING

of the various tenements is good—light, air, and convenience apparently being the leading considerations. And in this connection it may be said that no little difficulty was added to the work by the Medical Officer, who required that every tenement should possess through ventilation. This at once precludes the use of the common back-to-back type of tenement. In some cases profit has been made of this difficulty, where the disposition of scullery and offices go to form an effective feature or elevation, without disregard to a single inch of floor area. In fact, both in design and construction, a true economy appears to have been held in constant view. The accommodation consists of suites of rooms of various descriptions, containing from two to five rooms, with offices, etc. There are also a few single-room tenements. The average rent is about 2s. 6d. per room, and the rents may not, by the resolution of the Council, "exceed those ruling in the neighbourhood." Not more than two persons are allowed to a room, and this regulation is rigidly enforced by the Superintendent and his seven subordinates, whose constant duty it is to supervise the cleanliness and orderliness of the whole establishment. Light and airy workshops are also provided on the area, and stand in constant demand. They are let chiefly to those engaged in cabinet-making, the most important craft in this district. A capacious and well-fitted steam laundry, with baths and club rooms, forms part of the buildings, and enables the inhabitants of the dwellings to carry out their washing at a cheap rate, with the minimum of discomfort and labour. Gas is laid on in every room by the Council, the gas being purchased in bulk from the company at a reduced rate, and dispensed by means of penny-in-the-slot meters to the tenants. The buildings are fireproof throughout, and in external appearance have nothing of that grim character of stint which has set its mark on most of the artizan dwellings hitherto. There is no monotony of effect. This is due in part to the variable treatment adopted for the different blocks, and in part to the system of radiating streets. It was originally proposed to deal with the site in chess-board fashion, setting out the roads at right angles, and filling the interspaces with rectangular blocks of buildings. The obvious disadvantage, however, of a rectangular plan is that except from those tenements which occur at the corner of any street the outlook is bounded by the block of buildings immediately opposite. Under the present system the occupants of nearly every tenement enjoy a picturesque prospect: and this at no sacrifice of convenience or economy. It may be well in conclusion to glance at the financial side of the venture.

#### THE TOTAL COST

of the clear site, including the purchase of the land and acquisition of the whole of the old property, amounted to about £250,000. This capital sum must be paid off within the next fifty-two years in accordance with the conditions laid down by the Local Government Board when the loan was made; meanwhile 3 per cent. interest must be paid on the amount. The erection of the new buildings and the formation of streets will, at completion, have cost about £270,000. This represents an investment which, according to the minute and careful calculations of the official valuer, will, after all deductions have been made, produce a nett interest of over 4 per cent. It is estimated that this 4 per cent will pay the 3 per cent referred to as due for fifty-two years on the capital sum expended in the acquisition of the site and old premises, and that, in addition, the 1 per cent odd which remains every year as surplus will, at compound interest, produce at the end of the fifty-two years an amount sufficient to pay off the capital sum without further tax upon the rate-payers. From that time the dwellings will not merely be self-supporting, but will tend to relieve the rates in perpetuity to the extent of 4 per cent upon the £270,000 spent in erecting the buildings. On the occasion of the recent visit of the Architectural Association, by the

courteous invitation of Mr. Blaskill, to the area, Mr. Owen Fleming, of the Housing Branch, Architects' Department, conducted the party over the buildings, and lent material aid to the visitors by his lucid and interesting description of the financial part of the undertaking.

#### PUBLIC WORKS IN IRELAND.

BY order of the House of Commons Class I. of the Civil Service estimates for 1897-8 has been printed and published. It contains the figures of the projected expenditure on new public works and improvements in Ireland for the coming financial year. The total estimate of the Irish Public Works Board for the financial year that is now drawing to a close was £214,172; the estimate for next year is £213,867. The estimate for new works and buildings is £87,966, a decrease of £1993 on the figures for the current year. £2500 is to be the estimated expenditure on the Shannon drainage works, as compared with £3000 for 1896-7. The biggest item under the heading of new works is the £40,000 for grants in aid of new National schools, the sum to which the vote for this purpose is now definitely limited, whatever may be the requirements of the service. Postal and Telegraph Buildings are to be voted the next largest amount; £9500 is asked for the Belfast Parcels Office, out of a total estimate of £12,500, £2000 of which was voted last year; £4000 for the Dublin Postal Stores at Aldborough House, out of a total estimate of £8750, the balance of which will be required later on; £1000 for a new Post Office at Newry, upon which £4000 in all is to be spent; and £950, for alterations in the Dublin G.P.O., which are estimated to cost £1400 when completed. Next in importance is the estimate for new Coastguard and Naval Reserve stations, and improvements in the old, under which heading £9937 is asked, as compared with £8702 last session; £2700 is set down for a new station at Roundstone, £4892 for a station at Burton Port, £2184 for a station at Glenarm, £2520 for one at Portmagee, £2630 for one at Portmuck, £2465 for one at Arthurs-town, £2586 for one at Lawrence Cove, and £3500 for one at Dunnycove. £1500, out of an estimated total of £5600, for improvements at the Viceregal Lodge; £2000, out of an estimated £3100, for improvements at the Central Police Court; £1200, out of £10,500, for the complete rebuilding of the boundary wall at Dundrum Lunatic Asylum; £2690, out of a total estimate of £3140, for improvements in Science and Art Museum, National Library, and Botanic Gardens; £1290 for changes in the Customs House, are the chief additional items of expenditure in Dublin.

A MOVEMENT is on foot to complete the Cowper Congregational Church at East Dereham, by the addition of a tower and spire.

£15,000 is still required to complete the various additions and improvements proposed and partly carried out at the Sussex County Hospital.

A LARGELY-ATTENDED meeting of the parishioners of St. John's, Ipswich, has been held to discuss the proposal for the building of a new Church.

THE new schoolrooms and parochial rooms which have been erected in Church Street, Yeovil, in connection with St. John's Church, were opened a few days ago. The total cost was about £2500.

A BURIAL cist has been discovered at Locharbriggs, a village in the neighbourhood of Dumfries, by some workmen who were stripping the till from a piece of land beside the freestone quarries. The sides were constructed of stone slabs, and a similar slab served for cover. In the cist was a cinerary urn.

ONE curious and inconvenient result of the recent spells of frost and snow in London, is the extraordinarily broken up condition of the asphalt in that part of Holborn under the jurisdiction of the St. Giles' Board of Works. It has been almost entirely destroyed, and is full of holes and depressions.

## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

March 3rd, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE work undertaken by the London County Council in carrying out the order of Mr. Lane, police magistrate, for the demolition of 7ft. of a new building at the opening of Prince George Road from Stoke Newington Road was practically completed last week. The building had been erected 7ft. beyond the building line, as defined by the superintending Architect of the London County Council, and after the foundations had been put in, the Council summoned the builder to the North London Police Court, but the magistrate upheld the builder. Notice of appeal was given, and the case was ultimately decided in favour of the Council. In the meantime, however, the building had been completed and fitted up in a costly style. The case was remitted from the High Court, and Mr. Lane ordered the demolition of so much of the building as stood out beyond the building line—roughly speaking, 150ft. by 7ft. The order was served on the builder, but though the Council allowed the matter to rest for twelve months, he made no move, and the Council undertook to do the work themselves. As the structure now stands, the 7ft. appear to have been cleanly cut off from end to end. Rafters and iron girders have been cut exactly to the building line. The depth of the structure is now only 13ft., and it is said to be entirely useless for any purpose. It has been shored up, but as one side of the whole length is open, a gale of wind will probably complete the work of demolition.

MR. ARNOLD MITCHELL, the assessor appointed by the Governors to adjudicate on the fifty-four schemes submitted in the competition for the new Grammar School, Dudley, has given his award as follows:—First premium, £50, to Messrs. Woodhouse and Willoughby, F.s. R.I.B.A., King Street, Manchester. Second premium, £20, to Messrs. Forsyth and Maule, Great Marlborough Street, London, W.

At the Sheffield School of Art, the exhibition of the students' works in the Mappin Art Gallery will remain open about a month. Special interest will again be given to the proceedings, in consequence of the school having gained a record position. It has this year two gold medals for Design. The student who heads the list this year is Agnes Kershaw, to whom the "Princess of Wales' prize of £25" is awarded, because she stands as first female student in the kingdom. Percy John Roberts takes the only gold medal awarded for a "modelled design," and the design, a fountain, would make a capital memorial. Messrs. Martin, Hall, and Company's prize produced a very good competition, and the prize work, a cup, by W. E. Wigfull, although only a slight drawing in charcoal, shows good feeling for artistic silver work. There is a very considerable number of designs for gold keys, and although they are not all of equal merit, are all up to the ordinary standard of manufactured productions, and some show great beauty and exceptional ability. Those by Omar Ramsden and J. H. Harmstone have been adjudged the best. Alice Wainwright's design for a



chatelaine, with champleve enamel, is pretty and practical. E. M. Lockwood's design for a China plaque, "Moonpennies in the Grass," is very original, and it is hoped to see this design carried out in the material next year. Frank Nowill shows studies of historic styles in iron-work and Architectural drawings. Eliza F. Chapman shows some needlework, together with the original design for same. The Alfred Chadburn prize winners this year are all students of the school, although the competition is open to anyone in Sheffield, irrespective of age. Only the prize drawings in this competition are exhibited, the space at disposal being so limited as to compel the non-appearance of a large number of the works of the students which are deserving of being exhibited.

A FEW additions have recently been made to the Continental Gallery in New Bond Street. Chief amongst them is the large painting by Professor Grosso, of Milan, called "The Last Rendezvous," which occasioned some controversy when shown at the first International Exhibition at Venice in 1895. It is a morbid picture, representing a "Don Juan" in his coffin in a palace chapel, and several women looking for the last time upon his face. The subject is anything but a pleasant one, while the conception of the theme and the rendering show a daring mastery of the brush and an independence as to the ethics of pictorial description. Amongst other contributions are some of Mr. A. Normann's views of Norwegian fjords, some of them extremely brilliant in colour and luminous in effect.

GREAT reticence is being observed at Guildhall with reference to the new offices of the Sewers Commission, and the matter from first to last is shrouded in mystery; but the "City Press" has reason to believe that a further hitch has occurred, and that the officers are afraid of making progress for fear of legal proceedings being taken on the ground of the infringement of light. There is certainly something in the air, or the work would be proceeded with in a far more businesslike manner than is actually the case.

In commemoration of the eightieth anniversary of the birth of Mr. G. F. Watts, an address of congratulation, signed by many of his friends and admirers, was presented to the distinguished artist last week at his residence, Little Holland House, by Mr. C. Hallé, Mr. Comyns Carr, and Mr. Leonard Lindsay, the directors and secretary of the New Gallery, where a collective exhibition of Mr. Watts' work is now being held. The address, handsomely illuminated on vellum, bore on the first page a sonnet to Mr. Watts, written by Mr. Swinburne. This was followed by a few lines of congratulation appropriate to the occasion, with the added wish that many years of life and work might yet be in store for the great painter and profound thinker to whom this tribute of esteem and affection was offered.

At last a register is to be prepared of the buildings of Historic and Architectural interest in London. Hitherto this work has only been undertaken in a piecemeal fashion by private organizations, but for the future the London County Council, acting in co-operation with the existing associations, will assume the responsibility and carry out the task on a systematic and comprehensive basis. We may thus hope, with some amount of confidence, that the ruthless destruction of buildings that serve to link the present with the past will be effectually prevented, and that whenever the despoiler shows his hand the Council will at once bring its influence to bear with a view to staying, before it is too late, the desecration of interesting memorials that have come down to us from former generations. Had such an organization been in existence within the last twenty years, we should still have around us many interesting relics of which, alas! we now possess only the memory. The City is so rich in such relics of the past that the Corporation might well interest itself, and compile such a register for its own use and the use of the community at large.

It is suggested by a contemporary that the time may come when Aberdeen may be overbuilt. "An excellent object-lesson on this subject could be got from Glasgow. Soon after the passing of the city improvement scheme in that city, there was such a rush to provide for displaced tenants that whole streets, and even whole suburbs of tenement houses, mostly of one, two, and three rooms, sprang up all round Glasgow in the late sixties and early seventies. The buildings were mostly of the speculative order, and for a time all went well, and the boom continued. A variety of circumstances, however, happened, which caused many a speculative builder to find himself in the bankruptcy court. First there was provided for a presumed displacement of 60,000 accommodation for at least 150,000, and instead of the displaced population going into the new houses, quite two-thirds of them huddled themselves into houses nearer their former abodes, preferably to suburban retreats. Then it was found that houses which had hitherto readily sold could not now be sold, with the result that building stopped, and a great many men were out of employment, and could not pay any rent. Other trades in the city became dull, and to add to the general depression the City of Glasgow Bank failed in 1878, with the result that the then normal population was reduced by 35,000 within a year. In Glasgow and suburbs quite 25 per cent. of all the house property was unlet during 1879, 1880, and 1881. Since then Glasgow has recovered, but thousands were ruined before the recovery set in."

THE ninth of the series of fortnightly lectures on Art subjects was delivered in the Liverpool Corporation Galleries on Saturday, the 20th ult., by Professor F. M. Simpson, of University College, whose subject was "The History of the Arch." The Professor began by saying that although the lintel form of construction is older than the arch form, the latter is more ancient than is generally supposed. It was known to and used by the Egyptians 3000 years before the birth of Christ. The most interesting discovery has been that of the gates of Khorsobad, in Assyria, which date from 721 B.C. Both the pointed and semi-circular-headed forms were used by the ancients, although the former shape was generally not constructed with radiating voussoirs, but with stones projecting one in front of the other, the joints being horizontal. The godfathers of the arch were really the Etruscans. From them the Romans learned it, and used it universally in their buildings. All the Roman arches were semi-circular, and were constructed on true arch principles. So were the arches used by the Byzantine and Romanesque builders. The pointed form reappears in the Saracenic work of the ninth and tenth centuries, and was adopted by the Mediaeval Architects to solve certain difficulties in construction—principally those of vaulting over oblong spaces. It was constructed properly with radiating voussoirs, but the old idea that the Gothic men invented the pointed arch is a mistake. At the end of the fourteenth century the arch became again semi-circular, and this continued until the Gothic revival at the end of the last century once more brought the pointed form into fashion.

A WISE step is being taken by the directors of the National Gallery in arranging that a special room shall be provided for the sale of approved copies of the masters. Both in England and in the Continental cities every day students are to be seen in the galleries endeavouring, by the rules of Art, to reproduce the effects of the almost magical touches of genius. How much they miss is very evident when the copy is near the original; but a work that is creditable under such circumstances passes the best test. Even an accomplished critic finds it difficult to carry away in his mind all the qualities of a famous painting, so as to be able adequately to tell the degree of fidelity. The action of the directors is the more desirable because, unfortunately, the persons who nowadays are most able to buy pictures are not the best

judges. The commercial instinct is, unhappily often developed at the cost of finer culture and when the opportunity comes for purchasing discernment is lacking. The new movement will afford poor artists a better chance than they have had of getting merit recognised. The "middleman," of course, will suffer; but he belongs to a class that is bound to be injured by the tendency of the times.

If St. Paul's is to be the point of all others on which the historic interest of the present year is to centre, there surely cannot be a better time for cleaning its west front, which has never undergone that process since it was completed during the reign of Anne. Everybody who remembers the appearance of the screen at Hyde Park corner a few years ago, and contrasts its appearance then with what it is now, can realise what the improvement would be if the splendid west front underwent a like process of cleansing.

SOME interesting additions to the National Gallery have just been announced. The most important is "The Yeoman of the Guard," by Sir John Millais, which has been bequeathed to the nation by the late Mr. Hodgkinson; and among the others are "A View of the Carrara Mountains," by Professor Costa, presented by a body of subscribers; "Christ and the Woman of Samaria," by the late George Richmond, R.A., a gift from the family of the artist; and E. M. Barry's competition design for the National Gallery buildings. If the proposed rearrangement of the national collections takes place when the Tate Gallery is opened, these pictures will probably be transferred to Millbank.

A CORRESPONDENT writes: In reference to recent remarks in The Daily News on the incomplete state of the South Kensington Museum, it may be added that this is only one instance of the "how not to do it" attitude adopted by the Department under a whole series of Governments. When Sir Gilbert Scott's great block of Government offices was built in Whitehall—the block in which the Home, the Foreign, and the India Offices are situated—it was proposed to carry on the Architectural composition across the west end of Downing Street, and to put up a similar block on the other side. The evidences of this intention are still to be found in the bald brickwork and the unfinished arches that appear beside the steps leading down on to the Horse Guards Parade. In a similar manner, when the Law Courts were at last completed, after many years of delay, there still remained an unkempt piece of derelict land on their western side that was for long the harbourage of old stones, decayed scaffoldings, and rusty ironwork. So well known did this spot become that it was familiarly called "Strand Common"; and it was not until some public-minded person, who desired to remain anonymous, gave a sum of money for laying out this space that it at length assumed its present gracious aspect. Other instances might be given: of how Sir Charles Barry's design for the completion of the Palace of Westminster yet remains unfinished, and how it was not until recent years that, when Mr. Pearson restored Westminster Hall, the unfinished pinnacles and spirelets of the north-east angle of the building were completed. But enough has been said to show that the powers that be have a genius for leaving things unfinished.

PREPARATIONS are being commenced for the new Royal yacht. The design will be entrusted to Sir William White, the Assistant-controller of the Navy, and some points in the existing *Victoria and Albert* are to be reproduced, probably the swan bow and square stern. The internal arrangements will be very materially altered, and the accommodation correspondingly increased. The new engines will be of increased speed, and with the very latest conveniences. It may be that the cost of the new yacht will partially, if not entirely, be covered by this year's estimates. The sum will be very considerable.



THE fire which occurred at the Cox-Thermo Electric Company's laboratory, St. Albans, resulted in the entire destruction of the buildings and their contents. The most serious loss is a personal one to Professor Cox, whose machines, valued at thousands of pounds, and the whole of the records of his experimental work, are destroyed. For ten years Professor Cox had devoted his whole energy to the elucidation of the means of using electricity for cooking purposes, and he had so far succeeded that everything was ready for placing the generators on the market.

An old relic of the past is about to disappear in Helmington Hall, situate between Hunwick and Willington. For many years the Hall has not been inhabited owing to colliery subsidences, and latterly two of the wings have been overhanging. To prevent an accident, the wings have been pulled over. The building is about three centuries old. Over the fireplace in the Hall kitchen there used to be a piece of old and curious carving, which was executed in bold relief. Amongst the permanent representations were four figures denoting the four quarters of the globe, and several animals indigenous to various countries.

A RECENT application to Mr. Justice Kekewich calls for passing notice on account of the importance of the question raised by it. The Architect of a building now in course of erection at the West End having reason to believe that the contractors were not using proper materials for the concrete floors, attempted to satisfy himself by personal inspection. This, he alleged, he was not permitted to do, as "the ladders were removed and a gang of men brought up to oppose any proceedings he might take under the contract." He therefore sought an injunction to restrain the defendants from interfering with him in the discharge of his duties, and also from using improper materials. The first part of the plaintiff's application was granted at once; though his Lordship did not see his way to grant an injunction restraining the contractors from using improper material, presumably for want of evidence that such an injunction was necessary. It is to be hoped that the conduct of the defendants in this case has been exaggerated, or that the refusal to allow permission to the Architect to make the required inspection was the act of irresponsible persons in the employ of the firm. There can be no question as to the right of the Architect to see that a contract is properly carried out, and that the reputation of a building firm is seriously compromised where any obstacles are placed in the way of his doing so. A City contemporary thinks the building trade is, rightly or wrongly, suspected of being sometimes less scrupulous than they should be in their adherence to the terms of their contracts, and that to refuse professional supervision is by no means the way to inspire the public with confidence.

A VERY pleasant little exhibition is that of "English Landscape," containing pictures and studies in oils by two ladies of kindred style, Miss E. Stewart Wood and Miss Annette Elias, arranged in two distinct, yet consecutive groups in the Graves Galleries, Pall Mall. Both of these skilful landscape painters may be described as belonging to the school of Mr. David Murray, but Miss Elias has more completely succeeded in emancipating herself from the influence of that popular painter than has her companion. Miss Wood gives in "A Flood in the Orchard" and "Runnymede Marshes" almost a *pastiche* of her master. Miss Elias chooses, as a rule, less striking subjects than Miss Wood, but she has a deeper feeling for nature and a greater felicity in the suggestion of atmosphere. It is a pity that her share of the exhibition could not have been made to include her best picture, "Burning Weeds," which was seen last summer at the New Gallery.

THE additions which have been in course of construction at the Central Savings Bank have now been completed, and compensation

to the extent of £2200 has been paid to the Dean and Chapter of St. Paul's for the exclusion of light from portions of the chorister's school. The whole of the staff is now under one roof, instead of the various offices scattered up and down Queen Victoria Street, which the Post Office authorities have been obliged to secure from time to time owing to expansion of work.

A CONTEMPORARY says the election of new members to the Old Water-Colour Society ended in a *fiasco*. Under the laws as they at present stand, no candidate can succeed unless he obtains a majority of the voting power. Now, as the members consist of but thirty-five, and several of these are every winter incapacitated owing either to age or illness, it is very difficult to get a quorum, and this was the case a few days ago. The candidates numbered nearly eighty, and their works, which covered the walls of the gallery, will have to be reassembled at a more propitious time. One good result may ensue from this inconvenience—namely, that the senseless law which at present prevents associates from having any part in elections may be abrogated. At the Royal Academy associates vote, and why not therefore at the Water-Colour Society?

THE Committee charged with the duty of selecting the sculptor of the proposed statue of the Queen in Dundee has decided to place the commission in the hands of Mr. Harry Bates. The cost, including the pedestal, was stated to be £2500. The design will show her Majesty seated. Cast in bronze, with *bas reliefs* of the same material, the statue will rest on a granite pedestal. The foundations will, of course, be supplied to the artist free of cost. The subjects of the *bas reliefs* will be the coronation of Her Majesty, her marriage, and her landing in Dundee in 1844. The fourth has not yet been determined upon.

MR. JOHN TWEED, of Chelsea, a young Artist of the Glasgow School, has been commissioned to execute the statue of Mr. Cecil Rhodes, which is to be placed in Buluwayo. Mr. Tweed has just completed a colossal statue of Van Riebeck, the first Dutch governor of the Cape, which is now being cast at the foundry at Thames Ditton. He also executed the pediment on Mr. Rhodes's house at Rondebosch representing the first landing of the Dutch at Capetown, and he has in hand for the ex-Premier of the Cape a magnificent memorial depicting, in life-size, some of the more stirring scenes in the last stand made by Major Allan Wilson and his ill-fated party.

APROPPOS the South Kensington Museum, Mr. Aston Webb writes to the Times as follows:—"May I be allowed to say that I am of opinion that a large amount of inside decoration would be quite out of place in such a building? The report which accompanied my design explained that the walls of the courts and galleries had been purposely left without Architectural embellishment, being arranged solely with the view of placing objects upon them, decoration being confined to the entrance-hall and staircase; a view of this latter portion only has been published, and may, therefore, have been misleading as to the general character of the interior design. After my formal appointment as Architect in 1891, the internal planning of the building was very carefully considered in conference, both with the Office of Works and the Museum authorities, and I was further considering the exterior design when the drawings were stopped, and I have since been anxiously waiting instructions to proceed. That the best Architecture for a museum is that which interferes least with the objects shown, and that good lighting and planning should be the leading considerations for such a building is perfectly true, but I venture to think that beyond this it is the duty of the Architect to remember that he is entrusted with the erection of a great national building to shelter some of the nation's greatest Art treasures, and that he would not be properly fulfilling his duty by the provision of a mere utilitarian structure.

THE picturesque ruins of Pluscardyn Priory, Elginshire, stand on the verge of a quiet rural valley in the Laigh of Moray, and are protected from the North Sea by a long ridge of hills now thickly planted with fir. The Priory presents attractions not to be found in ecclesiastical ruins of more ambitious pretensions. It may not possess the grandeur of Elgin's Cathedral, nor the magnificence of that of Melrose, and it may lack the historical renown that clusters around Holyrood; yet it has distinct charms, peculiarly its own, and may claim consideration with any one of these named on account of its secluded situation and its picturesque beauty. The attractiveness of Pluscardyn Priory does not lie altogether in the form which its designer gave to it, nor in the richness of its carvings, nor in the elegance of the traced mullions of its pointed windows, but in all these combined, enhanced as they are by the enrichment of the covering of ivy which the hand of nature has been weaving around it for centuries—an enrichment not in the original plan, nor ever dreamt of by its Architect. The priory was founded in the 13th century, and was originally inhabited by a French Brotherhood, the "Val des Choux," a monkish Order which possessed two other houses in Scotland, at Ardchattan and at Beaulieu, but was not represented among the eight Brotherhoods that owned religious houses in England. Pluscardyn was inhabited by the Brothers of this Order up to the year 1454, when they were displaced to make room for the Black Dominican monks of the neighbouring Priory of Urquhart, who received a grant of Pluscardyn with all its lands. Queen Mary made a gift of the Priory and its possessions to the notorious Alexander Seton, then in his boyhood and preparing for the Church. Since then it has been in possession of a number of notable Scottish families. In 1709 it was purchased by William Duff, of Dipple, the ancestor of the Duke of Fife, and during nearly two centuries it has been in the possession of the Fife family as it is at present. The part of the Priory used for public worship was originally the Frater Hall. The dormitories, situated on the story above the Church, made a commodious ballroom for the district. The pulpit, which is of carved antique workmanship, was originally the pulpit of St. Giles' Church, Elgin, and was presented to that city, along with a "gallows," by the Lords in Council.

PARK LANE is becoming the home of millionaires from South Africa. Mr. Barnato's house at the corner of Great Stanhope Street is nearing completion, and still more nearly completed is the house being built for Mr. Beit by Messrs. Balfour and Turner. It occupies the whole plot of ground between Aldford Street and South Street, and fronts both on Park Street and Park Lane. It would puzzle an expert to say exactly the style in which the house is designed, for it partakes of Gothic and classic features in equal proportions. It is built entirely of Portland stone, with semi-classical columns of black, unpolished Alfoa granite flanking the entrances, and is roofed with green slates. The wall enclosing the grounds is finished off with iron railings of Renaissance character wrought with a curious disregard of the superfine finish usually demanded, and they consequently have a very unusual appearance. The decorative panels of the exterior walls have been sculptured by Mr. Harry Pegram, while the general carving of the interior is the work of Mr. L. A. Turner. A chief feature of the house is the winter garden, which, with the billiard room adjoining, was not included in the original plan, the plot of ground on which both stand not having been purchased in the first instance. The low, rambling aspect of the whole building is the result of restrictions imposed by the Duke of Westminster, on whose estate it is situated.

THE scheme of the Leeds Corporation for dealing with the property located upon what is now familiarly known as the Marsh Lane and York Street insanitary area is month by month assuming a more definite shape. The



various properties to be demolished are now all mapped out, a broad new street is to be cut right through the area, and Marsh Lane and York Street are to be widened to about 60 feet. The provision of houses for those who are displaced by the demolition of existing property in the area is the question now occupying the attention of the Insanitary Areas Committee. Before the Corporation can commence to clear away any of the insanitary dwellings they must provide housing accommodation for at least 500 people. The committee has already practically decided as to the class of dwellings to erect, but before any step can be taken in this direction their proposals have to receive the approval of the Local Government Board. The committee desires to make a start by building a block of tenement dwellings sufficiently large to accommodate about a hundred persons. The site selected is one lying between Brick Street, St. Peter's Square, and York Court. Plans of these proposed houses have already been prepared. The houses are shown to be arranged in four flats, and in front of the three upper flats outside balconies run the whole length of the block. The doors of the houses open on to these balconies, the latter being approached by steps, which are also unenclosed. It is possible that a second block of this character may be erected, also within the area, but nothing definite has yet been decided on that matter. After all, when it is remembered that the Local Government Board requires the Corporation to provide accommodation altogether for 2,000 people, the building of a small block of dwellings may be regarded as a mere detail. The committee desires to build the majority of the dwellings that will be required on the Ivy House Estate, which adjoins the East End Park. Here, within about three-quarters of a mile from the insanitary area, are 14 acres of very suitable building land available. The class of dwellings proposed to be erected on this land are through houses.

A LECTURE on "The Architecture of Asiatic Hellas," one of a series on Hellenic Architecture, was delivered in the Glasgow School of Art last week by Mr. W. J. Anderson, A.R.I.B.A., director of the Architectural department, to a large audience of students. After a brief survey of the geography of the coasts settled by the expatriated Ionians and Eolians, and the history of Asia Minor in its relation to the Arts, the lecturer proceeded to trace the growth of the "Archaic" Greek style in that region, by whose traditions the settlers were largely moulded. The influence of Phrygia, e.g., in its cult of a Supreme Mother, Cybele, through whom all descent was traced, appears to have determined that nearly all the great Ionic temples were dedicated to goddesses, and the Ionic style as a whole represents what may be called the feminine side of Greek Art. In the severe Doric and the lighter Ionic styles we have the happiest possible symbol of the two great elements of the Greek people, whose rivalry makes the history of Greece, and who seem to have been complimentary one to the other. The *temple in Antis* was traced to the *megaron* or men's apartment of the palaces of Troy, Tiryns, and Mykene, and before 550 B.C. its peripteral arrangement was fixed, and its structural evolution was complete, the talents of succeeding Architects being directed only to its modification by refinements in detail and sculpture. Examples of the Archaic style were supplied in early votive columns, and by the earlier temple of Diana at Ephesus, of which there are fragments in the British Museum; while the great temple of Paul's time, built in the fourth century B.C., was shown as now restored by Dr. A. S. Murray, and the famous sculptured drums and pedestals as they have been arranged under his directions. In conclusion, a series of restorations of another wonder of the ancient world, the mausoleum of Halicarnassus was shown by lantern, including that of Professor Cockerell, and a more recent one by Mr. J. J. Stevenson, which appears better to satisfy the requirements of Pliny's description with the actual relics now arranged in the mausoleum room of the Museum.

#### ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a general meeting of the Royal Institute of British Architects, held under the presidency of Professor G. Aitchison, A.R.A., on Monday evening, Mynheer R. J. H. Cuypers was elected Royal Gold Medallist for the current year, "subject to Her Majesty's sanction."—Mr. Owen Fleming moved, "That it be referred to the Science Standing Committee to consider the advisability of formulating a definite standard size for bricks."—Mr. Hooper seconded, and the motion was carried.—Mr. Woodward called attention to the new conditions of building contracts, adducing testimony to show that in several instances builders had refused to agree to the new conditions, and, appealing to the Institute to revert to the old form of contract, which, he said, was excellent and answered every purpose.—The Chairman said that all they could do was to have Mr. Woodward's remarks printed in the journal.

#### KEYSTONES.

TOWARDS the widening of Westbourne Park Bridge the Works Committee of the Paddington Vestry recommend the latter to contribute a third of the £17,628 estimated as required, providing the London County Council and the railways concerned defray the remaining two-thirds.

MR. F. H. TULLOCK, on behalf of the Local Government Board, has held an inquiry into an application by the Nelson Town Council for a provisional order to alter and amend certain of the local Acts, so as to enable the Corporation to borrow additional monies for purposes of the market undertaking.

MR. ROBERT CRAWFORD, engineer to the Greenock Harbour Trust, who was asked to report on the proposed extension of graving-dock accommodation, estimates that it will take about £35,000 to widen, alter, and lower the bottom of the dock, and that it would take at least fifteen months to carry out the alterations. On the question of constructing an entire new graving-dock, at an estimated cost of £90,000, the Harbour Trust is not satisfied that there is any possible traffic sufficient to warrant such a large expenditure.

The ill-fated old chain pier of Brighton is no more, but Mr. J. Aumonier has made it memorable by forty water-colour drawings, exhibited at the Dowdeswell Gallery.

The Aberdeen School Board has approved the action of Professor Robertson, the Chairman of the Board, in asserting the Board's right to proceed with the erection of the new elementary school on the Grammar School grounds, in respect that the Town Council had not within a month expressed approval or disapproval of the plans.

A new United Presbyterian Church is to be erected at Hurlford at a cost of £2000.

The Renfrew and Clydebank Joint Hospital, situated at Blawarthill, near Yoker, and erected by the burghs of Renfrew and Clydebank and the Renfrewshire County Council, has been formally opened. The buildings are in the cottage style of Architecture, and are fitted up with all the modern appliances. The total estimated cost is about £10,000.

A new Miners' Hall was recently opened at Backworth Colliery. The hall is a plain but substantially-built brick building situated near the Workmen's Institute on the Backworth turnpike. Externally, its appearance is unpretentious, but the inside appointments are comfortable and commodious. The building is divided into two sections, one part comprising debating and committee rooms, and the other a large hall.

MR. HARVEY DU CROS has purchased the detached house at the corner of Palace Gate, facing Kensington Gardens, London, together with a vacant plot of ground of one acre adjoining, for £60,000. It is understood to be Mr. Du Cros's intention to demolish the existing house and to erect a residence on the site.

A LIMITED liability company has been formed at Torquay for the purpose of constructing an electric railway or tramway between that town and Paignton.

GREAT alterations are contemplated at the Inverness Railway Station, which has for years been unsuitable for the passenger and goods traffic. Plans have been prepared, and the intention is that the present shop used for locomotives shall be removed to Needlefield, on the Longman Road, so as to permit of the Company utilising and giving the benefit of steamer facilities to through travellers.

THE Lancaster Town Council has resolved to recommend the purchase of a piece of land in Dalton Square, containing about 5500 square yards, for public purposes, as a memorial of the Diamond Jubilee. What is to be done with the land is not decided, although the suggestion has been made of erecting a large public hall as a part of a more comprehensive scheme of municipal buildings, to be carried out at a future date.

THE Duke of Bedford having granted permission for a drinking fountain to be erected outside the west wall of Drury Lane Theatre, close to the principal entrance, as a memorial to the late Sir Augustus Harris, a meeting of the Memorial Fund Committee was held recently at Covent Garden Theatre, when a sketch of the proposed fountain was submitted. It was decided that the work should be put in hand by a sub-committee after further designs had been obtained.

At the last meeting of the General Purposes Committee of the Wrexham Town Council, the Mayor announced his intention of giving £500 to the town to assist in providing a new town hall, a public park, or a recreation ground—whichever the Council decided was the most urgently needed.

THE total of the subscriptions received from leading engineering firms of Manchester, Salford, and the surrounding district for the enlargement of the Whitworth Engineering Laboratory at Owens Park amounts to £1085. Messrs. Crossley Bros. have presented an oil engine for experimental purposes.

At Wolverhampton the sum of £5000 has been subscribed towards the cost of erecting a new Free Library building to commemorate the sixtieth anniversary of the Queen's reign.

THREE hours were spent in the House of Commons in discussing the bill promoted by the London County Council for the acquisition of land at Charing Cross for the erection of Municipal Buildings. The site, it was explained, would cost £813,000, and the buildings £500,000. The rejection of the bill was moved by Mr. Boulnois on the ground of the extravagance of the scheme, and was carried by 227 to 146.

As a memorial of the late Rev. Josiah Viney, it is proposed to add "A Viney Memorial Wing" to Caterham Congregational School. The wing will contain a laboratory, and the estimated cost is £2000.

MR. GEORGE ARMSTRONG, of Wolverhampton, locomotive superintendent of the Great Western Railway, has just retired from the Company's service, to which he has been attached about half a century.

THE Council of the Aberystwyth University College has decided to spend £15,000 in finishing the erection of a new wing to the college buildings.

In digging a trench in King Street, Covent Garden, by Garrick Street, some workmen came upon several lengths of the old wooden water pipes, which were made from trunks of trees.

In the course of some building operations in Thames Street, Windsor, the remains of an old Roman well have been discovered, and a walled-up aperture was found beneath the pavement. It is supposed to have at one time led to an underground passage at Windsor Castle.

At Salford the School Board has decided that a school of two departments (girls and infants) be built on the London Street site, such school to provide sufficient accommodation for the girls and infants attending the Charles-town and Broughton Road Schools, and to be capable of enlargement or extension.

MR. BROCK, R.A., has received a commission to execute in bronze an equestrian statue of Edward the Black Prince. The work, with the granite pedestal, will be about 25ft. in height, and it will, when finished, be erected in front of the Post Office at Leeds.



## Professional Items.

**ABERDEEN.**—The Links and Parks Committee of the Aberdeen Town Council met on the 24th ult. The remit from the Council as to providing additional bathrooms at the Bathing Station, and also as to the necessity for constructing a swimming-pond in connection with it, was under consideration. Plans were submitted by Mr. Rust, City Architect, showing eight additional ordinary baths, a fully-equipped Turkish bath, and a swimming-pond. Mr. Rust estimated the cost of the whole scheme at £5500. The Committee generally approved of the plans submitted.

**ARMLEY.**—At Armley a new hospital has been opened by the Board of Guardians. The buildings, which are plain and substantial in design, comprise hospital and administration block, faced with pressed bricks, with stone dressings, relieved by Gothic gables. The whole of the interior of the buildings is fitted with the latest improvements. The Plenum system of heating and ventilation—of Messrs. Ashwell and Nesbit, of Leicester and London—has been introduced. Covered gangways connect the old hospital with the new premises. In summer these gangways will be uncovered, and the space utilised as an airing-ground by the patients. The lavatories have been fixed in "offshoots" from the main building, whose floors and wall are fire-proof. The total cost of the scheme is £10,000. Mr. Paul Roads, of Skinner Lane, Leeds, was the contractor for the brick and stone work; Messrs. Mason and Son, Woodhouse Lane, Leeds, carrying out the carpenters' and joiners' portion. The area covered by the old and new buildings is about an acre and a half.

**BISHOPTHORPE.**—The Vicar of Bishopthorpe has lately received promises from two anonymous donors of £300 and £50 towards the new Church, on condition that the work is begun this year. To this the Archbishop of York has added £100, making his contribution in all £600. The committee has decided to make a beginning this spring. About £4500 is required to complete the whole. The Architect is Mr. Hodgson Fowler, of Durham.

**BLOWICK, NEAR SOUTHPORT.**—In a limited competition for a new Wesleyan Church, the designs of Messrs. Green and Brockbank, of Adelphi Bank Chambers, Liverpool, have been placed first, and accepted. The Church will cost about £3500, and will be built of brick with stone dressings, seating accommodation being provided for about 850 worshippers.

**BOLSOVER.**—At a recent meeting to consider and decide what steps should be taken towards the restoration of the Church, which was destroyed by fire a few weeks ago, Mr. Louis Ambler, of London, who is the Architect engaged, submitted plans which he had prepared. There were two schemes suggested:—No. 1, to erect a building on the same lines as the old one, the estimated cost of which was £6500, including seating, gasfitting, organ, bells, and other requisites. No. 2 scheme provides for some enlargement and extra seating accommodation for 220 persons. The estimated cost in this case was £9000, inclusive. Both estimates included the cost of restoring the chancel, which the Duke of Portland had promised to do. It was resolved that No. 2 scheme be adopted, and a large committee was appointed to assist in carrying out the work.

**BRAMLEY.**—The work in connection with the erection of the new hospital at Bramley, the opening of which took place a few days ago, was carried out under the supervision of Mr. C. F. Wilkinson, Architect, of Park Square, Leeds.

**CROSLAND MOOR.**—The United Methodist Free Church at Crosland Moor has just undergone an extensive alteration. An entirely new pulpit, with the exception of the centre panel, has been provided; a new communion has been

railed off, and other improvements have been made. The contractors were: Joiner, Mr. Geo. Ainley, Crosland Moor; painter and decorator, Councillor Thos. Cartwright, Crosland Moor; glazier, Messrs. Thos. Allison and Co., Limited, Milnsbridge; masons, Messrs. W. Boothroyd and Co.; and Mr. F. Milan, Lockwood, has seen to the reconstruction of the heating apparatus and the provision of a new boiler. The total cost is estimated at from £400 to £500.

**DUNDEE.**—A stained-glass window has just been erected in St. Andrew's Pro-Cathedral, Nethergate. The window, which consists of two lights, and is situated in the south-west corner of the Church, is a fine example. In the bottom panels there are representations of St. Joachim and St. Anne, the mother of the Virgin; and St. Joseph, the Blessed Virgin, and the child Jesus. Messrs. Mayer and Co., Munich, executed the work. The extensive improvements on the Church have now been completed. Mr. Joseph Thomson, Nethergate, superintended the painting of the building and of the altar of the Sacred Heart.

**EDINBURGH.**—At a meeting, on the 17th ult., of the Lord Provost's Committee of Edinburgh Town Council, the report of a sub-committee on the North Bridge Street reconstruction was considered. The sub-committee recommended that the elevation plans for the reconstruction of the buildings on both sides of the street, submitted by Messrs. Scott and Williamson, Architects, whose designs were adjudged first in the competition, should be adopted, with such modifications as the Council might think necessary. Failing satisfactory offers from outside parties to undertake the work, in whole or in part, at their own risk, the sub-committee were of opinion that the reconstruction should be executed by the Corporation itself. The Lord Provost's Committee approved of this report, and decided that working plans for the corner blocks be prepared and estimates obtained.

**GATESHEAD.**—The contract for the reconstruction of the Redheugh Bridge has been let. The successful tenderer is the firm of Sir W. Arrol. The time in which the contract is to be executed is about two years; and we believe that, though the exact amount of the contract has not been stated, it is about £80,000.

**GOLBORNE.**—The new building recently put up in Worsley Street, consists of one large room, 34ft. by 24ft., on the left, and a spacious cloak-room, with teachers' room, on the right. The school has good light and admirably ventilated. The windows are fitted with Leggott's patent fasteners, the windows opening at top and bottom. The Architects were Messrs. Simot and Powell, of Liverpool, and the builder Mr. Jas. Wakefield, of Golborne.

**LARGS.**—Mr. R. W. Friday, of Trigony Hall, having bought a block of property at the head of Main Street, intends pulling it down, and erecting a new tenement, to cost from £8000 to £10,000. Mr. Friday intends putting the building line back some 4ft. at the west end so as to bring it into line with the nearest property.

**LEICESTER.**—The restoration of the south aisle of St. Nicholas' Church has just been completed. About £750 has been spent on this scheme. The brickwork of the east and west windows and three of the south windows have been taken out and replaced with stone; the walls of the aisle have also been replaced almost entirely with granite, the pews have been revarnished, and new heating apparatus put in. The old vestry has also been removed, and the new one occupies a place at the end of the north aisle and behind the organ. This has opened out the south aisle, and the full length of the Church can now be seen, making a considerable improvement in the general appearance. In addition, the east end of the south aisle has been fitted as a side chapel for week-day services. It is further contemplated to take in hand the restoration of the tower, which will necessitate the removal of the

modern brickwork and substituting stonework, the idea being to restore the fabric as far as possible to its original appearance. The cost of this work will possibly amount to £1000.

**LUNDY ISLAND.**—The new Church which is being erected at Lundy Island is now almost complete. The edifice is of thirteenth century Early English style. The building, on plan, consists of nave, chancel, with north transept, intended as an organ chamber, and vestry. The lower part of the tower (which is 70ft. high) does duty as an entrance porch, and there is a square turret at the south-east angle of the tower, which gives approach to the belfry, in which is to be a peal of musical bells, not yet *in situ*. The roofs are of steep pitch, and formed of split stone slabs of Tetbury stone, Gloucestershire, and are crowned by red ridges; the cornice angles of tower and turret are defined by projecting gargoyles, and there is a fair amount of stone carving to the labels of windows. The principal material used is finely-axed grey granite, with dressings from the Doulting Quarries in Somersetshire. The clock faces north, and stands in the tower. In a niche on the same face of the tower is a large statue of St. Helena, the work of Mr. Harry Hems, of Exeter. Mr. John Norton, of Ridgemount Gardens, W.C., is the Architect. The interior walls are lined with red brick throughout, relieved by bands and diaper of blue Staffordshire and cream-coloured Marland bricks. The east window is a three-light one, and filled with stained glass by Messrs. Clayton and Bell, of London. The roofs are wagon-shaped and open. The contractors for the general work are Messrs. Britton and Pickett, builders, of Ilfracombe.

**MERTHYR.**—The Merthyr General Hospital has been extended by the recently-completed addition of an accident ward on the western side. The designs of the late Mr. T. C. Wakefield were accepted, and in May, 1894, the contract was given to Mr. Richard Lloyd, of Cefn, whose tender was £1160. The Architect died before the work had far advanced, and after his death its supervision was undertaken by Messrs. James and Morgan, of Market Square Buildings, Merthyr, and also of Cardiff. Externally, the ward is built of red and buff Ebbw Vale bricks, with Loughborough stone dressings, and is quite in keeping with the main block. The entrance is from Gwaelodgarth Lane. The door opens into a spacious vestibule, floored with encaustic tiles, and fitted with hot and cold baths, the windows by which it is lighted being of stained glass.

**NEW BUCKENHAM.**—The new chancel of New Buckenham Church was formally opened by the Lord Bishop of Norwich a few days ago. The chancel has been entirely restored by Messrs. W. T. Newson and Sons, builders, East Harling. Two stained-glass windows have also been put in.

**NEWSHAM.**—On February 20th was publicly opened at Newsham the new institution which the workmen at the village have caused to be erected for the purposes of a reading-room and recreation hall. The building, which is situated alongside the North-Eastern Railway Company's Morpeth branch line, has been erected from plans executed by Mr. John Golding, jun., of Blyth. The building contains on the ground floor a large hall, 32ft. by 24ft., fitted with two billiard tables; and on the first floor a news room, 21ft. by 24ft., and a smoke room 10ft. 3in. by 15ft.

**OLDHAM.**—The Markets and Baths Committee has been empowered to borrow £9000 for the erection of new baths at Robin Hill. Of this sum £7450 will be required for building, and £1550 for laundry and engineering work.

**SPALDING.**—In the competition for the enlargement and additions to the Corn Exchange, including a new butter market, permanent stage (with proscenium), and retiring rooms, for which a prize of £15 15s. was offered, eight



Architects competed, and at a special meeting of the Urban District Council the plans submitted by Mr. J. B. Corby, Architect, of Stamford, were accepted. The estimated cost is £1975, and Mr. Corby has been instructed to carry out the work.

**STANFORD.**—Six stained-glass windows have just been completed in Stanford Church, the work having been carried out by Mr. C. Powell, of London. On the north side of the nave of the Church there are two of the windows, with figures representing St. Aidan, St. Colomba, St. Hugh, and St. Chad; two saints in each. The chancel has been adorned on the south side with two other windows, representing the four evangelists. The cost has been about £100.

**STOCKPORT.**—At a committee meeting held on February 22nd the subscribers to the Stockport Infirmary decided to suitably commemorate the Queen's record reign by enlarging and improving the present building. Messrs. Woodhouse and Willoughby, of Manchester, were selected as the Architects to carry out the same.

### SOCIETY MEETINGS.

**The Society of Architects.**—The annual dinner of this Society was held at the Hotel Cecil on the 23rd ult., with Mr. Robert Walker (president) in the chair, and the Bishop of Stepney, Judge Emden, Mr. J. A. Rentoul, LL.D., M.P., Professor Banister Fletcher, Mr. Candy, Q.C., and Mr. M. Baldwin, M.A., among the conspicuous guests. After dinner, and the usual loyal toasts, the Chairman said that the object of the Society was to raise the standard of Architectural Art and to diminish the number of irregular or unqualified practitioners. Mr. J. A. Rentoul, M.P., the Bishop of Stepney, and others responded to toasts submitted by the chair. Mr. Walter Emden, J.P., Mr. A. A. Hudson, Mr. W. H. C. Payne, Professor Banister Fletcher, Mr. S. Trevel, and Mr. Lovegrove also spoke.

**British Archaeological Association.**—At the meeting held at the rooms in Sackville Street, Piccadilly, on Wednesday, Feb. 17th, Mr. Compton, Vice-President, in the chair, a paper entitled "London under the Monastic Orders" was read by Miss Edith Bradley, which was well illustrated by maps of the City, indicating in different colours the sites of the many religious houses which existed, both within and without the walls, between the 13th and 16th centuries. Miss Bradley noticed in detail many of the houses, arranging them in groups under the orders to which they belonged thus: the Benedictines, the Cistercians, the Carthusians, the Augustine Canons; and the three orders of Friars were each in turn described, and the circumstances of the foundation of the several houses were related. The Cistercians apparently possessed but one Abbey in London, that of St. Mary Grace's on Tower Hill, founded by King Edward III. in 1349. He called it "Eastminster," in contradistinction to Westminster. The King and his grandson richly endowed it, and it was regarded as of great importance, notwithstanding which only the very scantiest knowledge of it remains. It was surrendered in 1539, and was valued at £602 11s. 6d., according to Speed. The names of its two earliest Abbots alone are known—William de Sancta Cruce, 1349, and William Warden, 1360. The site it occupied is now covered with bakeries for the Royal Navy—not a trace or fragment of its walls remains. It is not generally known, but it is stated on authority according to Miss Bradley, that even Westminster Abbey had a very narrow escape from similar destruction at the hands of the Protestant vandal, the Protector Somerset, when he required stone for the building of his palace in the Strand; this, however, he obtained by demolishing instead the Priory of St. John, Clerkenwell.—The paper was listened to with great interest, and conveyed a good impression of the power and influence wielded by the religious orders in London, and showed what a large share they must have had in the

making of the history of our great City during the mediæval centuries.—At the conclusion of the paper the Chairman expressed what he felt was the feeling of all present, the obligation they were under to Miss Bradley for the comprehensive and Catholic spirit in which she had treated her subject and brought so prominently forward the great benefit which the monastic orders conferred on the country in preserving religion and learning in times when, but for their existence, the country would have sunk into barbarism and gross darkness.—A very animated and interesting discussion ensued, in which Mr. Blashill, hon. treasurer, spoke of the value of the ordnance maps in identifying the sites of the religious houses, and in other ways enabling us to illustrate the life of the old City.—Mr. Patrick, hon. secretary, pointed out that the great fire, although destructive of the majority of the Churches of old London, yet much of their walls must have remained standing, and their foundations, of course, were untouched, and in that connection it is interesting to know, on the authority of Mr. Geo. H. Birch, that the present Church of Christ Church, Newgate Street, is built upon the actual foundation walls of the eastern portion of the old Church of the Grey Friars Monastery, the nave of which extended considerably further to the west, covering the site of the present burial ground.—Dr. W. de Gray Birch made many interesting observations on the methods of giving land in the middle ages.—The Rev. J. Cave Browne, Rev. H. J. Dukinfield Astley, Mr. S. W. Kershaw, Mrs. Collier, and the Chairman joined in the discussion.

**Sheffield Society of Engineers and Metallurgists.**—At the Technical School on the 22nd ult., Mr. W. Watts delivered a lecture to the members of the Sheffield Society of Engineers and Metallurgists on "Rolling and Rolling Mills." The chair was occupied by Mr. S. E. Howell.

**Edinburgh Architectural Association.**—On Saturday last, the second visit of the Session took place to the North British Distillery, Gorgie Road. The members inspected the Maltings, Henning's Pneumatic Drum at work, the Grain Stores, the Mills, Mash House and Cooling Room, &c.

**The Institution of Civil Engineers.**—At the meeting on Tuesday, February 23rd, Mr. John Wolfe Barry, the President, in the chair, two communications, on "The Main Drainage of London," by Messrs. W. Santo Crimp and J. E. Worth, and on "The Purification of the Thames," by Mr. W. J. Dibdin, were read. In the first paper was described in detail the works carried out in London for the purpose of intercepting the sewage, which formerly passed directly into the river, and conveying it to outfall works at Barking and Crossness, about fourteen miles below London Bridge. The works designed by the late Sir J. W. Bazalgette, and carried out by him for the late Metropolitan Board of Works, comprised the construction of about 110 miles of intercepting and storm-relief sewers, the former having a final discharging-capacity of about 540,000,000 gallons per day, about 2.7 times the present dry-weather flow. There were two main pumping-stations on each side of the river, with machinery of an aggregate of 3,000 h.p., capable of pumping 500,000,000 gallons per day, and a like number of storm-water pumping-stations, capable of pumping directly into the river 150,000,000 gallons per day. The latter were used for preventing flooding in the lower parts of the Metropolis when a heavy fall of rain occurred at or about the time of high water, when the storm outlets were closed by the tidal water. The works undertaken by the London County Council to improve the pumping machinery by compounding the steam-engines at the principal pumping-stations were also described. The outfall works for the purification of the sewage, the dry-weather flow of which now exceeded 200,000,000 gallons per day, were next dealt with. The experimental filters for dealing with the effluent, and capable of effecting a purification of 78 per cent, were mentioned. The question of flood discharges from an area fully built over was referred to, and the details relating to an area of 160 acres were given.

The bearing of this question upon the "Separate" system was next referred to, and it was stated that, so far as London was concerned, the system was impracticable.—In the second paper, the Author described first the steps that had been taken in accordance with the scheme adopted by the late Metropolitan Board of Works for the treatment of the London sewage at the outfalls at Barking Creek and Crossness; secondly, the effect of that work in freeing the river from raw sewage; and thirdly, the best method of effecting still further improvement.

**Surveyors' Institution.**—At the ordinary general meeting of the Surveyors' Institution, held at the temporary address, Savoy Street, Victoria Embankment, the adjourned discussion on Mr. J. Willis Bund's paper on "Allotments and Small Holdings," read at the last meeting, was resumed.—Mr. D. Watney presided.—Mr. Sobin opened the discussion by remarking that the charge for land, stated by Mr. Bund at 40s. per acre, was too high; that good land in his county could be got for 33s. 6d., and deducting rates, &c., would bring it down to less than 30s. per acre. With regard to the acquisition of land, there needed an alteration in the Act, which he said was cumbersome, clumsy, and dilatory. He suggested that some plan should be devised to allow the tenant to put up some building convenient for storing tools, &c., without compelling the landlord to take the same.—Mr. Herbert Smith, agent to Lord Lansdowne, said that in Wiltshire there was the largest system of allotments of any county in England. On the Bowood Estate allotments had been made, all to the advantage of the tenant, and it was supposed the rural population would remain stationary; but the fact was that there had been an enormous reduction in the population. Town had its attractions. Farming was slow, and had not the life in it, and people hoped to earn more money, and so allotments were being gradually given up.—Mr. Wright, of Nottingham, said the Act wanted consideration. The compulsory power should never be used; he had always come to terms without the Act being put into operation. There was no actual desire for land by the bona-fide labourers; what they wanted was better homes and gardens.—Mr. Shaw spoke on the necessary alteration in the Act and of his experience as to allotments, which he believed had done good, but the best thing was to give the people a good cottage and a bit of garden.—Mr. Luere, of Huntingdon, spoke, and Mr. Bund shortly replied.

The annual dinner of the members of this institution was held on Wednesday, February 24th at the Hotel Cecil, under the presidency of Mr. Daniel Watney. About 270 guests were present, including Mr. Courtney, M.P., Mr. C. Oakley, Mr. T. M. Rickman, Mr. Justice Grantham, Mr. C. J. Shoppee, Sir P. Rose, Mr. A. Vernon, Judge Philbrick, Mr. C. Bidwell, Mr. R. Vigers, Mr. J. Collings, M.P., Mr. A. Garrard, Mr. Justice Wright, Mr. J. F. Rolleston, Sir C. E. Boyle, Mr. A. Buck, Sir J. W. Whittaker, Mr. H. T. Steward, Prof. Aitchinson, Mr. T. Wainwright, Mr. G. Langridge, Mr. A. Waterhouse, Mr. W. Wright, Mr. R. W. Richards, Mr. J. W. Fair, Mr. N. C. Macnamara, Mr. Thiselton Dyer, and Mr. F. K. Munton.—Mr. Courtney, M.P., replying for "The Houses of Lords and Commons," thought that the latter House was the original "Surveyors' Institution," for it surveyed mankind from China to Peru.—Mr. Justice Grantham and Mr. E. J. Castle responded for "The Bench and Bar" respectively.—Mr. G. de L. Willis proposed the toast of the evening, remarking that the membership had risen from 200 in 1869 to nearly 2800. The Institution practically covered the whole of the kingdom, and it had received Parliamentary recognition in the new London Building Act. This year 400 candidates were examined for the Institution certificate. The new building to be erected in Great George Street would cost £30,000, and the library contained 7000 volumes.

**Aberdeen Ecclesiological Society.**—The Ecclesiological Society recently met in St. Mary's Chapel, East Church.—Mr. A. R. Mackenzie, Architect, described to the meeting,



with the aid of original drawings, the interesting "find" of a portion of the outer wall of the cloisters of Greyfriars Church, in connection with the demolition of the old houses in Longacre.—The President supplied interesting historical references.—Mr. William Kelly, Architect, afterwards contributed a paper on "Seventeenth and Eighteenth Century Leadwork in Aberdeen." Mr. Kelly, regretting that plumber work in these days seems unfortunately to be largely excluded from the domain of the Artistic, touched on the earliest examples, and the Literature of Decoration in leadwork. Coming, then, to the subject proper of his paper, he selected for special treatment the lead eaves cornice outside Collison's Aisle, in St. Nicholas Church. By means chiefly of casts and drawings he showed the beautiful character of the work, which he examined in much detail from both an Historical and Artistic point of view. In the same way he discussed the small spire of King's College Chapel, and the leadwork on Bishop Forbes' grave. He found many reasons for ascribing these works to the same master mind, and the date he put down as about 1635. But probably the most striking feature of Mr. Kelly's paper was the concluding part, in which he described and showed drawings of upwards of a dozen spout "water-heads" of ancient date and very remarkable Artistic design, which he had seen on houses in various parts of the city.

## Correspondence.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Having been a reader of the *Builders' Journal* from the first number, and having scanned its pages eagerly week by week, I have participated in some of the pleasure that you have had in the periodical enlargement and improvement of the journal. To me, the *Builders' Journal* is a marvel. Still I have often thought of and wished for a Students' Column—not too deep, but one helpful to average learners. If it be possible to add this feature I think many of your readers would hail the weekly advent of the *Builders' Journal* with even more pleasure.

Yours faithfully,  
BUILDER'S CLERK.

Farnham, Feb. 27th, 1897.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayment.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.  
Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two.  
Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements.

Prices on application.  
Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

Editorial and Publishing Offices:  
Effingham House, Arundel St.,  
Strand, W.C.

THE tablet in memory of Field Marshal Sir Patrick Grant is already being executed, and it has been decided to place it in the crypt of St. Paul's.

## Trade and Craft.

### PLYMOUTH BUILDERS AND THE BYE-LAWS.

Before Messrs. A. S. Clark and J. P. Paige, at Plymouth Petty Sessions, Anthony Robert Lethbridge, builder, was summoned for laying out a lane at the rear of Britannia Terrace, Prince Rock, of insufficient width, contrary to the bye-laws with respect to new streets and buildings. Mr. J. H. Ellis, Town Clerk, prosecuted, and Mr. W. Adams (Adams and Croft) defended.—Evidence showing the Council minutes on the matter and the serving of notice on Mr. Lethbridge having been given, Mr. James Paton, borough engineer and surveyor, deposed to a visit to Britannia Terrace, and to finding the lane as described.—Mr. Ellis objected to questions as to whether the Council had ever previously broken bye-laws with respect to properties sold, and on the magistrates upholding the view that other streets and lanes had nothing to do with the present case, Mr. Adams remarked "Then the Council can do things that other people cannot."—Mr. Adams argued that the provisions of the law were for public thoroughfares, and not private passages, under which category the lane in question came.—The magistrates imposed a fine of 1s. and costs, and gave leave to quote a case.

### PLASTERERS' STRIKE IN DOUGLAS.

The strike of plasterers in Douglas is attracting a great deal of public attention. The dispute has now entered on the eleventh week, and the inconvenience and loss likely to arise to town interests are manifestly very great. While the dispute continues, many contracts are standing still, and cannot be proceeded with.

### THE RIGHTS OF PROPERTY OWNERS.

The case of Chastey and Another v. Ackland, which came before the House of Lords last week, was an appeal from a decision of the Court of Appeal reversing an order of Mr. Justice Cave, made at the Exeter Assizes after trial before the learned Judge without a jury, and it raised the question whether the owner of premises is entitled to protection, not only in respect of his ancient lights, but also of a free circulation of air over and through such premises. The appellants were the owners and occupiers of freehold premises in Exeter, and carried on business therein as lodging-house keepers, and the respondent was the owner and occupier of adjoining premises in which he carried on the business of a dentist. The appellants brought the present action against the respondent for a mandatory injunction and for damages in respect of the alleged obstruction of the appellants' ancient lights and of the free access of air to their premises, by reason of certain alterations which the respondent had made in his premises. At the trial it was proved that there had been an interference with the appellants' ancient lights, the damage in respect of which was assessed at £10; that the effect of the respondent's new building was to make the basement of the appellants' premises damper and their rooms less wholesome, to cause smells in their house, and by checking the draught of the fires to make the chimneys smoke, and to seriously and prejudicially affect the ventilation of their house and so to cause them pecuniary damage. The Judge thereupon gave judgment for the appellants and granted an injunction, ordering the respondent to pull down a portion of the new building he had erected, being of opinion that such new building constituted a nuisance to the appellants' premises by interfering with the ventilation which they had previously enjoyed, by making the basement damp, and the rooms stuffy and uncomfortable to live in. The respondent having applied to the Court of Appeal that the judgment should be entered in his favour as far as the order for the pulling down of the new building was concerned, the decision of Mr. Justice Cave was reversed on the ground that although the want of ventilation and the absence of the means of

carrying off the bad smells on the appellants' premises had probably been aggravated by the respondent's new building, yet that nothing deleterious, nothing hurtful, and nothing disagreeable had been brought upon the appellants' premises by anything that the respondent had done. Their Lordships also held that if a nuisance existed on the appellants' premises it was not created by the respondent, and that the appellants had no legal right to a free passage of air which would remove disagreeable smells created upon their own premises. They further held that if the appellants had been inconvenienced by anything the respondent had done, it afforded no legal ground of complaint. The appellants now sought to have the decision of the Court of Appeal reversed and that of Mr. Justice Cave restored. Eventually it was agreed between the parties that the appeal should be withdrawn on the terms that the £10 damages awarded to the appellants on their claim for the obstruction of their ancient lights should be increased to £300, and that the respondent should pay the appellants' costs in that House and in the Court below, and that even if it were decided that they had a legal right to require the respondent's new building to be pulled down in respect of the loss of the free circulation of air, they should not enforce such right.

### AMERICAN IRON AND STEEL SUPPLIES.

Remarkable statements are in circulation concerning the American iron and steel supplies sent to this country. The Carnegie Steel Company, it is announced, have met with unexpected success, and intend to press the sale of the American material. Supplies are mainly arriving for the Midlands via Bristol, but for the Lancashire and Yorkshire markets via Liverpool, Manchester, or Ellesmere Port. The price for billets or tin bars, delivered c.i.f., is £4 to £4 2s. 6d., to which has to be added 8s. 6d. English freight into the Midlands.

### GRASS PAVING-BLOCKS.

Paving-blocks of meadow grass are now being made in Atlantic City. The inventor is the Rev. J. H. Amies. The meadow grass, after being impregnated with oil, tar, and resin, is pressed into blocks measuring 14in. by 21in. by 3in., and then bound with iron straps. These blocks are said to weigh 40lb. per cubic foot, and can be made denser if desired. The claim is made that the street pavement composed of these blocks is noiseless and elastic, resists wear well, and is impervious to heat and cold. Its manufacturers guarantee its life for five years. A plant was erected in Norfolk, Va., about three years ago, and experiments were made with the pavement in Norfolk and Richmond; the results are claimed to be very successful. The grass used is the ordinary wiry salt meadow grass, common along the Atlantic coast.

### SCARBOROUGH IMPROVEMENTS.

There is a prospect of great activity for the building and kindred trades at Scarborough during the next few years. The Corporation is committed to projects some of which are in actual progress, and others will be started within the present year, which involve an expenditure—taken at original estimates, which are invariably exceeded—of nearly £130,000. These include the Marine Drive round the Castle Cliff, and the southern approaches thereto, £100,000; Wykeham Street Bridge, £4150; Filey Road improvement, £4000; Isolation Hospital, £7500; Recreation Hall, North Cliff, £4500; Harcourt Place improvement, £13,360; crossings, stone-yard, offices, shelters, &c., £620; Falsgrave Park, probably £3000; besides a new street from Durham Place, Granby House Gardens, new mains, &c., not yet estimated. The building undertakings not connected with the Corporation include the Higher Grade School, £20,000; a new company has been formed for the purpose of establishing a new Wesleyan College with a capital of £10,500; the Gas Company is spending £15,000 in new works; a new parish is being formed, and a Church proposed for it, with a probable expenditure of £10,000.



the Guardians are erecting a new Infirmary, at a cost of £7700; and St. Martin's Church people are immediately commencing a new Grammar School, at a cost of £3000. In addition to all these, the owners of the Alexandra Park Estate are constructing roads over a great many acres for its development; Messrs. Walsley, of Leeds, have purchased from Mr. J. W. Woodall his Barrow Field estate, &c., comprising fifty-seven acres, for £30,000, which will be laid out at once for first-class villas; the Young Men's Christian Association and the Fisherman's Institute are each enlarging their establishments; the Harbour Commissioners are contemplating enlarging the harbour, and the Government are about to build dwellings for the Coastguard.

#### MESSRS. YOUNG AND MARTEN.

The employés of Messrs. Young and Marten, of Stratford-le-Bow, had their annual dinner at the Holborn Restaurant, on Saturday, the 20th ult. An air of geniality pervaded the whole proceedings, and revealed the amicable relations existing between the proprietors and the entire staff. Mr. H. H. Marten (proprietor), Mr. Montague Edwards (general manager), Mr. Frank Marten, and Mr. Ernest Marten were the guests of the evening, and during the after proceedings Mr. H. H. Marten was pre-

sented with a handsome piece of silver by the heads of departments and representatives "as a souvenir of the 25th anniversary of Young and Marten," whilst Mr. Edwards, the manager, was the recipient of a silver salver. The toast of "The Firm" was submitted by Mr. Edwards, and acknowledged by Mr. H. H. Marten (who occupied the chair), and who cordially recognised the hearty co-operation of the staff in attaining the success which had been achieved. He hoped 1897 would be a record year. Mr. Marten subsequently proposed "The General Manager and Staff" in eulogistic terms, Mr. Edwards responding.

#### KEYSTONES.

THE Paddington Vestry has selected the famous "Jarrahdale Jarrah" as the Australian hardwood to be supplied for their contract of 650,000 blocks.

A CATHEDRAL on the top of the Rocky Mountains sounds like a romance, and yet it is a fact. For in the little town of Laramie (Wyoming), 7500ft. above the sea—the seecity of Bishop Talbot—there was recently dedicated a Church not unworthy to be compared with those in England, though, of course, on a much smaller scale.

A NEW Baptist Church and schools, erected at a cost of over £3000 in Nelson Street, Lancaster, were recently opened. The old chapel, in White Cross Street, was sold after the schoolroom had been destroyed by fire, to a manufacturing firm whose premises adjoin. The new Church accommodates about 500 persons, and is a stone structure, built on modern principles, and fitted with electric light.

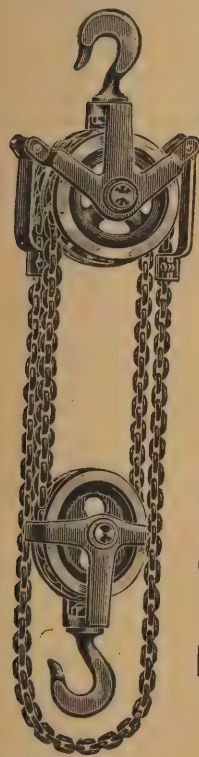
THE project of cutting a canal across the main island of Japan, linking the Japan Sea with the Bay of Osaka, seems likely to be realised. Mr. Sakurada Takesaku, its originator, has prepared the plans and estimated the cost. The canal will be divided into two sections, from Tsuruga to Otsu on Lake Binsu on the one hand, and from Otsu to Rokujigomura on the other. The length of the first section is about 13½ miles and of the second about 9 miles.

THE Glasgow Dean of Guild Court has granted authority for the erection of a large number of new buildings within the city. The General Life Assurance Company, London, received the necessary permission to erect a five-storey building for offices on ground at 141, West George Street. The building of properties by insurance companies has been a feature in the speculative boom which has now continued in Glasgow for over a couple of years.

#### BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.



#### HOISTING APPLIANCES

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

#### WESTON AND OTHER

#### Pulley Blocks

in Stock, with any length of

#### CHAINS.

Chain Maker on Premises for Repairs, &c.

LONDON HOIST AND CHAIN CO.  
32, Norton Folgate, E.C.

GUARANTEE sent with each Basin.



TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.

#### "ECLIPSE" PATENT GLAZING.

THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.

Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

MELLOWES & CO., Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
Telegraphic Addresses—"SHEFFIELD," "

Perfect Sanitation, Healthy Houses

OBTAINED BY ADOPTING THE

#### "TWYCLIFFE"

Patent Pedestal Syphon  
W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.

Practically noiseless in action.

Simple in construction, reliable in action.

Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.

No complicated mechanism to get out of order.

Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

#### ECONOMY IN BUILDING.

#### B. WARD & CO.,

15, Gt. George St., London, S.W.

And at CARDIFF, etc.

PATENT STABLE PAVING.

PAVING.

FIREPROOF STAIRCASES.

ARTIFICIAL STONWORKS.

FIREPROOF FLOORS.

WOOD BLOCK AND MOSAIC PAVING.

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others



## CONTRACTS OPEN.

BOROUGH of BURTON-UPON-TRENT.  
SEWAGE FARM WORKS.

The Corporation of Burton-upon-Trent invite TENDERS from competent persons for a CONTRACT for EXCAVATING the GROUND, and CARTING, LAYING, and JOINTING the 27in. 21in. and 18in. CAST-IRON PIPES for the PUMPING MAINS, and the 15in. 12in. and 9in. EARTHENWARE or STONWARE DISTRIBUTION MAINS, and for the CONSTRUCTION of the various BRICK and CONCRETE DISTRIBUTION CHAMBERS, and OTHER WORKS connected therewith, for the DISTRIBUTION of SEWAGE upon a portion of their Sewage Farm in Egginton, Burnaston, and Etwal, in the County of Derby.

The stipulations and conditions of Contract, and specification, with the description of the Works, and the conditions to be observed in Tendering, may be seen, and bills of quantities and form of Tender obtained, at the office of Mr. J. E. SWINDLEHURST, C.E., Borough Engineer, Burton-upon-Trent, on the deposit of cheque or postal order for One Pound, which will be returned after the receipt of a bona-fide Tender, with the bill of quantities fully priced out, and schedule of prices duly filled up. At the same place drawings may be seen, and any further information may be given.

Sealed Tenders are to be delivered at my office at or before TEN a.m. on WEDNESDAY, the 17th MARCH next, endorsed "Tender for Sewage Farm Works," Contract No. 6.

The Corporation do not bind themselves to accept the lowest or any Tender, nor will they pay any expense or charge relating to the making or delivery of the same.

No tender will be accepted from any party who pays his or their employees, whether artisans or labourers, less than the standard rate of wages paid in this Borough, or who does not conform to the hours and conditions of labour generally recognised in each branch of industry affected, and clauses to ensure compliance with this regulation are inserted in the Conditions of Contract.

Burton-upon-Trent,  
Feb. 23rd, 1897.

T. N. WHITEHEAD,  
Town Clerk.

THE VESTRY of the PARISH of  
ROTHERHITHE.

The Vestry of the Parish of Rotherhithe will meet on TUESDAY, March 9th, 1897, at HALF-PAST SIX o'clock in the Evening precisely, at the Board Room of the Workhouse, in the Lower-road, to receive and open TENDERS for the SUPPLY and EXECUTION from

the 26th MARCH, 1897, to the 25th MARCH, 1898, of the following ARTICLES, WORKS, &c., viz.:

1. Broken Guernsey Granite, Pitching Setts, and Kerb.
2. Ballast, Sand, and Hoggins.
3. Lime and Cement.
4. Stoneware Drain Pipes, &c.
5. Scavenger's Broom Heads and Handles.
6. Printing and Stationery.
7. Disinfectants and Sulphur Candles.

Specification and forms of Tender (which only will be received) may be obtained upon application to me, the undersigned, at the Vestry Offices, Public Baths, Lower-road, Rotherhithe, any day up to and inclusive of SATURDAY, March 6th, 1897, between the hours of TEN a.m. and FIVE p.m., except on SATURDAY, when the Offices close at TWO p.m.

The Tenders in respect to Printing and Stationery should contain the names and addresses of two responsible persons as sureties.

Tenders, enclosed in sealed envelopes, and endorsed "Broken Guernsey Granite," &c., or as the case may require, to be delivered at the Vestry Offices aforesaid, on or before MONDAY, the 8th day of MARCH, 1897, after which no Tenders will be received.

The party or parties whose Tenders may be accepted will have to sign an undertaking to pay his or their employees the Trades Union rate of wages.

The Vestry do not bind themselves to accept the lowest or any Tender.

By Order,  
JAMES J. STOKES,  
Clerk to the Vestry.

Vestry Offices, Public Baths,  
Lower-road, Rotherhithe, S.E.  
Feb. 18th, 1897.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN (N.B.).—Accepted for the execution of road works, for the Town Council. Mr. Wm. Dyack, Burgh Surveyor, Town House, Aberdeen:

Alex. Leith, 50, Holburn-street, Aberdeen, £910 3 2

Alex. Leith, 50, Holburn-street, Aberdeen, £174 16 8

BATH.—For laying water-mains, &c., for the Waterworks Committee. Mr. Charles Gilby, Engineer, Guildhall, Bath:

Stephen Ambrose £140 14 0 | William Birth £122 8 2

Wills and Sons £30 5 4 | Charles Haines\* £88 16 1

\* Accepted. [All of Bath.]

BEDFORD.—Accepted for additions to premises. Messrs. Usher and Anthony, architects, Bedford:

Geo. E. Fathers, Bedford £269 15 0

BEDFORD.—Accepted by the Corporation of Bedford for underground convenience.

Geo. E. Fathers, Bedford £346

BRECHIN (N.B.).—For paving carriage-way, Witchesden-road, for the Commissioners. Mr. Wm. Eggle, Burgh Surveyor, Brechin:

P. Tawse £1,034 6 0 | Martin and Mac-

J. McAdam and Sons 1,002 3 6 | A. Leith 789 8 0

P. Bain 972 2 0 | J. Leith, jun., Aberdeen\* 879 1 0

\* Accepted.

BRIGHTON (Sussex).—For the supply of granite kerb and 400 tons granite pitchers, for the Corporation. Mr. F. J. C. May, Borough Engineer, Town Hall, Brighton:

Edge Curb, 10in. by 6in. per foot.	Flat Curb, 12in. by 6in. per foot.	Pitchers, 6in. by 4in. per ton.
s. d.	s. d.	s. d.
Blichfeldt and Co. 1 2 2	1 2	24 6
Coopers, Limited 1 2 2	1 2	25 0
Goodchild and Co.* 1 3 3	1 3 3	25 0
A. and F. Manuelle* 1 7 4	1 5 1	33 3 1/2
E. J. Van Praagh & Co.* 1 3 3	1 3 3	33 0
Croft Granite Co. 1 7	1 4 1	27 0

\* Accepted.

A. and F. Manuelle, 101, Leadenhall-street, E.C. 1: 3,000ft. of 12in. by 6in. flat Guernsey curb, at 1s. 7 1/2 d.

4,000ft. of 10in. by 6in. edge Guernsey curb, at 1s. 5 1/2 d.

150 tons 6in. by 4in. Guernsey pitchers, at 3s. 8 d.

E. J. Van Praagh and Co., 6, East India-avenue, E.C. 1: 5,000ft. of 12in. by 6in. flat Norway curb, at 1s. 3 1/2 d.

10,500ft. of 10in. by 6in. edge Norway curb, at 1s. 3 1/2 d.

Goodchild and Co., 118, Fenchurch-street, E.C. 1: 250 tons of 6in. by 4in. Norway pitchers, at 2s. 6 d.

† Guernsey. † Norway.

BRITON FERRY (Glam.).—For the construction of a reservoir, filter-bed, &c., for the Urban District Council. Mr. Togarmah Rees, C.E., Corn Exchange-chambers, Newport, Mon.:

James Allan, Cardiff £216,437 6 0

BRIXHAM.—For the erection of a caretaker's cottage, for the Brixham School Board. Messrs. Norman G. Bridgman and Walter H. Bridgman, Architects, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattemole Brown, of Paignton:

T. Frown £428 | Smaridge and Curtis £229

Webber and Maunder 404 | Cooksley 230

E. P. Dovey 385 | Silloy 275

E. Pike 374 | W. Wyatt 256

[Architect's estimate £300.]

BROMHAM (Bedfordshire).—For the erection of a country house for Mr. W. H. Allen. Mr. George P. Allen, Architect, 26, Great Ormond-street, Russell Square, W.C. 1:

S. Foster, Kempston £6,128

## GEORGE W. RAGGIE

DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS

Reg No  
273662  
Section  
No 21  
GLASS  
INSIDE

WARDRYWORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.

## METALWORK CASEMENTS & SASHES

BATHS.  
CISTERNS.  
TANKS.  
STOVES.  
KITCHENERS.  
PORTABLE  
RANGES.  
MARBLE  
MANTELS.

## J. YOUNG &amp; CO., Kenton Works, Kennington Cross, London, S.E.

Kennington Tel. No. 4712 (Hop.) Private Wire to Brixton. Balham Telephone No. 9219, Balham.

BRANCHES: 44, Brixton Road, and 9 & 10, Balham Hill, London, S.W.

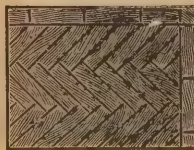
Everything for the Erection and Maintenance of Buildings and Estates can be obtained at our Warehouses. Have you a copy of our useful little Catalogue? If not, apply at once, enclosing Two Penny Stamps for Postage; it's worth the venture.

NOTE THE ADDRESS.

NOTE THE GOOD PRINCIPLE.

OUR TRADE PRINCIPLE: PERFECT WARES, IMMEDIATE DELIVERY, NOMINAL PRICES.

ROOFING FELTS.  
CORRUGATED  
IRON.  
SHEET ZINC.  
LEAD IN SHEETS  
AND COILS.  
PAPERHANGINGS  
WHOLESALE  
AND FOR EXPORT  
OILS & COLOURS.



## WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

For Churches, Schools,  
Offices, &c.

Estimates and full particulars on ap-

plication to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM

JOINERY WORKS,

Clapham Junction, S.W.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,

48, HAMMERSMITH ROAD, W.

Reading Cases may be had on application  
to the Manager. Price 1s. 9d. each.

FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

Telephone No. 77 (Pop.)

DO  
YOU  
WANT  
TO BUY  
RIGHT?

# GEO. HYDE & CO

173 & 175, KENNINGTON CROSS,  
LONDON, S.E.

DO  
YOU WANT  
SPEEDY  
DELIVERY?



CARISBROOKE.—For making a new road at Carisbrooke, for the Isle of Wight Rural District Council. Mr. J. E. Haynes, Surveyor:—  
M. Drake ... £175 0 0  
G. H. Coker ... 139 0 0  
James Lowe\* ... £109 7 6  
\* Accepted.

CATERHAM.—For erecting a House on Caterham Manor Estate for Mr. Paul. Messrs. Berney and Son, Architects:—  
S. Page ... £2,930  
J. E. Saunders ... £2,669  
Winburn ... 2,914  
Whitehead and Co. ... 2,644  
Debenham ... 2,878  
Marriage and Co. ... 2,619  
Thompson ... 2,869  
W. Smith and Son ... 2,569  
D. W. Barker ... 2,814  
Cheeseman ... 2,419  
J. Smith and Sons ... 2,810  
Sidney Hart ... 2,336  
Hanscomb and Smith ... 2,804  
Carnick\* ... 2,190  
\* Accepted.

CHALE.—For widening a road at Chale, I. W., for the Isle of Wight Rural District Council. Mr. J. E. Haynes, Surveyor:—  
J. Linnington and ... £167 0  
G. H. Coker ... £120 0  
Son ... 105 10  
James Lowe\* ... 105 10  
\* Accepted.

CHELMSFORD.—For two villa residences, Mount Hill-avenue. Mr. R. Mawhood, architect, Chelmsford:—  
No. 1.  
Moss and Co. ... £500  
H. Potter, Chelmsford\* £230

No. 2.  
Smith and Son ... £180  
W. Samms, Chelmsford\* £397  
E. Saltmarsh ... 440  
H. Potter ... 430  
W. Fincham ... 431

No. 3.—Pair of Cottages, Primrose Hill.  
W. Fincham ... £405 0  
H. Potter ... £480 0  
W. Samms ... 490 0  
J. Gowers, Chelms-  
E. Saltmarsh ... 480 10  
ford\* ... 420 0  
\* Accepted.

COCKETT (near Swansea).—For erecting the Gendros school, for 350 children, for the Cockett School Board (near Swansea). Mr. G. E. T. Laurence, architect, 181, Queen Victoria-street, E.C. Quantities by Messrs. W. H. Barber and Son, 22, Buckingham-street, Adelphi, W.C.:—

Buildings.	Floors.	Total.
Batthay & Jenkins £3,300 0 0	£255 10 0	£3,555 10 0
Thomas Watkins and Co. ... 3,179 3 11	62 7 10	3,241 11 9
Thomas Waters ... 2,810 12 8	264 14 6	3,075 7 2
H. Billing ... 2,880 12 6	174 11 1	3,055 3 7
David Rees ... 2,987 0 0	30 0 0	3,017 0 0
David Jenkins ... 2,899 0 0	44 0 0	2,943 0 0
Lloyd Bros. ... 2,750 0 0	20 10 0	2,770 10 0
Gustavus Bros. ... 2,565 0 0	52 4 0	2,617 4 0
Thomas Davis ... 2,599 0 0	24 12 8	2,623 12 8
J. and F. Weaver ... 2,530 0 0	75 0 0	2,605 0 0
Elias Morgan ... 2,604 0 0		2,604 0 0
* Accepted subject to Education Department's approval.		

COVE (Hants).—For the erection of an additional class-room for sixty children, with lavatory, &c., to the Board Schools. Mr. A. E. Hall, architect, Frimley, Surrey:—  
G. Finch ... £575 0  
Leaming, Crookham,  
W. Smith ... 571 10  
Hants\* ... £549 0  
\* Accepted.

CROSSHAVEN (C. Cork).—Accepted for the erection of a residence. Mr. C. F. O. Sullivan, C.E., architect, Queen-street, Cork:—  
J. Kelleher, 14, Sundays Well-road ... £3947  
[Lowest of four tenders received.]

CULLEN (N.B.).—For the execution of water-supply works for the Cullen Police Commissioners and the Countess of Seafield. Mr. Geo. Ross, Borough Surveyor, Cullen, N.B. Quantities by Messrs. Alex. Smith and G. Ross:—  
Plumbing.—John Barclay ... £413 9 8  
Masonry ... 239 4 3  
Smiths' Work ... 98 17 9  
Total ... £751 11 8  
Plumbing.—Wm. Beveridge, Cullen\* ... £410 12 0  
Masonry ... 238 0 0  
Smiths' Work ... 99 15 0  
Total ... £748 7 0  
For Whole Work.—J. Grant ... £816 11 0  
Campbell Brothers ... 765 12 0  
Masonry Only.—George Mair ... 295 0 0  
Jas. Bremner ... 240 0 0  
\* Accepted.

CROYDON.—For alterations and additions at the Board Schools, Mitcham-road, Croydon, including new class-room and cloak-room, infants' department, new water-closets,

offices, and playsheds, and bath-room to master's house, for the Croydon School Board. Mr. Robert Ridge, architect, 12, Katherine-street, Croydon:—  
E. J. Saunders ... £1,250  
D. W. Barker ... £1,175  
Umlandt and Nichol ... 1,215  
A. Bullock ... 1,160  
W. Smith and Son ... 1,190  
H. Bacon ... 1,120  
E. Gouldner ... 1,188  
D. Waller ... 1,100  
S. Hart ... 1,176  
E. P. Bulled and Co.\* ... 1,067  
[All of Croydon.]  
\* Recommended for acceptance.

DURHAM.—For the erection of twelve workmen's houses, Mitchell-street. Mr. Geo. Ord, Architect, 16, The Avenue, Durham:—  
Masonry and Bricklaying.—J. G. Brad-  
ley  
Joinery.—T. W. Mowbray ... £2,372 1 3  
Plumbing.—Heron and Brown ...  
Plastering.—T. Nesbitt ...  
Slating.—T. W. Blakey ...  
Painting.—T. H. Dodd ...

[All of Durham.]  
ELLAND (Yorks).—Accepted for the execution of drain-  
age works (Contract No. 4), for the Urban District Council.  
Mr. M. Paterson, Engineer, 35, Manor-row, Bradford:—  
Wm. Foster, Bingley, Yorkshire ... £3,470 13 4  
HELSTON (Cornwall).—For the execution of drainage  
works, Porthleven, for the Rural District Council of Helston.  
Mr. K. Jenkins, C.E., Torleven House, Porthleven:—  
Thomas and Son, Crovan ... £1,322  
KINGSWEAR.—For additions to "Bryndart" Kings-  
wear, for Major C. P. Dean. Messrs. Norman G. Bridgman  
and Walter H. Bridgman, Architects, of Torquay, Paignton,  
and Teignmouth. Quantities by Mr. Vincent Catermole  
Brown, of Paignton:—  
H. Webber & Sons £212 0 0  
R. C. Pillar ... £198 2 6  
James Short ... 210 0 0  
E. P. Bovey\* ... 198 0 0  
E. Pike ... 200 0 0  
[Architects' estimate, £200.]

KINGSWEAR.—For erecting a villa residence, for Mrs.  
Walker. Messrs. Norman G. Bridgman and Walter H.  
Bridgman, architects, of Torquay, Paignton, and Teigu-  
mouth. Quantities by Mr. Vincent Catermole Brown, of  
Paignton:—  
R. T. Pillar ... £703  
E. Pike ... £706  
G. Webber and Maunder ... 750  
Snaridge and Curtis ... 685  
S. Blackford ... 750  
E. P. Bovey\* ... 685  
H. Webber and Sons ... 716  
[Architects' estimate, £700.]

LONDON.—For the erection of shop and flats at No.  
55, High-street, Soho, for Mr. M. O'Leary. Messrs. Brun-  
den and Henderson, Architects, 47, Pall Mall, S.W. Quantities  
by Mr. J. Peebles, 88, Chancery-lane, W.C.:—  
W. S. Beaton (accepted) ... £1,654  
LONDON.—For the erection of additions and alterations  
to the Mineral Water Factory, Munster-road, Fulham, S.W.,  
for Messrs. Batey and Co. Limited. Mr. A. E. Howse,  
architect, 79, Broomwood-road, Wandsworth Common,  
S.W.:—  
J. Ivory ... £849 10  
Stimpson and Co. ... £714 0  
W. R. Williams ... 790 0  
Turtle and Appleton\* ... 670 0  
George Parker ... 725 0  
\* Accepted.

LONDON.—Accepted for structural works, and general  
repairs to sixteen houses in Hunt-street, Latimer-road, W.  
Mr. Arthur W. Tribe, architect, 91, Clapham-road:—  
Hoare and Son, Blackfriars ... £980  
LONDON.—For additions and improvements at Nos. 120  
and 122, Clapham-road, S.W., for Dr. W. P. Fox. Mr.  
Arthur W. Tribe, architect, 91, Clapham-road:—  
Hoare and Son ... £744  
Peacock Bros., Erixton\* £645  
\* Accepted.

LONDON.—For the erection of four houses in Dorset-  
road, Clapham-road, for Dr. W. P. Fox. Mr. Arthur W.  
Tribe, architect, 91, Clapham-road:—  
Hoare and Son ... £1,396  
Hibberd Bros., South  
Peacock Bros. ... 1,510  
Lambeth\* ... £1,100  
Edwards and Medway ... 1,475  
\* Accepted.

LONDON.—For the erection of a bakery at Charlton-  
place, Islington, for Messrs. Brett and Beney. Mr. Geo.  
Waymouth, architect, 23, Moorgate Street, E.C. Quantities  
by Mr. A. Paill, 6, Quality-court, W.C.:—  
F. and H. F. Higgs ... £5,900  
Patman and Fother-  
Colls and Sons ... 5,795  
Ingham and Co. ... £5,491  
R. D. Lown and Son ... 5,690  
Johnson and Co. ... 5,489  
Sabey and Son ... 5,597  
Dove Bros. ... 5,375  
LONDON.—For alterations to No. 11, Church-street, and  
No. 7, Horse and Groom-yard, Westminster, for Mr. J. L.  
Moone. Messrs. Waring and Nicholson, architects, 55,  
Parliament-street, Westminster, S.W.:—  
E. C. Hoskings ... £230  
Laphorne and Co. ... £384  
T. Hooper ... 337  
H. Hall\* ... 356  
Peacock Bros. ... 334  
\* Accepted.

LONDON.—For alterations and additions to Arzyle  
Lodge, Tulse Hill, for Mr. J. C. Lovell. Messrs. Yetts,  
Sturdy and Usher, architects, 144, Finsbury-pavement:—  
Candler and Son ... £1,300  
Woodward and Co. ... £1,170  
Faulkner and Sons ... 1,187  
John Ham and Son\* ... 1,147  
\* Accepted.

LONDON.—For the erection of Ilfley Buildings, on the  
Boundary Street area, for the London County Council. Mr.  
Thomas Blashill, Architect:—  
H. Faulkner and Co. ... £1,763  
T. L. Green ... £1,479  
J. Shillitoe and Son ... 4,715  
R. A. Yerbury and  
G. E. Todd ... 4,647  
Sons\* ... 4,103  
\* Accepted.

[The amount of the Architect's original estimate was  
£3,920, but this figure was, owing to the rise in the price of  
materials, subsequently altered to £4,082.]

LONDON.—Providing additional heating at school, Seaw-  
fell Street, for the School Board for London. Mr. T. J.  
Bailey, Architect:—  
W. G. Cannon and ... £148 0  
J. F. Clarke and Sons £119 0  
Sons ...  
J. Fraser and Son ... 140 0  
H. C. Price Lea and  
J. C. and J. S. Ellis, ... 109 0  
Co.  
Duffield and Co.\* ... 84 0  
Ltd. ... 134 10  
\* Accepted.

LONDON.—Erecting upper standard rooms, waterclosets,  
&c., at Ashburnham Schools, for the School Board for  
London. T. J. Bailey, Architect:—  
Amount of  
Tender. building brickwork  
in cement.

Holloway Bros. ...	£6,132 0 0	£86 0 0
G. S. S. Williams & Son	6,053 0 0	125 0 0
W. Shurmer ...	5,986 0 0	130 0 0
R. A. Yerbury and Sons	5,946 0 0	120 0 0
J. Shillitoe and Son	5,940 0 0	100 0 0
Treasure and Son ...	5,816 0 0	120 0 0
Perkins and Co. ...	5,308 0 0	122 0 0
D. Charteris ...	5,244 0 0	130 0 0
Lathey Bros. ...	5,281 0 0	86 0 0
W. Downs ...	5,234 1 6	116 4 0
Stimpson and Co. ...	5,095 0 0	118 0 0
C. Cox ...	5,093 0 0	102 0 0
J. and M. Patrick ...	5,005 0 0	105 0 0
E. Lawrence and Sons*	4,990 0 0	90 0 0

LONDON.—Rebuilding offices, &c., Penrose-street, for the  
School Board for London. Mr. T. J. Bailey, architect:—  
J. Grover and Son ... £2,500  
J. Marsland ... £2,305  
C. Cox ... 2,474  
G. Munday and Sons ... 2,379  
J. Garrett and Son ... 2,380  
E. Triggs ... 2,219  
E. Lawrence and Sons ... 2,368  
W. Akers and Co. ... 2,219  
W. Downs ... 2,352  
Lathey Bros. ... 2,212  
Stimpson and Co. ... 2,346  
Holliday & Greenwood\* 1,947  
\* Accepted.

LONDON.—Erecting higher standard rooms, &c., Sher-  
brooke-road schools, for the School Board for London. Mr.  
T. J. Bailey, architect:—  
Amount of  
Tender. building brickwork  
in cement.

W. Downs ...	£4,644 18 0	£83 7 0
W. Shurmer ...	4,553 0 0	120 0 0
T. Boyce ...	4,578 0 0	55 0 0
Perkins and Co. ...	4,548 0 0	95 0 0
Treasure and Son ...	4,501 0 0	95 0 0
Lathey Bros. ...	4,387 0 0	75 0 0
Dove Bros. ...	4,333 0 0	93 0 0
C. Cox ...	4,290 0 0	85 0 0
R. A. Yerbury and Sons	4,277 0 0	93 0 0
E. Lawrence and Sons	4,235 0 0	93 0 0
Stimpson and Co.*	4,121 0 0	113 0 0

\* Recommended for acceptance.  
NEWCASTLE.—For P. M. New Church, Kingsly  
Terrace, Newcastle, for the Trustees, Marshall and Dick,  
architects, Northumberland Street, Newcastle:—  
Main  
Building. and Tower. Spire. Total.

W. Baston ...	£1,790 0 0	£630 0 0	£5,420 0 0
J. Ferguson ...	4,671 0 0	715 0 0	5,386 0 0
J. Jackson ...	4,538 0 6	817 0 0	5,355 0 6
Alex. Pringle ...	4,536 0 0	754 0 0	5,290 0 0
Middlemiss Bros. ...	4,430 0 0	800 0 0	5,230 0 0
T. Weatheritt ...	4,494 0 0	700 0 0	5,194 0 0
Alex. Bruce ...	4,386 18 6	659 10 0	5,045 8 6
S. Easton ...	4,297 0 0	767 0 0	5,064 0 0
G. H. Mauchlen ...	4,106 6 0	613 10 0	4,719 16 0
Thos. Hutchinson* 4,129 6 6	561 2 8	4,690 9 2	

\* Accepted. † Gateshead. Rest of Newcastle.

# McNEILL'S FELTS (Roofing, Inodorious, Sarking, Dry Hair, Damp Course, etc.) McNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to  
F. McNEILL & CO., Head Office, Bunhill Row, London, E.C.; Slag Wool Works,  
Kirkintilloch, near Glasgow.

# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL FOR TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



## "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation  
falling on anything which happens to be below.

## WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass  
prisms, and prevent slipping, as well as doing  
away with the studs.

## WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS



**MERTHYR TYDFIL.**—For the execution of sewerage works, Mount Pleasant, Merthyr Vale, for the Urban District Council. Mr. F. T. Harvey, Engineer, District Council Offices, Merthyr Tydfil:—

Galland Farquharson	£575 4 9	J. Preece, Marden, Hereford	440 14 11
Amos and Harries	546 10 10	W. Lewis	409 17 3
G. Hancock	527 4 9	Frazer	401 14 7
J. Williams	447 19 11	Gage	389 17 3
		Parry	384 6 5

\* Accepted. Council to supply ironwork.

**NEWPORT (Mon.).**—For the erection of warehouses fronting Dock-street and Friar's-road, Newport, Mon., for Messrs. G. J. Kenyon and Co.:—

A. Lawson and Co.	£2,045 0 1	C. Lock	£1,795 0
J. Charles	2,025 0	A. E. Parfitt	1,750 0
G. H. Griffiths	2,020 0	C. H. Reed	1,733 0
J. Linton	1,999 0	D. Parfitt	1,694 0
T. G. Diamond	1,950 0	D. J. Davies	1,622 10
J. T. Morris	1,850 5	A. S. Morgan & Co.	1,620 0
J. Francis and Son	1,830 0	E. C. Jordan	1,597 0
W. A. Linton	1,830 0		
A. Hazell	1,847 0		

[All of Newport.]

**NEWPORT (Mon.).**—Tenders for re-erection of works at Newport, for the South Wales Brattice Cloth and India Rubber Company, Limited:—

Mr. C. Lock	£1,645	Mr. A. S. Morgan*	£1,025
Mr. E. Jordan	1,627		

[All of Newport.]

**NEWTOWN ABBOT (Devon).**—For the execution of water supply works, Kingsteinton, for the Rural District Council. Mr. S. Segar, Surveyor, Union-street, Newton Abbot.

Quantities by Surveyor:—			
Wm. Shaddock	£2,940 0 0	Rafarel and Co.	£2,125 0 0
W. H. Berry	2,530 0 0	Parker Bros.	2,100 0 0
E. Jenkins & Son	2,337 0 0	A. Thomas	2,031 13 11
Gabriel Bennett	2,340 0 0	M. Bridgman	1,961 1 10
S. Mason, Ltd.	2,300 0 0	Dart and Pollard	1,858 0 0
R. R. Facey	2,200 0 0	Hawking & Best,	
Fisher	2,178 13 0	Teignmouth	1,850 0 0
Veale and Son	2,170 0 0		

\* Accepted.

**NOTTINGHAM.**—For the enlargement of Quarry-road Board School, Nottingham. Mr. A. H. Goodall, Architect, Nottingham:—

J. Carlin	£3,625 0	Dennett and Ingle	£2,967 0
(Unsigned)	3,585 0	T. Barlow	2,936 0
J. H. Vickers	3,378 0	F. H. Wilkinson	2,901 16
J. Shaw	3,150 0	W. Pinkett	2,895 0
G. A. Pillatt	3,065 0	T. Cuthbert	2,830 15
J. Oscoff	3,031 0	J. Hutchinson, Not-	
Appleby & Lambert	2,998 0	tingham*	2,800 0
(Unsigned)	2,997 0	(Unsigned)	2,734 0
J. Mussion	2,975 0		

\* Accepted.

**NOTTINGHAM.**—For the enlargement of Board School, Quarry-road, Nottingham. A. H. Goodall, architect:—

Job Carlin (Bulwell)	£3,625 0	Dennett and Ingle	2,967 0
(Unsigned)	3,585 0	T. Barlow	2,936 0
J. H. Vickers	3,378 0	F. H. Wilkinson	2,901 16
J. Shaw	3,150 0	(Bulwell)	2,895 0
G. A. Pillatt	3,065 0	W. Pinkett	2,830 15
J. Oscoff	3,031 0	T. Cuthbert	2,800 0
Appleby & Lambert	2,998 0	J. Hutchinson (Not-	
(Unsigned)	2,997 0	tingham*)	2,800 0
J. Mussion	2,975 0	(Unsigned)	2,734 0

\* Accepted.

**PAIGNTON.**—For works at Primley House, for Mr. H. C. Belfield. Messrs. Norman G. Bridgman and Walter H. Bridgman, architects, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

R. Harris	£285	G. Webber and Maun-	£250
C. and B. E. Drew	307	H. Webber and Sons*	250
E. Pike	300		

[Architects' estimate, £300.]

For Fixing Grates.

<i>For Painting and Papering.</i>			
S. Tucker	£130 0	H. Webber and Sons*	£94 0
Mitchell and Son	114 0	J. Thomas and Son	90 10
* Accepted.			

\* Accepted.

**PAIGNTON.**—For erecting a villa residence for Mr. William Tozer. Messrs. Norman G. Bridgman and Walter H. Bridgman, architects, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

G. Webber and Maun-	£506 10	H. Webber and Sons	£490 0
der	498 0	R. Harris*	460 0
Smardidge and Curtis			

\* Accepted.

[Architect's estimate £500.]

**PAIGNTON.**—For erecting Constitutional Club rooms and business premises, for Mr. Thomas Adams. Mr. Walter G. Coudrey, Architect, of Paignton. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

E. Westlake	£1,795 0 0	G. Webber and	
E. P. Bovey	1,695 0 0	Maun-	£1,479 11 0
R. Yeo	1,580 0 0	T. Brown	1,450 0 0
H. P. Rabbich	1,574 0 0	M. Bridgman,	
H. Webber and		Paignton*	1,434 17 6
Sons	1,537 0 0		

\* Accepted with modifications.

**SLAPTON (S. Devon).**—For additions and alterations to "Higher Start," for Mr. H. G. Morgan. Mr. H. Vickery, architect, Torcross, Kingsbridge:—

W. Edgecombe	House.	Stables.
A. Brooking (accepted)	£212 15	£78 10
	735 6	61 0

**SOUTHEAST-ON-SEA.**—For sewerage and road-making on the Avenue Estate, Southeast-on-Sea. Mr. Arthur T. A. Bowyer, surveyor, 90, Leadenhall-street, E.C.:—

W. Buxton	£532 0 1	W. Iles, Southend*	£515 15
-----------	----------	--------------------	---------

\* Accepted.

**STONDON MASSEY (Essex).**—Accepted for additions to "Chivers." Mr. R. Mawhood, architect:—

H. Barlow, Ongar	£617 15
TRURO.	
Accepted for the execution of work at St. John's Schools. Mr. Wm. Swift, architect, 23, Lemon-street, Truro:—	

H. Tippet, Lemon-street, Truro

**SUNNINGHILL.**—For addition to premises at Sunninghill, near Ascot, for Mr. W. H. Sandwith. A. E. Sidford, architect, Wokingham:—

H. Charman, Ascot	£307
J. B. Seward, Wokingham	390
F. Pizze, Ascot	396
E. Pack, Sunningdale	380

**TYNEMOUTH.**—For alterations and new shops with rooms over in Percy Park-road, Tynemouth, for Mr. T. Moore. Marshall and Dick, architects, Newcastle and North Shields:—

Henry Bower, Blyth	£1,042 3 9
J. L. Miller, Tynemouth	994 14 3
J. Hutchinson, Tynemouth	985 7 6
Thos. Robson, North Shields	942 17 0
Thos. Coulson, North Shields	909 7 0
James Douglass, Cullercoats*	867 3 4

\* Accepted.

**TYNEMOUTH.**—For paving, &c., George-street, East, and Eleanor-street, Cullercoats, for the Urban District Council. Mr. J. P. Smilie, Borough Surveyor, Tynemouth:—

G. E. Simpson	£178 2 10
Thornton and Co.	172 13 11
Jos. Wardlaw, Newgate-street, Morpeth*	144 9 9

\* Accepted.

**TYNEMOUTH.**—For new schools, North Shields, for the Tynemouth School Board. Marshall and Dick, architects, Newcastle and North Shields:—

Accepted subject to the approval of the Educational Department.	£7,891
---	--------

**WALSALL.**—For sewerage, &c., Chapel-street, Blakenall, and Providence-lane, Leamore, for the Corporation:—

James Atkins, Ryecroft, Walsall	£98 17 0
James Atkins, Ryecroft, Walsall	£485 4 0

**WELLINGBOROUGH.**—For the erection of a technical institute, Council chamber, &c., for the Urban District Council. Messrs. Sharnan and Archer, Architects, Wellingborough:—

G. Brown and Sons	£4,392	W. Berrill	£3,990
T. H. Dorman	4,165	W. Stevens*	3,990
W. Goodman	4,148	W. J. Harrison†	3,800
Hacksley Bros.	4,001		

[All of Wellingborough.]

**WIDNES.**—For the erection of cemetery chapels, &c., Moss Brook, for the Corporation. Mr. J. S. Sinclair, C.C., Town Hall, Widnes:—

C. Burt	£7,153	Hughes and Stirling	£5,760
Wm. Winnard	6,633	G. Parker and Co.	5,699
E. Gabutti	6,325	Paterson and Son	5,620
John Matthews	6,230	P. Tickle	5,499
Joseph Ellison	6,140	G. Rathbone	5,210
G. Woods and Son	5,995	Thomas Sadler, Widnes*	5,125

\* Accepted.

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply

"Certified Coach," 31, Herbert-road, Plumstead, S.E.

Price 3s. 6d.

## GLOSSARY OF TECHNICAL TERMS

used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

## CIVIL SERVICE TECHNICAL EXAMS

—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House 70, Gower-street, W.C.

## ASSISTANT SURVEYORS, R.E. CIVIL

STAFF EXAMINATION ANNOUNCED. For terms of tuition, apply to Mr. G. A. T. MIDDLETON, A.R.I.B.A., 56, Dafforne-road, Upper Tooting, S.W. First place on three occasions.

## R.I.B.A. EXAMS. PREPARATION

personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

## YOUNG ARCHITECT, A.R.I.B.A.,

DESIRES TO ASSIST others

in the

PREPARATION OF DRAWINGS

at his own office.

G. SCORER, 28, Newman-street, W.

**ARCHITECT'S ASSISTANT** desires RE-ENGAGEMENT. Ten years' London experience. Three years present engagement. Working drawings, details, specification, surveying, measuring up, and vast experience in dilapidations.—R., 56, Priory Park-road, Kilburn.

**ARCHITECT'S or BUILDER'S ASSISTANT** desires ENGAGEMENT. Good draughtsman. Details, quantities, specifications, and colourist. Seven years' experience. Splendid references. Moderate salary.—H., Carlton Villa, 7, Tudmor-street, Shepherd's Bush, W.

**BOROUGH SURVEYOR and CIVIL ENGINEER'S ASSISTANT** disengaged. Good surveyor, leveller, draughtsman, and colourist. Private improvements. Excellent testimonials. Moderate salary. M., 68A, Queen's-road, Battersea.

**ARCHITECT'S ASSISTANT** desires ENGAGEMENT. Seven and a half years' experience in London offices and on buildings. Working and detail drawings. First-class draughtsman.—D. H., 115, Grandison-road, Clapham Common, S.W.

**BUILDER'S ESTIMATING CLERK** desires RE-ENGAGEMENT. Well up in quantities, p.c. accounts, and all works of Builder's office. Aged 38. First-class references.—A., 209, Harrow-road, W.

**FOREMAN of WORKS** desires an ENGAGEMENT. Well up in all branches. Thoroughly practical and energetic. Carpenter and joiner. Aged 41. Good references.—W. W., 30, Murray-street, New North-road, London, N.

## BRICKS. LIME. CEMENT.

**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

**WOOD BLOCK FLOORING.**

**MASTIC** for laying above supplied in any quantity.

**W. BRIGGS, Chemical Works, DUNDEE,**

SOLE MAKER OF

"Tenax" Building Rock Composition

For Wall Cavities.

## PILKINGTON'S

WORKS:

CLIFTON JUNCTION,

NEAR MANCHESTER.

**MANUFACTURERS OF HIGH CLASS TILES.**

For Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR

**CHURCHES, PUBLIC BUILDINGS AND**

**PRIVATE RESIDENCES.**

London Show Rooms:

Lyric Chambers, 45, Whitcomb Street W.C.

Manchester Show Rooms:

37, Cross Street.

## TILES.

# GODWIN'S TILES

For PAVEMENTS  
WALLS HEARTHES &c

AS USED BY THE  
Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON,** Lugwardine Works, WITTINGTON,  
Patronised by Royalty. | Established 1848. | Near HEREFORD.



**THE THORNTON-PICKARD**

SIMPLEST AND BEST.

**CAMERAS AND**

**SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.

Illustrated Catalogue Free.



20,000 yards.

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!



# INDEX OF ILLUSTRATIONS AND CONTENTS.

## ILLUSTRATIONS.

PAGE.

Supplement:—Kirkstall Abbey, sketched by C. E. Mallows.  
St. George's Church, Heavily, Stockport, from photographs by J. W. Buckley, Stockport 45, 46

## CONTENTS.

Another Unsatisfactory Competition ... 45  
A New Church at Stockport ... 45  
Perspective in Every-day Practice, by Wm. N. Cumming, A.R.I.B.A. ... 47

Ecclesiastical Architecture, by Frank Caws ... 49  
Principles of the Law of Rating as Affecting Engineering Works ... 51  
London's Defences ... 51  
The Wallace Art Collection ... 52  
North-Western Sanitary Inspectors' Association ... 52  
New Arcade for Birmingham ... 53  
Sheffield's New Town Hall ... 53  
A Great Municipal Enterprise ... 53  
Public Works in Ireland ... 54  
Bricks and Mortar ... 54, 55, 56  
Keystones ... 57  
Professional Items ... 58

Society Meetings ... 59  
Correspondence ... 60  
Trade and Craft:—Plymouth Builders and the Byelaws—Plasterers' Strike in Douglas—The Rights of Property Owners—American Iron and Steel Supplies—Grass Paving Blocks—Scarborough Improvements ... 60  
SURVEYING AND SANITARY SUPPLEMENT:—  
Workhouse Planning, by Geo. H. Bibby, F.R.I.B.A. xiii  
The Practical Designing of Iron and Steel Roofing, by Alexander Drew ... xv  
Surveying and Sanitary Notes ... xvi

# "THE BUILDERS' JOURNAL" ADVERTISERS.

Names and Addresses with the page on which their Announcements Appear.

Adams & Co. ... vi	Cobbett & Co., London ... —	Hope, Henry, Birmingham ... xi	Robson & Co., Sunderland ... —
Adams, Robert, London ... vi	Couzens, G. and F., Cardiff ... —	Hyde & Co., G., London ... viii	Rogers, S. E., London ... xi
Adams, T., & Sons, Ltd., Birmingham ... xi	Cox, Sons, Buckley & Co., London ... —	Itter, A. W., Peterborough ... —	Safety Tread Syndicate, Ltd. ... xi
Albion Clay Co., Ltd., London ... —	Dennis, Henry, Ruabon ... —	Jones & Attwood, Stourbridge ... i	St. Paneras Iron Co., London ... —
Allday, J. L., Birmingham ... vii	De Ridder, R. P., Liverpool ... —	Jones, James, Birmingham ... —	Self-Lock Roofing Tile Co., Ltd. ... —
Anaglypta, Darwen ... —	Doulton & Co., Lambeth ... i, ii	Jones and Willis, London ... —	Skidmore, Thos., & Son ... —
Ashmore, Benson, Pease & Co., Ltd. ... —	Easton, Anderson & Gooldeen, Ltd. ... iv	Kauri Timber Co., Ltd., London ... —	Smokeless Fire Co., Ltd., London ... i
Attwood, J., Stourbridge ... —	Eastwood & Co., London ... x	Kaye, Joseph, & Sons, Ltd., London ... —	Stanley Bros., Ltd., Nuneaton ... xi
Ba'l, H. A. ... —	Elis, Partridge & Co., Leicester ... —	King, John, Liverpool ... —	Stiff & Sons, London ... iii
Barnett, Edward, Walsall ... —	Elmsley, Thomas, London ... —	Lewis, J., London ... v	Strode & Co., London ... i
Barrows & Co., Ltd., Banbury ... —	Emley & Sons, Newcastle-on-Tyne ... i	London Hoist and Chain Co. ... vii	Szerelmey & Co., London ... —
Bath Stone Firms, Ltd., Bath ... —	Etridge, J. J., Junr., London ... —	London Plate-Glass Insurance Co., Ltd. ... —	Talbot Co., Leeds ... —
Batchelar, J., & Co., London ... viii	Ewart & Sons, London ... —	McNeill, F., & Co., London ... ix	Thornton-Pickard Mfg. Co. ... x
Bayliss, Jones & Bayliss ... —	Farmiloe, G., & Sons, London ... —	Maw & Co., Ltd., Jackfield ... —	Twyford, Ltd., Hanley ... vii
Bell, R., & Co., London ... xi	Farrar, E., & Co., London ... —	Measures Bros., Ltd., London ... v	Ward, B., & Co., London ... vii
Bennett, John, London ... —	Fawcett, M., & Co., London ... —	Meadway, M. T., & Co. ... —	Warings, Ltd., London ... —
Blackman Ventilating Co., Ltd. ... xi	Gibbs Bros., Loughborough ... xi	Mellows & Co., Sheffield ... vii	Waygood, R., & Co., Ltd., London ... —
Blundell, Spence & Co., Hull ... —	Glover, F. A., & Co., London ... —	Minton, Hollins & Co. ... —	Webb & Co., London ... i
Boote, Ltd., T. & R., Burslem ... —	Godwin, W., & Son, Withington ... x	N. A. F. Window Co., London ... iii	Wilkinson, W. B., & Co., Ltd. ... —
Brady, G., Manchester ... —	Granite Silicon Plaster Co. ... —	Oates & Green, Ltd., Halifax ... vi	Williams, G. A., & Son ... iii
Briggs, W., Dundee ... x	Gregory, Thomas, & Co., London ... viii	Parker, Robert, & Co., Liverpool ... —	Wilson & Co., London ... ix
Burmantofts, Leeds ... —	Grundy, John, Ltd., London ... —	Patteson, J. & H., Manchester ... i	Woollams, Wm., & Co., London ... —
Candy & Co., Ltd., London ... —	Hamilton & Co., London ... —	Perkins, A. M., & Sons, Ltd., London ... xi	Wragge, Geo., Manchester ... viii
Carter & Co., Poole, Dorset ... —	Hartley and Sugden, Ltd., Halifax ... xi	Pilkington Tile and Pottery Co. ... x	Wright, G., & Co., Rotherham ... i
Charteris & Longley, London ... i	Hentschel, C., & Co., London ... i	Roberts, Adlard & Co. ... —	Young & Marten, Stratford ... i, ii
Claridge's Asphalte Co., Ltd. ... —	Homan & Rodgers, London ... i, vi		Young & Co., J., London ... viii



THE  
**N.A.P.**  
Safety Windows  
supplied by the  
N.A.P. Window Co., Ltd.,  
159, Victoria St., S.W.

THE  
"Top Bolt"  
PATENT  
For the Alteration of  
Existing Windows.

G. A. WILLIAMS & SON.

BLINDS

21, QUEEN'S ROAD, BAYSWATER, LONDON, W.

# STIFF & SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS,  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS,  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-COTTA, VASES, &c.

For Illustrated Price Lists apply to

JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
March 8	<b>BUILDINGS—</b> Works to March 31st, 1900, Royal Engineers' District, Belfast.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 8	A Building at Colchester	Gas and Water Company	W. C. Street, 7, Victoria-street, S.W.
" 8	Workmen's Cottages, Meathorp Marsh		E. Thompson, Manager and Secretary, Gas Works, Meathorp Marsh.
" 8	Labour for House, Gristhorpe (Yorks)		J. R. Fraser, 8, Park-square, Leeds.
" 8	Extensions, &c., to Club, Halifax		Jackson and Fox, Architects, 22, George-street, Halifax.
" 8	Factory and Laundry, Londonderry	Messrs. Hogg and Mitchell	W. Barker, 25, Orchard-street, Londonderry.
" 9	Tower and New Vestries, Christchurch, Waterloo, near Liverpool.		Austin and Paley, Architects, Lancaster.
" 9	Retaining Wall, Manchester	Parks Committee	City Surveyor, Town Hall, Manchester.
" 10	Restoration of Church, Gaerwen, Anglesey	Holborn Union	P. S. Gregory, Architect, Bangor.
" 10	Fittings, &c., at Laundry, London	Guardians	A. Saxon Snell, 22, Southampton-buildings, W.C.
" 10	Alterations to Workhouse, Park-road, Gosport (Hants)	Holborn Union	H. A. F. Smith, Architect, Star-chambers, High-st., Gosport.
" 10	Laundry House, Baths, and Lavatories, London	Essex County Council	C. E. Vaughan, 25, Lowther-arcade, W.C.
" 11	Laboratory, Chelmsford	Watch Committee	County Offices, 78, Duke-street, Chelmsford.
" 11	Residence for the Chief Constable, Worcester	Rural District Council	City Architect, Worcester.
" 11	Brewery, Stabling, &c., Northowram, near Halifax	Great Eastern Railway Company	J. F. Walsh, Lancs. and Yorks Bank-chambers, Halifax.
" 12	Reconstruction of Bridge, Belper and Chesterfield		R. C. Cordon, Surveyor, Duffield, Derby.
" 12	Station, Felixstowe		The Engineer, Liverpool-street Station, E.C.
" 13	Restoration of Roof, St. Blazey Church, Cornwall		Edmund Sedding, Architect, 12, Atheneum-st., Plymouth.
" 15	Bishop's Palace, Londonderry	Committee	S. P. Close, Architect, 53, Warring-street, Belfast.
" 15	Works, &c., to March 31st, 1900, North-Western District, Liverpool.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 15	Wards, Mortuary, Boundary Walls, &c., Gainsborough	Guardians	Eyre and Southall, Architects, Gainsborough.
" 15	Masonic Hall, Carrickfergus	Building Committee	J. Boyd, Town Hall, Carrickfergus.
" 16	Cookery Centre, New Brompton (local contract)	School Board	8, Waterloo-road, New Brompton.
" 17	Infirmary, &c., at the Workhouse, Mansfield	Guardians	R. F. Vallance, Architect, Mansfield.
" 18	Wesleyan Chapel, Ulverston		20, Market-street, Ulverston.
" 25	Offices and Shops, Castleford	Concert and Lecture Hall Company	R. M. McDowall, Architect, Castleford.
April 1	Repairs and Materials (Triennial Contracts)	War Department	Commanding Royal Engineer (in each district).
No date.	Infirmary, Nurses' House, Porter's Lodge, Kingston	Guardians	W. H. Hope, Union Offices, Portsmouth-road, Kingston-on-Thames.
"	Additions to John-street Tavern, Rochdale	Phoenix Brewery Company	G. A. Hammond, Architect, Rochdale.
"	Church and Schools, Chelmsford		Gordon, Lowther, and Gunton, Finsbury House, E.C.
"	Shops and Offices, Oswaldtwistle	Co-operative Society	Haywood and Harrison, Architect, Accrington.
"	Store and Seven Houses, Station-road, Oxenhope (Yorks.)	Uppertown Industrial Co-operative Society, Limited.	J. Haggas, Architect, North-street, Keighley.
"	Schools, Dukinfield	School Board	Eaton, Sons, and Cantrell, Architects, Ashton-under-Lyne.
"	Villa, Old-road, Dukinfield	T. W. Stansfield	Eaton, Sons, and Cantrell, Architects, Ashton-under-Lyne.
"	Seven Houses, Blackhall Mill, Ebchester		Badenoch and Bruce, Architects, 55, Pilgrim-street, Newcastle-on-Tyne.
"	Church Additions, Free Church, Poynton, near Stockport.		F. W. Dixon, Architect, Trevelyan Buildings, Manchester.
"	Residence, Denton (Lancs.)		J. H. Burton, Surveyor, 2, Guide-lane, Hooley Hill.
March 10	<b>ENGINEERING—</b> Dredging Ballast Quay, Poole	Harbour Commissioners	H. S. Dickinson, Clerk to the Harbour Commissioners, Poole.
" 10	Boring and sinking well, Coalville	Urban District Council	J. B. Everard, 6, Millstone-lane, Leicester.
" 10	Cast iron water pipes, Eastington (Durham)	Rural District Council	G. Phalp, Surveyor, Haswell.
" 12	Timber groyne, resetting, &c., Criccieth (Wales)	Urban District Council	T. Roberts and Son, Portmadoc.
" 13	Deepening pool of the harbour, St. Peter Port, Guernsey	Harbour Committee	J. H. Duquemin, States Engineer, States Office, Guernsey.
" 15	Steel girder road bridge, Dumbarton	County Road Board	Cranch and Hogg, 165, Hope-street, Glasgow.
" 17	Dredging at the Hook of Holland	Water Commissioners	Waterstaat, The Hague.
" 18	Main conduit (4 miles 18 chains), Belfast	Corporation	Mr. Macansey, Waterworks Office, Belfast.
" 18	Filter beds, foreman's house, &c., Cardiff	Corporation	C. H. Priestley, Town Hall, Cardiff.
" 31	Railway, reservoir filter beds, &c., Birmingham	Provincial Administration	J. Mansergh, 5, Victoria-street, S.W.
April 13	Harbour work extensions at Ostende		Brussels, 17, Rue des Augustins.
March 17	<b>PAINTING AND PLUMBING—</b> Painting and Repairs, Victoria Park, London	County Council	Architect's Department, Spring-gardens, S.W.
March 8	<b>ROADS—</b> Materials, 1 Year, to April 1, 1898, London, S.W.	Barnes Urban District Council	G. Bruce Tones, Council Offices, High-st., Mortlake, S.W.
" 8	Levelling, Paving, &c., Morley	Corporation	Borough Surveyor, Town Hall, Morley.
" 8	Materials, &c., Nottingham	Corporation	E. P. Hooley, County Surveyor, Shire Hall, Nottingham.
" 8	Materials, Withington, Manchester	Urban District Council	A. H. Mountain, Town Hall, Withington.
" 8	Broken Guernsey Granite, &c., Rotherhithe	Vestry	J. J. Stokes, Vestry Hall, Lower-road, Rotherhithe.
" 8	Works and Materials, Barnes	Urban District Council	G. B. Tones, Council Offices.
" 8	Kerbing and Making-up Streets, Cromer	Urban District Council	A. F. Scott, Church-street, Cromer.
" 8	Dross Screenings, Granite, &c., Thorne (near Doncaster)	Rural District Council	G. Kenyon, Plantation-road, Thorne.
" 9	Hartshill Stone (1800 tons), Abingdon	Corporation	B. Challenor, 59, Sturt-street, Abingdon.
" 9	Road Stone, Paving, Kerbing, &c., Bridgewater	Rural District Council	Borough Surveyor, Town Hall, Bridgewater.
" 9	Maintenance and Repair, 1 Year, Maidstone	Corporation	F. W. Ruck, Surveyor, 86, Week-street, Maidstone.
" 9	Granite, East Retford	Kent County Council	J. D. Kennedy, Borough Surveyor, Retford.
" 9	Road Maintenance and Repair, Maidstone	Corporation	F. W. Ruck, 86, Week-street, Maidstone.
" 10	Materials (various) Fulham	Kent County Council	Town Hall.
" 11	Hauling Materials, Swindon	Vestry	J. F. Kirby, 42, Cricklade-street, Swindon.
" 12	Whinstone and Limestone, 1 Year, to March 31, 1898, Stokesley	Rural District Council	W. H. Dixon, Kirby Carlton, Northa lerton.
" 13	Flints, &c., Uckfield	Rural District Council	F. Holman, 86, High-street, Lewes.
" 17	Materials, 1 Year, to March 31, 1898, St. Helens (Lancs.)	Corporation	G. J. C. Broom, Borough Engineer, St. Helens.
" 18	Materials, 1 Year, to March 31, 1898, Belper	Rural District Council	E. C. Cordon, Duffield, Derby.
" 19	Materials, Downham Market (Norfolk)	Rural District Council	T. Reed, Clerk, Downham Market.
" 20	Carting of Material, Huntingdon	Rural District Council	M. L. Lewin, District Surveyor, Newtown, Huntingdon.
No date.	Granite Road Metal, &c., East Elloe (Lincs.)	Rural District Council	E. P. Mossop, Clerk to the Council, Holbeach.

## EASTON, ANDERSON &amp; GOOLDEN, LIMITED,

3, WHITEHALL PLACE, LONDON, S.W.  
22, BILLITER STREET, E.C.

Telegrams—"EGYPTIAN, LONDON."  
Telephone—3695.

## ELECTRIC &amp; HYDRAULIC LIFTS &amp; CRANES,

## PUMPS, RAMS,

## WATER SUPPLIES, ENGINES AND BOILERS,

## ELECTRIC LIGHT AND POWER.



MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.



MARCH 3, 1897.]

AND ARCHITECTURAL RECORD.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
March 8	<b>SANITARY—</b> Removal of Refuse, Beddington, Surrey	Parochial Committee	J. T. Williams, Clarendon Road, Wallington.
" 9	Horse Hire, &c., Leeds	Sanitary Committee	J. Handford, Crown Point Yard, Call, Leeds.
" 29	Drainage and Plumbing Works, Stone, Staffs.	Guardians	J. J. Chapman, Architect, Stone.
July 31	Sanitary Improvement Works, Oporto, Portugal	Corporation	Municipal Town Hall, Oporto.
March 15	<b>SEWERAGE—</b> Sewerage Works, Sidmouth	Urban District Council	Council Offices.
" 17	Sewage Farm Works, Burton-on-Trent	Corporation	J. E. Swindlehurst, Borough Engineer.
" 23	Sewers, Lewisham	Board of Works	Board of Works Office, Catford, S.E.
March 9	<b>STEEL AND IRON—</b> Cast Iron Pipes, Hull	Corporation	F. J. Bancroft, Town Hall, Hul'
April 15	Rails (2665 tons), Bucharest	Direction of Roumanian State Railways	

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
March 17	Plans for Extension of Workhouse, &c., Swansea	£10 10s.	Guardians.
" 20	Designs for Town Hall, Enniskillen (co. Fermanagh, Ireland)	£50, £20, £10	Commissioners.
" 31	Railway Stations, Christiania	Kroner 10,000, 4000, 2000, 1000	Railway Offices, Department of Public Works, Victoria-terrace, No. 6, Christiania.
" 31	Designs for Public Halls and Municipal Offices, Govan		Commissioners of the Burgh.
April 17	Plans and Designs for Assembly Hall, &c., Guernsey	£100, £50	States of Guernsey.
" 30	Designs for Police Station and Court House, Halifax	£50, £25	Corporation.
July 1	Designs for Water Supply, Elne (France)		La Mairie, Elne, Pyrenées Orientales.
No date.	Design for Nurses Home, Wandsworth and Clapham Union.	£52 10s., £21, £10 10s.	Guardians.

CONTRACTS OPEN.

**GREAT EASTERN RAILWAY COMPANY.**  
NEW STATION AT FELIXSTOWE.  
NOTICE TO BUILDERS AND CONTRACTORS.  
The Directors of this Company are prepared to receive TENDERS for the ERECTION of a NEW STATION at Felixstowe.

Persons desirous of tendering can, on application to the Engineer, obtain copies of the specifications and quantities, and the drawings can be inspected at his office, at the Liverpool-street Station, on and after Monday, the 1st day of March, 1897.  
Sealed tenders, in envelope, endorsed "Tender for New Station at Felixstowe," should be addressed to the undersigned, and must be delivered at the Secretary's Office, Liverpool-street Station, not later than Ten a.m. on FRIDAY, March 12th, 1897.  
Tenders to be sent through the General Post Office; any sent otherwise will not be considered.  
The sum of £10 10s. will be charged to each applicant for the specifications, quantities, and forms of tender; but such sum will be refunded to those whose tender is not accepted, providing the specifications, quantities, forms of tender, and all other documents be returned with the tender.  
The Directors do not bind themselves to accept the lowest or any tender.  
By Order,  
T. D. GENLLOUD, Secretary.  
Liverpool-street Station, E.C., February, 1897.

**BIRMINGHAM CORPORATION**  
WATER.—ELAN SUPPLY.  
CONTRACT NO. 6.—FRANKLEY RESERVOIR, FILTERS, &c.  
TO CONTRACTORS.  
The Corporation of Birmingham are prepared to receive TENDERS from competent persons willing to enter into a contract for the CONSTRUCTION of about

1½ miles of RAILWAY, a LINED SERVICE RESERVOIR to hold 200 million gallons, Eighteen FILTER BEDS having a total area of about 67,000 square yards, with the necessary inlet, outlet, washout, and overflow arrangements, and for other WORKS described in the bills of quantities.

The drawings may be seen, and specification and bills of quantities obtained, at the office of the Engineer, Mr. JAMES MANSERGH, 5, Victoria-street, Westminster, on and after NOON of TUESDAY, the 2nd day of MARCH next, on the deposit of a cheque for £20, which will be returned after the receipt of a bona-fide Tender with the bills of quantities fully priced out.

Early application for particulars is necessary, as only a limited number will be given out, and none supplied after the 10th day of MARCH.

The Contractor will be required to undertake not to pay less than the minimum standard rate of wages current in the district in which the works are situate.  
Sealed Tenders, addressed to me, and endorsed "Tender for Frankley Reservoir, &c., Contract No. 6," are to be delivered at my office (post paid), at or before NOON of WEDNESDAY, the 31st day of MARCH next.

The Corporation do not bind themselves to accept the lowest or any Tender.  
EDWARD ORFORD SMITH,  
Town Clerk's Office, Birmingham,  
February 22nd, 1897.

**CITY OF SHEFFIELD.**  
BRIGHTSIDE PUBLIC BATHS.  
The Health Committee invite TENDERS for the CONSTRUCTION and ERECTION of PUBLIC BATHS at the corner of Sutherland-road, opposite the end of Earsham-street, Sheffield.  
Plans and specification may be seen and quantities obtained at the Office of Mr. Charles F. Wike, M. Inst. C.E., City Surveyor, Town Hall, Sheffield, on payment of One Guinea, which will be returned on receipt of a bona-fide tender.

Tenders, endorsed "Public Baths, Brightside," to be sent in not later than Six o'clock p.m. on WEDNESDAY, March 3rd, 1897, addressed "Chairman and Members of the Health Committee, City Surveyor's Office, Town Hall, Sheffield."

The Committee do not bind themselves to accept the lowest or any tender.  
The contract will comprise the fair wages and conditions of labour clause which has been adopted by the Sheffield Corporation, particulars of which will appear in the specification.

By order,  
HERBERT BRAMLEY, Town Clerk.  
Town Clerk's Office, Town Hall,  
Feb. 19th, 1897.

**KINGSTON UNION.**  
TO BUILDERS AND CONTRACTORS.  
The Board of Guardians of the Kingston Union invite TENDERS for BUILDING a new MALE INFIRMARY, NURSES' HOME, and PORTER'S LODGE, at the Workhouse, Kingston-on-Thames.

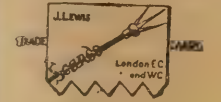
The drawings and specifications can be seen, and bills of quantities and form of tender obtained on application to Mr. William H. Hope, C.E., Architect and Surveyor, Union Offices, Portsmouth-road, Kingston-on-Thames.  
A charge of £2 2s. will be made for a copy of the quantities, which have been taken out by Mr. Guy M. Nicholson, of 2, Old Queen-street, Westminster, and this charge will be returned on receipt of a bona-fide tender.

The contractor shall pay the fair rate of wages current in the district, and for this purpose the definition of a fair rate of wages shall mean trade union rate.  
The time for sending in the tenders, and all further information, may be obtained on application to the Architect.

The Board do not bind themselves to accept the lowest or any tender.

JAS. EDGELL, Solicitor,  
Clerk to the Guardians.  
Union Offices, Portsmouth-road,  
Kingston-on-Thames, February 17th, 1897.

TELEGRAMS:  
"WEATHERVANE, LONDON."



**J. LEWIS,** 5 & 6, Great Winchester Street, LONDON, E.C.

LIGHTNING CONDUCTORS.

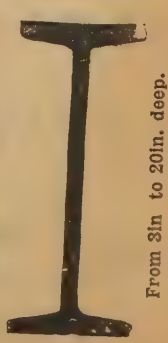
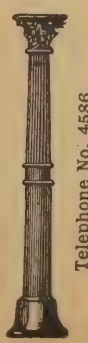
ELECTRICAL EXHIBITION. CRYSTAL PALACE AWARD, 1892.  
"LEWIS LINK," The on'y EFFICIENT COUPLING for Conductors. PATENT No. 16,641.  
SEE SECTION Fig. 2.

VILLAS,  
MANSIONS,  
SCHOOLS,  
CHURCHES,  
FACTORIES.  
CHIMNEY  
SHAFTS, &c.



**MEASURES BROTHERS, LTD.**  
LONDON.

SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.  
MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.  
Have now in their Town Stock 6,500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c.  
Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.  
SECTION SHEETS AND ESTIMATES ON APPLICATION.  
Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.





# FOR LOW LEVEL SEWAGE RAISING AND DRAINAGE IRONWORK

SEE ...

**Adams'**  
CATALOGUE.

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

**ROBT. ADAMS, 67, Newington Causeway, London, S.E.**

These marvellous  
Double and Single  
Action, Silent,  
Adjustable, and  
Self Compensating

**SPRING  
HINGES**

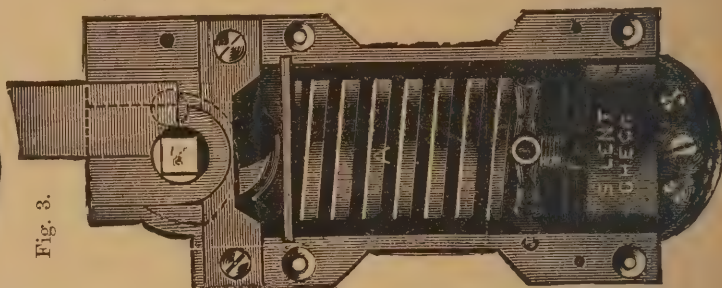
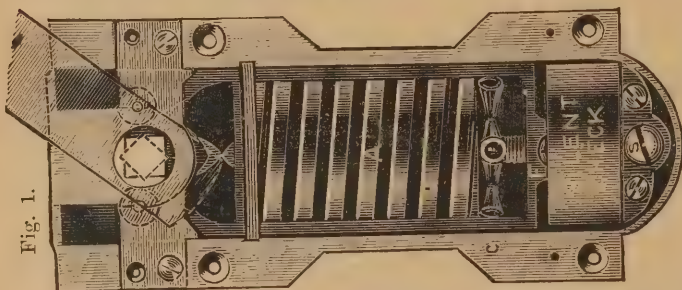
Guaranteed to last  
longer and work better  
than any hitherto  
made.

CAN BE FITTED TO ANY  
DOOR.

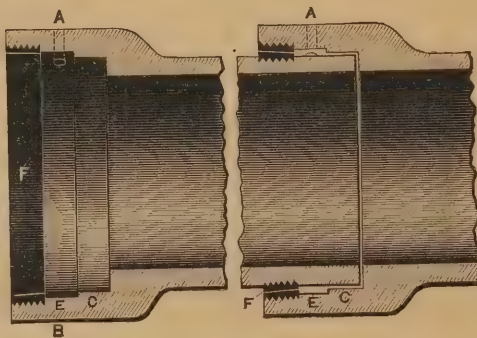
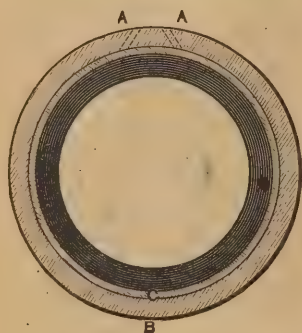
Fig. 1 (Silent).  
A Double-Action  
Spring Hinge  
which opens to and  
closes from the angle  
of 135°.

Fig. 3 is the new  
Single Action Spring.  
It opens to and closes  
from the angle of 180°,  
i.e., "wide back."

THE FIRST  
SPRINGS EVER  
PRODUCED WITH  
THESE GREAT  
ADVANTAGES.



## GREEN'S PATENT TRUINVERT PIPE.



This pipe secures TRUE ALIGNMENT OF  
INVERT, INCREASED STRENGTH IN THE  
SOCKET, THREE GAS AND WATERTIGHT  
CONNECTIONS AT EVERY JOINT, and  
while allowing for a slight settlement when  
first laid, forms an ABSOLUTELY RIGID  
JOINT directly the cement sets.

### POINTS.

- 1.—GAS AND WATER-TIGHT JOINTS EASILY MADE UNDER WATER.
- 2.—TRUE ALIGNMENT OF INVERT.
- 3.—SOCKET THE STRONGEST PART OF THE PIPE.
- 4.—NO SPECIAL JUNCTIONS REQUIRED.

OATES & GREEN, Ltd., Halifax.

AA—Holes for pouring in cement or composition.  
BB—Strengthened and Lengthened Socket.

CC—Inner Socket and Rest.  
EE—Chamber for cement or composition.  
FF—Stanford Joint in new position.

## HOMAN & RODGERS,

ORIGINAL PATENTEES OF ALL GIRDERS

**ENGINEERS.**

FORMED OF JOISTS AND PLATES

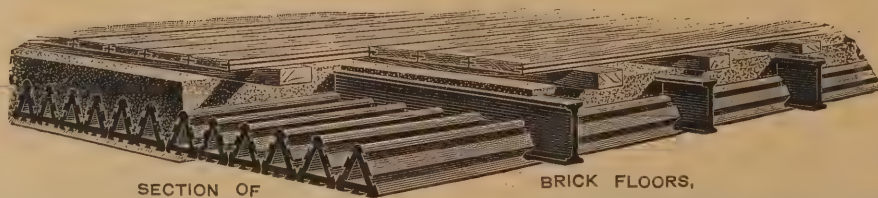
CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS,  
USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES,

PIERS,



GRANITIC

PAVING STEPS,

ASPHALTE.

LONDON { OFFICES: 17, GRACECHURCH STREET, E.C.  
WORKS: NINE ELMS LANE, S.W.  
Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue.

MANCHESTER { OFFICES: 10, MARSDEN STREET.  
WORKS: WEST GORTON.  
Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

**FIRECLAY BRICK WORKS, PARKSTONE, DORSET**



# Surveying and Sanitary SUPPLEMENT.

MARCH 3RD, 1897.

## WORKHOUSE PLANNING.

BY GEORGE H. BIBBY, F.R.I.B.A.

(Continued from page vii.)

### No. II.—ENTRANCE AND RECEPTION BUILDINGS.

IT is usually desirable that there should be only one general entrance to a workhouse, both for officials and paupers, and that such entrance be so arranged that the porter shall have complete and immediate supervision with regard to all admissions to the institution. It should be remembered that the position of porter to a workhouse is not without some elements of danger, not merely by reason of violent, drunken, or insane applicants for food and shelter, but also because large numbers of paupers, seeking the shelter of a workhouse, are found to be suffering from dangerous, infectious, or loathsome diseases.

In planning the entrance buildings these contingencies must necessarily greatly affect the arrangements to be made, and the work-

house Architect must arrange his plan with the knowledge that as soon as a pauper is admitted he must be placed in a special apartment for his reception, where he shall at once be examined by the Medical Officer. If this official, upon such examination, shall discover that the pauper be suffering under any disease of body, or be defective in intellect, the pauper would then be placed in the wards for sick or infirm, or in such other portion of the buildings as might appear advisable by the Medical Officer, as, for instance, the wards for the imbeciles or harmless lunatics, for able-bodied paupers, or for vagrants, &c.

The plan of the entrance and receiving buildings must be influenced, further, by the circumstance that no pauper should be detained in a reception-ward for a longer time than is absolutely necessary for carrying into effect the medical officer's duties above-named, or for making such inquiries respecting the pauper as may be desirable, except from some exceptional or unavoidable cause, such as the overcrowding of the ward to which he should under ordinary circumstances be sent.

All plans for receiving-wards should be so arranged that the paupers, before being removed therefrom shall have every convenience

for being thoroughly cleansed, and for being clothed in a workhouse dress; there must also be facilities for the disinfection and purifying of the pauper's own clothing, after which the latter must be deposited in an apartment planned for the purpose, and from whence the same would be returned to the pauper upon leaving the workhouse.

The entrance buildings for a workhouse must therefore be planned in accordance with the above requirements, there must be apartments for the porter and portress, also receiving-rooms or probation-wards, with rooms for storing pauper's own clothing, and it may be in special cases arranged to accommodate the vagrants, and include the board-room, clerk's office, strong-room, and a room for the public vaccinator, but the size of the workhouse would usually influence, very considerably, the extent of the provision to be made at this point, and decide whether or not some of the apartments might be advantageously placed elsewhere.

The reasons for not always placing the vagrants' wards in the entrance building depend, in a measure, upon the proportion of this class to be expected to seek admission; where the number of vagrants is considerable

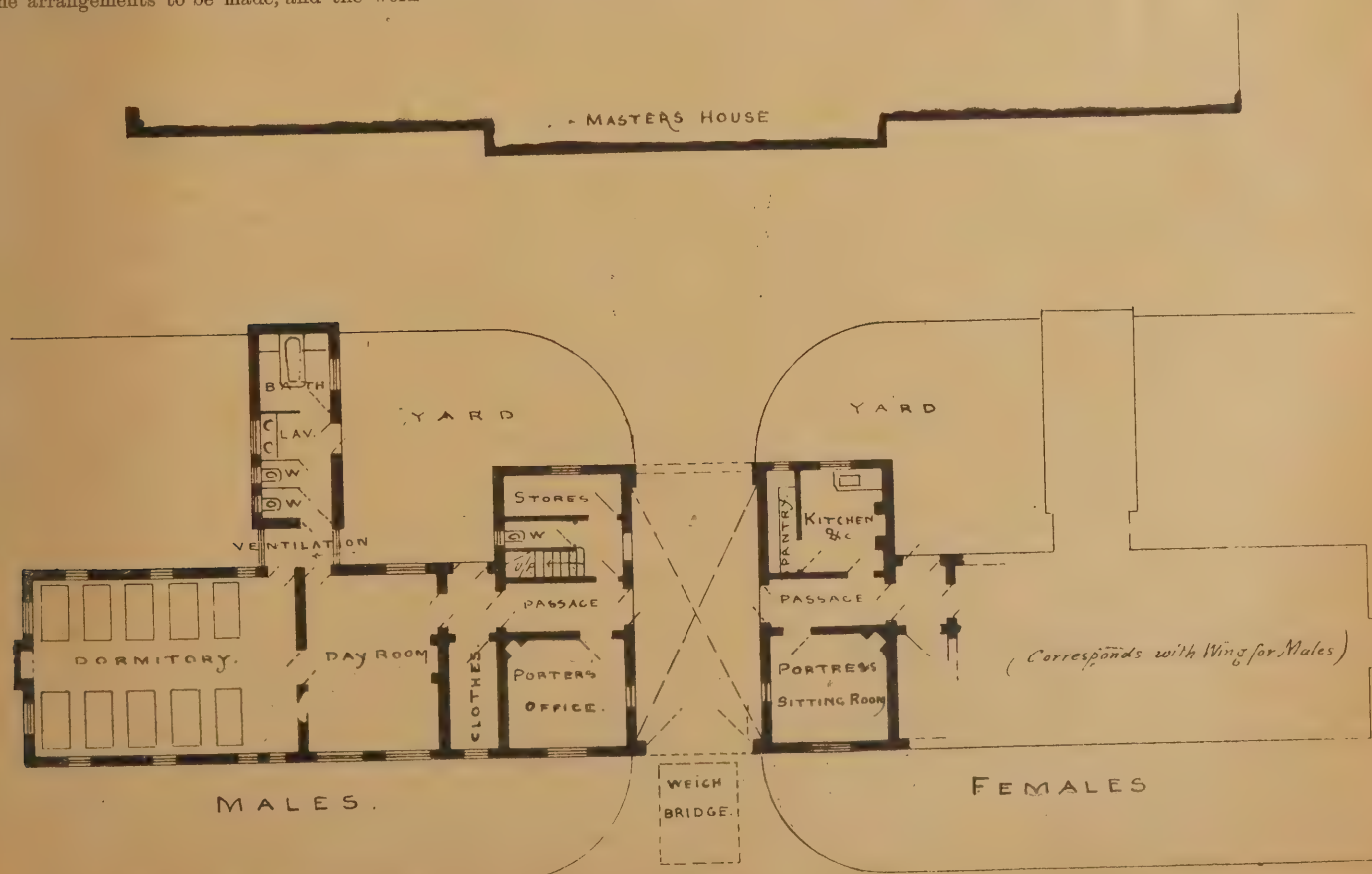


Fig. 1.





Fig. 2.

special arrangements must be made. These would involve separate buildings, and will be dealt with in a later article.

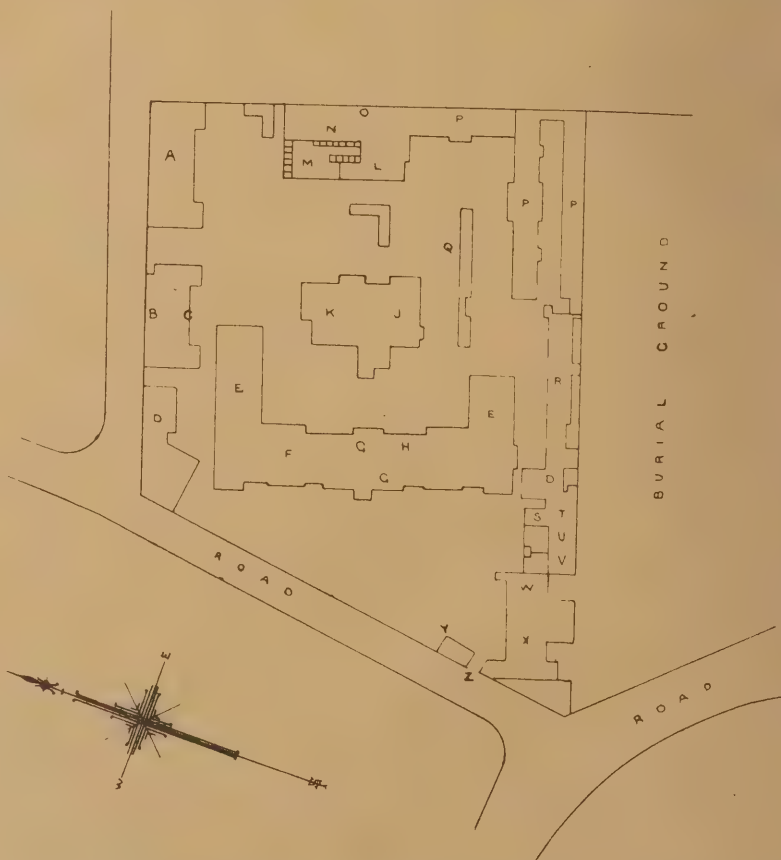
At or near to the workhouse entrance there should be fixed a weighbridge. It has been officially stated that the use of such an apparatus will frequently be found to save its first cost within a year. Messrs. Pooley and Son, of Liverpool and London, manufacture a patent weighbridge, which has been adopted at a large number of workhouses, asylums, and buildings of a similar character.

If it be convenient that the rooms for the public vaccinator be in any way attached to a workhouse, or to the offices for the Guardians, it is necessary that there be provided a distinct entrance, so that persons who are not paupers may avail themselves of the services of the vaccinating officer without entering in any part of the building intended for the relief of paupers and vagrants. The vaccination offices should include a room of small size for the medical officer on duty, and should be wholly separated from the union buildings. There must be a waiting-room of a size adequate to the numbers likely to seek vaccination in the district, and it would be a decided advantage if the vaccination entrance could be placed in a different road to that in which the workhouse general entrance is placed.

In populous districts many children may, under various circumstances, be committed temporarily or otherwise to the workhouse by the police magistrates. It is, therefore, frequently requisite that special provision for their detention should be made, as the workhouse authorities are responsible for their safe custody. For obvious reasons it is most undesirable that such children should be permitted to associate with any of the inmates of the workhouse while under remand. Therefore sufficient dormitory and day accommodation, with lavatories, baths, and closets, &c., should be provided, except in the case of those country or other small workhouses where few of such remanded children would be expected. But in connection with many country (and some town) workhouses it is desirable that there should be provided carriage-sheds and stables, so that the conveyances and horses belonging to the Guardians may be put up while the business of the Union is being transacted. Such accommodation as this should most certainly be contrived near to the workhouse entrance, and is the due of those Guardians who give up much of their time to public duties, and have to travel considerable distances to do so; but such stable accommodation need not be of a costly description.

In a yard, conveniently near to the entrance to the workhouse, accommodation may sometimes be arranged for persons to work in respect of their out-door relief. It is considered that this should usually be distinct from the workhouse buildings, although within the precincts of the same, the enclosure should be provided with sheds for stone-breaking, and apartments for the storage of implements and tools, also a small room for the labour-master.

N° 3



The shed for stone-breaking requires to be divided into spaces (each about 4ft. 6in. in width and 5ft. 6in. in depth). The divisions must be of substantial construction, and may be about 4ft. 6in. to 5ft. in height. There should be suitable entrances and exits for the

carts bringing the unbroken and taking away the broken stones.

In times of depression of trade, and during strikes, &c., large numbers of persons appear before Boards of Guardians and committees as applicants for special relief. For the accommodation of such as these it is necessary to provide a suitable waiting-room. The area of this must be sufficient for at least the average number of persons likely to require assistance in the district. If it must be a large room, probably it should be heated by hot-water pipes in the winter, and if of small or moderate dimensions possibly ordinary fireplaces would be sufficient, but to leave such a room without proper and sufficient means of heating would be a serious omission, especially as times of depression and increases of pauperism too frequently occur during the winter period.

If there should be more than one relieving officer, separate offices should be provided for each, with due provision for heating. These offices should be in direct communication with the general waiting-room for applicants. The waiting-room should be so arranged that the applicants may enter at one door, and, after interviewing the Guardians, committee, or relieving officers, pass out of their offices without again coming into contact with the later applicants remaining in the waiting-room or re-entering that apartment. The waiting-room should be provided with an annex for closets for both sexes, or otherwise, with closet accommodation in yards near to or adjoining the waiting-room. The general arrangement of the waiting-room must be such as to render it easy for the officials to pass the applicants for relief in rotation through the building in an orderly and expeditious manner. It need hardly be said that frequently the condition of the applicants for relief is such that thoroughly good ventilation is absolutely necessary in every part of the buildings through which they may be compelled to pass. This ventilation should be both by windows and ventilators.

In connection with the relieving officers'

rooms there should be storerooms, properly fitted up with shelvings, lockers, and receptacles for all that has to be dispensed in relief. Four hundred cubic feet of space must be provided for each occupant of the receiving wards, which should not be less than 10ft. in



height, or have a less area than 40ft. to each bed. The rules of the Local Government Board also require that these wards should be provided with the requisite independent water-closet, bath, and lavatory accommodation, and be capable of being warmed in winter. The means of communication between the receiving wards and the bathrooms should be such that it shall not be necessary to pass through the open air to reach them, and the occupants of the receiving wards should be able, by means of bells or otherwise, to communicate readily with the porter or other appointed official.

The requirements of the Local Government Board with regard to the superficial area to be provided for each inmate of a receiving-ward cannot be said to err on the side of undue extravagance, considering the serious doubts often experienced as to the condition of new inmates, 40ft. of floor space would appear to be somewhat insufficient; in Fig. 1 will be found a scheme for an entrance-block of workhouse buildings of a simple description and without the adjuncts of stables for the Guardians or any of the other buildings and yards for vagrants and others for whom accommodation would be found in special buildings to be described in a later paper, the central portion of the plan shown in Fig 1 would be two storeys in height, while the two wings for males and females would be merely one-storey erections, the upper floor of the central block would form suitable bedroom accommodation for the porter and portress, who would be a married couple in charge of the reception-wards and of the general entrance, which would be provided with a weighbridge connected with the porter's office; the baths are so arranged that the inmates need not pass through the outer air from the wards in reaching them, and the w.c.'s and lavatories are so placed that they may be used from the yard, dormitories, or day-rooms.

The position of the entrance and receiving-wards must frequently be much influenced by the surroundings of the site of the workhouse. As an instance of a thoroughly undesirable plan and locality, I give a plan of a workhouse as it existed about the year 1870. This is shown in Fig. 2, which indicates (in hatched lines) the position of a workhouse, closed in by narrow streets and alleys, all of which are closely built up. Considerable accommodation was provided in this institution for the infirm and for children, and it will be well understood from the plan that it was most unsuitably placed for such purposes. The reference to the plan is: A Males' Infirmary, B Females' Infirmary, C Nursery, D Women's Hall, E Boardroom, F and G Entrances, and H Chapel. This was the workhouse for St. James', Westminster, and a more undesirable situation for such an institution, or worse approaches thereto, could scarcely be imagined, especially as the neighbourhood is so greatly populated. It will be seen from this plan that the only frontages to the street are the two narrow entrances at F and G, the remainder being inclosed with buildings on every side.

Another example of the same date (or thereabouts) is shown on Fig. 3, where the plan is very much more open. This is the St. Pancras Workhouse, when it included some features not usually found even then in connection with institutions of the kind, as will be seen from this reference:

A Infirmary	O Male casuals
B Kitchen	P Imbeciles & lunatics
C Nursery	Q Stores
D Oakum-room	R Male wards
E Female wards	S Coach-house
F Chapel	T Stable
G Master's room	U Receiving (females)
H Matron's room	V Ditto (males)
J Laundry	W Library
K Kitchen	X Vestry hall
L Workshops	Y Coach-house
M Casuals' yard	Z Entrances
N Female casuals	

From this arrangement it will be seen that the receiving wards at U and V, although not directly in connection with the entrance at Z, were yet placed between that entrance and the main buildings.

The buildings to be provided for children immediately upon their admission to a workhouse or workhouse school should be in the form of quarantine, or probation-wards, and be of sufficient size to accommodate children for, say a fortnight, previous to their mixing with the other children in the institution. Such wards should be provided with day-rooms.

Some of the erections formed at or near to the entrance and reception buildings will be more conveniently dealt with in a separate paper, and these I purpose to describe, under the heading of Vagrant's Wards, in my next article.

(To be continued.)

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.\*

BY ALEXANDER DREW.

(Continued from page xii.)

### No. II. OF SERIES.

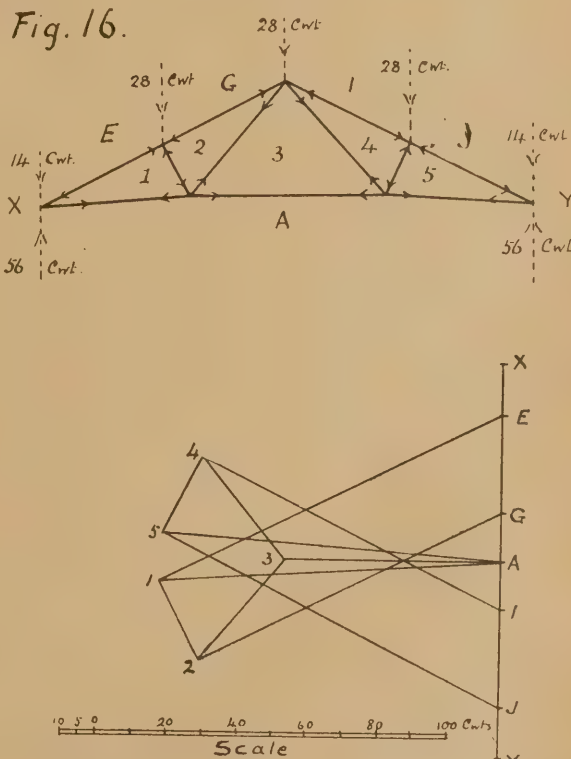
THE several forces which act on the truss are generally called the *external forces*, the forces which the several members exert to resist these are termed the *internal forces*.

Before actually starting to the drawing of such a diagram, some ready means of reference to the several members and loadings is necessary, and by far the handiest is that first proposed by Mr. Robert H. Bow, and generally named after him. By this method of lettering or marking, each space enclosed either by members or by forces is given a distinguished letter or sign, and any member of force is then readily designated by means of the signs on either side of it; thus, the end main-tie would be known as A1 in the marking shown on Fig 16, the upper portion of the left-hand rafter would be G2, and the inclined, or Queen tie, as it is sometimes called, would be 2 3 or 3 4, &c. The external forces can be named in exactly the same manner.

The operations to be gone through in drawing any stress diagram may be briefly noted. First, the *polygon of external forces* must be drawn. (It may be well to note here that where all the external forces act parallel to one another, this polygon will take the form of a straight line.) Second, taking the several points of the truss in succession, lines are drawn parallel to the members or forces which meet at that point; the corresponding letters or signs which are placed on each side of these members or forces being now placed at the extremities of the corresponding parallel lines; thus, in the skeleton diagram each space has a sign allotted to it, while in the stress diagram the signs are placed at the extremities of the lines, not on each side. In drawing these several lines above alluded to, a regular system must be followed, and that is to begin at some space on the skeleton diagram and work in a uniform direction round the joint under consideration, drawing the corresponding line on the stress diagram as each force or member is passed over in this regular movement round the joint. The special point to be noted is that the space chosen to begin at, and the direction of moving

round the joint, should be such that the first forces met with are those which are fully known, the last to be drawn being those of which we know only their direction. As previously emphasized with reference to Figs. 10 and 11, the direction in which the last lines on the stress diagram are drawn, also indicates the direction of action of the corresponding members at the point under consideration; by noting this, the several arrow-points may be at once placed on those members, and thus the nature of the stress may be determined. Taking this Fig. 16 in detail, to draw the polygon of external forces, a point A is chosen, then beginning at the space A on the skeleton diagram, and working round by the spaces X, E, G, I, J, and Y, the starting space A is eventually reached; and, while this movement is being gone through, the first force passed over, that of A X, is indicated by an upward-drawn line from the point A to X, of a length proportionate to the force of 56cwt. The next force X E acts downwards, and is of a value equal to 14cwt., it is drawn on the stress diagram from X to E; the next force E G of 28cwt. has its counterpart in the length of line E G on the stress diagram, and so in succession, G I, I J, J Y, all acting downwards, brings the stress line to the point Y, the last force passed over before reaching A, that of Y A, an upward force of 56cwt. finishes this operation at exactly the starting-point A.

Having thus completed the polygon of external forces, the next operation consists in graphically determining the stresses at



the several joints; and, beginning with the left-hand junction of rafter and tie, the known forces consist of the upward force A X and the downward force X E, the unknown forces being those due to the resistance offered by the rafter E I and the end tie A I; in this case the starting space on the skeleton diagram is A, and by moving round in the same direction as previously done when drawing the polygon of external forces, the two known forces are first met with. Thus beginning at the point A on the polygon of external forces, the line representing the first-known force A X is already drawn, the next known force X E is also already set out; and to complete the force polygon for this joint, it is necessary to get from the point E to A on the stress diagram by means of two lines, the one parallel with member E I and the other with A I on the skeleton diagram; thus from E on

\* A lecture delivered before the members of the Edinburgh Architectural Association, and exclusively published in the Builders' Journal.—Ed.



the stress diagram a line E 1 is drawn of any length, and from A the line A 1 is drawn till it intersects this last line at the point 1. It will be noted that in drawing this polygon the several lines were drawn from A upwards to X, X to E, then from E to 1 in a downward direction, and from 1 to A in an upward direction; these two latter directions indicate the direction of action of the two respective members, so that the two arrow-points shown near this joint can be now marked on. Knowing the value of the force and the direction of action at one end of any member, we also know that it exerts an equal but opposite action at the other extremity, so that the second arrow

out from A downwards to the point 1, from 1 to 2 (both these being in the directions indicated by the arrow-points); returning to A by means of the lines 2 3 upwards, and 3 A towards the left, these directions enable us to mark on the arrow-point correctly. Thus half of the complete diagram has been drawn, and as the loadings are symmetrical, the second half should be similar to this portion. It is well, however, to complete the diagram, moving onwards in regular succession from the joint at the apex of the rafters to that at the centre of the right-hand rafter, thence to joint at lower end of strut 4 5, and finally to that of the right-hand shoe. The last line to be

drawn at this point will form a perfect check as to the previous correctness or otherwise of the diagram; should this last line close in neatly, the complete diagram may be safely taken as correct, but should this not be the result, either the original forces are not correct or not balanced, or the several lines drawn have not been parallel to the corresponding members on the skeleton diagram, and the work must be gone over again. The diagram shown in Fig. 17 is that for live load or wind stress, and is drawn in identically the same manner as just noted for dead loads; the only differences worth noting are that the reactions at the shoes are now of different values, and on completing the latter half of the stress diagram it will be found that at one point the polygon may be complete without requiring to make use of a line parallel with that of the strut 4 5. When a condition of this kind arises, the inference is that under that particular circumstance this member is not required, and theoretically can be dispensed with.

To readily determine graphically the reactions at the shoes, the simple method shown above the skeleton diagram may be made use of. The line X, E, G, I, is drawn in any convenient position on the paper, the various lengths, X E, E G, and G I, being to scale proportionate, and parallel to the several wind-forces similarly lettered. Any point O is now chosen, and lines drawn from the several points in the line X I to this point. Returning to the skeleton diagram, any point in the line of action of the forces X E is chosen, and from this a line is drawn parallel to the line G O on the polar diagram, till it intersects the line of the force E G; from this point of intersection a second line is drawn parallel to the line E O till it intersects the line of the force G I; and from this second point of intersection a line is drawn parallel to X O, and the point where it intersects the line of action of the force Y A is joined by means of a straight line with the starting-point. If a line parallel to this last line be drawn from the point O, its intersection with the line X I will divide this line in the proportion of the two reactions at the shoes; it is only necessary then to measure these two portions to get at the desired values. This being determined, no difficulty need be experienced in drawing the diagram here shown, exactly the same principle being adopted as with the previous diagram.

At the second of the course of lectures for sanitary officers, held at the Sanitary Institute on Friday, Mr. Herbert Manley, Medical Officer of Health for West Bromwich, lectured on English, Scotch, and Irish Sanitary Law and the Public Health Act of 1875.

## Surveying and Sanitary Notes.

THE Ayr Town Council has accepted the estimate of Mr. Hugh Hastie, Crieff, amounting to £4258, for contract No. 3 of the new drainage scheme.

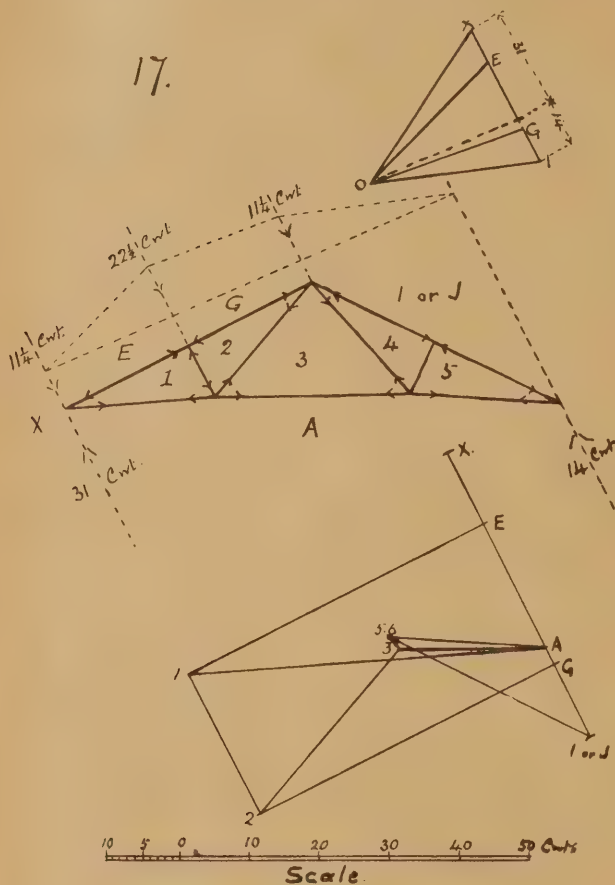
MR. W. BOWMAN DAVIES, Associate Sanitary Institute, and assistant sanitary inspector for the Borough of Neath, has been elected a fellow of the Institute of Sanitary Engineers.

At the Lincoln Town Council meeting the Highways Committee reported that it had decided to use hard instead of soft wood for the proposed paving of the High Street, and that the estimate for the wood paving would now be £3614. The Sanitary Committee was directed to report as to the best means of carrying into effect the provisions of Part 3 of the Housing of the Working Classes Act.

FOUR applications were submitted to the Aberdeen Town Council for the vacant office of cleansing inspector. The candidates were: Alexander Findlay, inspector, Aberdeen City police; George Y. Lumsden, St. Andrews; Hamilton M'Adam, Hamilton; Andrew Millar, Glasgow. Mr. Findlay received the unanimous vote of the Council, and was appointed to the post. The salary is £200 per annum.

THE Town Council of West Hartlepool has approved of the scheme for the extension and improvement of the sea-wall, with handrail approaches to the sands, and promenade of tar pavement; of the purchase of an additional steam-roller, 12 tons, with fittings for the drawing of the scarifier; and an apparatus for the testing of sewer pipes. Owing to the large amount of work in hand, and its probability of increasing, it has been decided to appoint an additional Clerk of Works for new street work. The borough surveyor reported that there were at the present time about 30 street contracts in hand, and that others were about to be advertised.

As directed by the Board, the Paving and General Purposes Committee of the St. Saviour's Board of Works reports that it has considered the feasibility of lighting the streets in the St. Saviour's district by means of electricity. The surveyor has been in communication with the London Electric Supply Corporation, Limited, and the City of London Electric Lighting Company, Limited, and ascertained from them the terms upon which they would be willing to undertake the lighting of the five principal streets in the district. The mains of the former company were available for Borough High-street, Blackfriars-road, and Stamford-street only. Their charge would be about £32 per lamp per annum, the Board providing at its own cost all lamps, pillars, switches, boxes, &c., requisite for the installation. If they lighted Southwark-street and Southwark Bridge-road in addition—i.e., all the five streets named—they calculated that the expense to the Board for the necessary plant of the two last-named streets would be about £5000. This would not include the cost of current to the lamps, nor the lamps, &c., for the other three streets. The City of London Company had furnished a scheme providing for 86 arc lamps, placed about 120ft. apart. The company would require a contract for 21 years. The cost of these 86 lamps would be £2408 per annum, and they would only displace 166 gas lamps. There were in St. Saviour's district 590 lamps altogether, the annual cost of lighting the whole of the district with gas being about £2000. Therefore the cost of lighting the five principal streets by means of electricity would be considerably more than the account incurred in lighting the whole of the district by gas. The committee, having regard to the enormous cost, do not recommend the Board to undertake the lighting of the district by electricity.



points at the other extremes of this rafter and tie may now be drawn on, their direction being, of course, opposite to those of the first. Since the length of these lines E 1 and A 1 indicate the values of the stresses on the corresponding members, nothing further need be done, if no other stresses be required.

But should it be desired to get at the stresses on the other members, the same operation need only be repeated. It should be noted that by this method it is only possible to determine the stresses on two members at one time, so that the next joint to be considered should be chosen such that only two unknown quantities require solution. Thus the next joint would be where the strut 1 2 meets the rafter. By the first operation the stress E 1 has been determined, so that the known forces here are E 1 and E G. The starting space would, in this case, be 1, and moving round this joint in the same direction as previously, the figure sketched out on the stress diagram would be as follows: From 1 upwards, as indicated by the arrow-point on the rafter, to E, down E G, and to get back to the starting-point 1, the lines G 2 and 2 1 are drawn. The finishing directions were down G 2 and up 2 1, thus enabling the correct arrow-points to be marked on the members G 2 and 2 1, and also allowing us to put on the other arrow-points at the opposite extremities. The next point would be at the junction of A 1, 1 2, 2 3, and 3 A, and starting at the point A and moving round in this direction, the stress polygon would be sketched





ALTHOUGH the streets of the Metropolis are every year being improved, our principal thoroughfares showing a marked advance in every respect during the last quarter of a century, yet the same can hardly be said of our statues, which still leave much to be desired, not so much, perhaps, in their execution—though at times this is bad enough, in all conscience—as in their location.

Circus. The Prince Consort thereon is for ever saluting with raised cocked hat the surging crowds of Holborn, and though we have no fault to find with the figure as a figure, it is most decidedly ill-placed, in that it is too small for the surrounding buildings, the size of which tend to still further dwarf the horse and its rider. There is some good work on the pedestal, but the statue would look much better if placed in a park enclosure surrounded by trees and greenery. Again, what can be more distressingly disastrous than the effect produced by the latest of the City statues, that of the Queen, which has been found a home at the eastern end of the Victoria Embankment, at the foot of Blackfriars Bridge. Here the monument is out of all keeping with its surroundings, with the result that it is absolutely dwarfed into utter insignificance, a fact still further accentuated by the tall pillar of the electric light which overtowers it by day and overshadows it by night. On the lawn of a country mansion

bouring refuge post. This is a discoloured, smoke-begrimed group of statuary, which is also very ill-located, but which would look all right if placed in a park, or on a large barrack square or parade ground. To hark back for a moment to the City, we have in front of St. Paul's Cathedral another very ugly statue, that of good Queen Anne, whom we are repeatedly told "is dead," and of whose effigy it has been written that she stands "with her face to the 'pub,' and her back to the Church." This group of pale marble is far too small for the position in which it is placed, and accommodation could very well be found for it inside the Church, if the Museum would not take it. Again, one of the choicest possessions in London, the gift of Sir Erasmus Wilson, viz., Cleopatra's Needle—this could not be set up on the banks of the grimy Thames without being flanked on each side with Brummagem sphinxes, the ancient and the modern being thus blended, though with not very satis-



AN OLD COTTAGE. BY EDITH DAWSON.

During the past twenty-five years many new statues have been set up within our gates, as it were, but from the Artistic standpoint it is not too much to say that the greater number of them have proved failures. Thus, there is the memorial to the second Brunel at the bottom of Surrey Street on the Victoria Embankment, where it keeps watch and ward over a patch of green shrubbery and a ventilator to the District Railway, though it is only just to the figure to record that its back is turned to this latter, as though in disgust at being made the ornamental set-off to a funnel. This statue could hardly have been more inelegantly placed, for while the figure is fairly satisfactory, it is so hedged round with Architectural features as to positively rob it of any elements of beauty or effectiveness. To make this statue at all pleasing the whole of the scroll and stonework would require to be knocked away. Take again the equestrian statue of Albert the Good in the Holborn

this statue would have been properly placed; where it is, it is very improperly situated—a fitting companion to that of the Prince Consort in the neighbouring circus of Holborn. Leaving the riverside for Fleet Street, we find at the western boundary thereof the huge, ugly German-stove, griffin-surmounted effigy that marks the site of old Temple Bar, than which nothing could well be uglier or more unfortunately placed. Save for the panels on the base, it has no artistic beauty whatever, and, though it may not be so great a hindrance to traffic as the old Temple Bar, still it is so ugly and so ill-situated that it should be at once consigned to the Guildhall Museum. A tablet in the wall of Child's Bank opposite would meet all practical requirements. Going still west, we find in Waterloo Place the Guards' Memorial, which has not been inaptly termed the "Quoit Thrower," for here Fame looks for all the world as though she were about to cast the laurel wreath over some neigh-

factory results, to our thinking. Then again, in Whitehall Yard, behind the Banqueting House of Inigo Jones, now used for the purposes of the Royal United Service Institution, stands a really very well executed statue of King James, which (owing to its position in a semi-private yard occupied by Government offices, where its very existence is not suspected by five per cent. of the many thousands of persons who daily pass along Whitehall) is absolutely lost. If the statue is worth preserving at all, it should be removed from its semi-obscurity into a well-chosen and more public position. In several of the metropolitan squares there are many more or less inappropriately placed statues, some looking as though rising from among the greenery like Phoenix from its ashes; others behind spiked railings, as though prisoners in the dock. Leaving the ill-placed for the well-placed statues of the Metropolis, there is no doubt that the best situated



memorials are those which adorn Palace Square, Westminster, some portions of the Victoria Embankment Gardens, the Wellington Memorial at Hyde Park Corner, the Achilles statue in Hyde Park, those on Carlton House Terrace, and the Albert Memorial in Kensington Gardens. And this brings us to remark that although over a quarter of a century has elapsed, the noble bases and plinths on Blackfriars Bridge and along the river wall of the Victoria Embankment are still unoccupied, and nothing, save the provision of some really artistic lamps, has been done to ornament in an artistic manner this noble riverain boulevard (one of the finest in the world), although much has been done on the landside to provide large and expensive buildings. It is to be hoped that an effort will be made, at no very distant date, to fill these bases and plinths with groups of statuary, and a start might very well be made with Queen Boadicea, which has been offered to the nation by Mr. Thornycroft, and would be appropriately located on the banks of Old Father Thames, while groups symbolical of the history of the City and leading events therein might well be utilised for the ornamentation of the eastern boundaries. This is a case of neglect which should be remedied, and it is to be hoped that an early alteration will be made.

#### INDIVIDUALITY IN ART.

By MR. T. G. JACKSON, R.A.

IN distributing the prizes to the students attending the Birmingham Municipal School of Art, Mr. Jackson compared the Art Schools of the present time with those times to which they were accustomed to look for examples in matters Artistic. In those days there were, indeed, Schools of Art based on traditions of great teachers attached to certain places, with the name of which they were inseparably connected, grouped round some one great master, or a succession of masters working on the same principles and following the same methods. But these schools were not academic or corporate bodies, pretending to train students and maintaining professors to teach them. A young aspirant to Art began by binding himself as apprentice to some person who could teach him the mystery of that Art which he was to follow. There were no public or municipal schools ready to receive him, and when they talked of the Art Schools of Umbria, Rome, Florence, Siena, Bologna, Venice, and Milan, they merely meant to distinguish the different styles into which Art fell at these different centres of Artistic life. For Art to be at its best it must be the expression of the individuality of the Artist; it must bear upon it the character or stamp of its author; it must be the outcome of his personal thought and sentiment. In a work of Art they ought to be able to read the mind of the Artist behind it. Not, of course, that his personality should be forced upon their notice by any conscious effort on his part—that only led to mannerism and vulgarity, or, at the best, eccentricity. But just as in the work of the best writers they recognised a way of putting things into words which was the author's own, and a train of sentiment and sympathy natural to himself, all of which constituted a style peculiar to him, and expression of

#### HIS OWN PERSONALITY

in a manner undesignated by himself and unconsciously adopted, so in a painting, a carving, or a building by an Artist, they ought to be able to recognise his own mind on canvas, stone, marble, brickwork, or carpentry. He thought that, though this had been true in the main for all time, it was especially true of the age we lived in. In the earlier phases of Art there was less room for individual expression, and the Artist was to a great extent lost in

the school to which he belonged; but as Art became more natural and less conventional they detected more and more clearly the impress of different great Artists, and of the schools they founded. When, however, they came to the great schools of modern Europe, and the Gothic style which sprang from the ashes of the old dead classical Art, though each period had its own peculiar style, to which each Artist perforce submitted because he knew no other, still each man was free to indulge his own fancy within the limits of that style; and not only that, but whenever any fresh idea possessed him, and he had something novel to say, there was nothing to prevent him breaking away from the current fashion and bursting through the limits of the style he was brought up in, to advance his Art a step further, and bring about a transition from the style then in vogue to a new one hitherto not dreamt of. He indicated the transition of styles in Gothic Architecture, and said they could not trace the successive steps to

#### ONE INDIVIDUAL INFLUENCE.

The progress seemed rather that of a School than of individuals. In our own case, individual effort had a still more important part to play than even in the Middle Ages. There they had individual effort working within a School. But where was our School now? What had we at the present day corresponding to that common acceptance of certain traditions of form, design, and execution to which all Artists of the day conformed, and from which it resulted that all the works of one period were modelled in one style—the style of that period? All that was gone, and, however much they might hope for some recovery of ancient harmony and consistency, it must be admitted that we were far enough from it at present, and that not only in Architecture, but in Painting and Sculpture too. It was to the proper use and direction of individual effort that they must turn their attention in the training of Art students. One great danger of all Art Schools was that there might be too much teaching in them. Nothing could be worse, or more likely to do harm, than to apply one rule to all students, and force them all through one and the same course of study, however they might differ in natural gifts and inclinations. Another danger which attended the teaching in Art Schools arose from the very common mistake that teaching drawing was the same thing as teaching Art. Many a student thought that by learning to draw he was learning to be an Artist, whereas, in fact, he was only learning the use of his tools.

#### THE POWER OF DESIGN

was a natural gift, which could not be implanted if it were absent, but it might be fostered and developed by judicious training if it existed in ever so small a degree. To be a draughtsman was one thing, to be an Artist was another and a very different thing; and it was to the latter rather than the former that the efforts of the Art Schools should be directed. It was only in this way that they would fulfil the function for which they were intended, which was not to turn out great Painters, Sculptors, and Architects, but to train students in the Applied Arts, as they were called, or as it had been otherwise, though not very happily, expressed in the application of Art to industry.—Mr. Jackson spoke of the importance of the Industrial Arts as compared with the Fine Arts, and said that they made a very great mistake and fatally under-valued the work which fell to their lot if they thought that it was a much grander thing to paint pictures, or carve statues, or design fine buildings, and to exhibit their work at the Royal Academy, or similar great annual shows, than to pass their time in designing articles of daily use and ordinary necessity. For one man who could paint a picture or could carve a piece of sculpture that would live there were hundreds who could design beautiful things in gold or silver or beaten iron, or carry out in stone or wood the decorative work on an Architectural design. It was surely a finer

thing to succeed in a task for which they were fitted than to fail in one obviously beyond their power. He went further still, and pointed out that there was no such thing as the

#### DISTINCTION BETWEEN HIGH AND LOW ART.

To distinguish them was a mischievous fallacy. The only distinction to be recognised was good Art and bad. They had suffered too long from the blindness which locked-up the Fine Arts, as they had been called, in galleries and museums, and refused to look for them at their own firesides, in the streets of their daily walk, and in every article of ordinary domestic use. If Art was to live it could only do so by colouring our whole lives, by infiltrating down to every article that surrounded us, by shaping our furniture, our personal ornaments, our common utensils, into forms comely and appropriate, by blending the tints on our walls, the tones of our carpets and curtains, the paint on our doors and windows, into delicate, harmonious, and agreeable contrasts, and, above all, by housing us within walls and under roofs which it would be a joy to look at and not of a kind to disgust us by their pretensions or weary us by their insipidity. They were all familiar with the execrable taste displayed in villas, and he only dwelt upon the subject because these were things which really touched them most closely, and that it was through them in the main, and not through picture and sculpture galleries, that Art could sweeten human life; secondly, because he wished, his audience of Art students, and those being trained like them, to feel that it was to them that the country must look for improvement in the Industrial Arts; and, thirdly, because until Art was really brought home to us in this way and coloured our daily lives, it could not be said to have any true life or power of growth in it. The lecturer dwelt upon the present-day craze for smartness, which produced all kinds of inartistic cast-iron work, formed in the

#### WORST ARTISTIC TASTE.

This was not so in olden times, for they found articles saved from the ruins of Pompeii, even those that had the most utilitarian functions to perform, formed one and all beautiful. Most articles of furniture in the present day seemed to be regarded, not as what it was, but as a vehicle of ornament, and it was smothered with decoration, chased, moulded, and carved where none at all was needed. Turning to Architecture, there, said the lecturer, was the same fatal mistake that design meant ornament. It was, however, perhaps more mischievous here, because in Architecture, more than in any other form of Art, the constructive idea should, and, from the very nature of things, to a certain extent must, govern the form. It could not be too often pointed out that Architecture was not the Art of ornamenting building, but the Art of building beautifully. Besides restraint in ornament, there should be honesty and reasonableness, and, in speaking of the artistic dishonesty, Mr. Jackson spoke amusingly, but none the less depreciatingly, of the bogus half-timbered houses and windows half sash and half mullioned. This was an offence which he and his co-examiners at South Kensington year after year declaimed against, but, though their reports presumably reached Art Schools, they, year after year, received drawings of this

#### DISHONEST ART.

He also spoke of the importance of students of Architecture making their drawings with a view to utility, and that, therefore, the sketches should always be accompanied by notes and diagrams. Then there was the same tendency to make too much of mere drawing by students of geometrical drawing, and of all kinds of drawing this branch had no claims to respect except upon the ground of utility. It had frequently been to him melancholy to see what an amount of time and labour was wasted in working-up elevations into pictures, which they never could or ought to be. His earnest advice to every student, whether male or female, was "be absolutely yourself."



## THE NEW GOVERNMENT OFFICES.

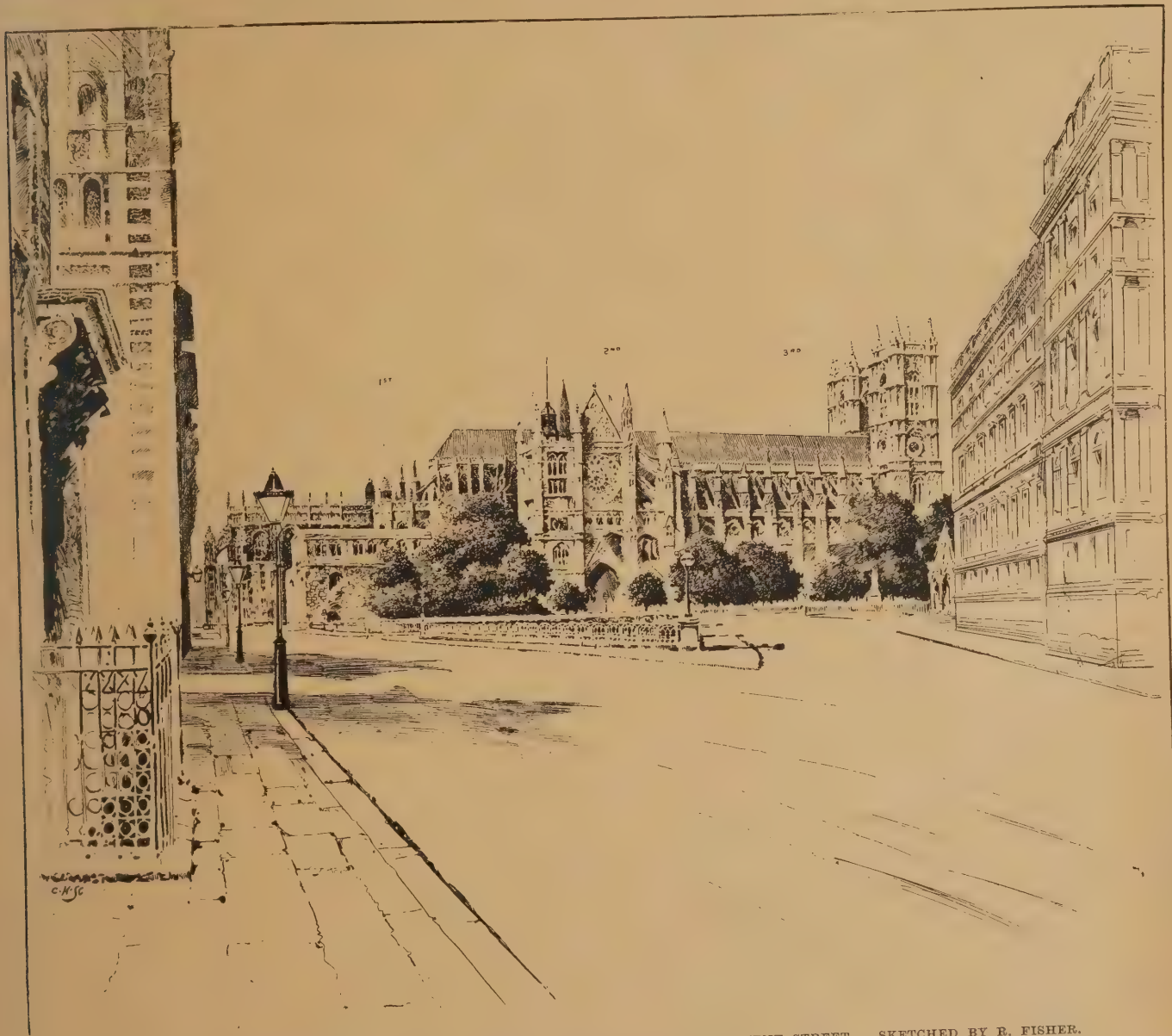
By S. J. FISHER.

A PARLIAMENTARY Committee is, in course of the ensuing Session, to be reappointed to further consider a question of Architectural taste or propriety, of the merits of which the Profession and the public should know something, seeing that any expression of authoritative opinion, individual or collective, from outside may largely affect the ultimate result. Parliament has, "to a certain extent," decided that some more Government offices should be built. The phrase is used advisedly, because experience of Parliamentary action regarding

to that policy\*. As opportunities successively offered, lands or buildings in and near Great George Street, King Street, and Charles Street have been purchased by the Commissioners of Works for the purpose of providing a site for new public offices, and some of the valuable property so acquired has lain waste and unproductive for years past.

During the year 1895 the two successive administrations took a further step forward by obtaining an Act providing for the purchase, by agreement, of other lands within the area between Parliament Street and Delahay Street, and Charles Street and Great George Street, which is generally known as the Great George Street side, the sum of £450,000 being specifically granted for the purpose, though payment of the amount is to be spread over a period not exceeding fifty years; and

such buildings, execute all such works, and do all such other things as may, in their opinion, be necessary and proper for the purpose of providing new offices on the land acquired or vested in them. With these powers the Government have command to a greater or lesser extent over four sites situated respectively at Great George Street, Spring Gardens, Carrington House, and Downing Street; and the next stage—towards which some progress has been made already—is to decide how the sites available, or which may be made so, can be best appropriated or allocated to the several Public Departments which need extending, or altogether new accommodation. In this regard Mr. John Taylor, C.B., Senior Surveyor to H.M. Office of Works, submitted a valuable series of suggestions—a settled and detailed plan



VIEW OF WESTMINSTER ABBEY, WITH SUGGESTED IMPROVEMENT IN PARLIAMENT STREET. SKETCHED BY R. FISHER.

The dotted lines show the north front of the Abbey from Grindley's Bank: (1) As at present, (2) With Parliament Street set back to the line of the present Government Offices, (3) The frontage according to Plan Two. The full view is that which would be obtained from the same spot if the "trumpet mouthed" road scheme were adopted.

public offices shows that nothing the House of Commons agrees to in this connection should be taken as absolutely settled until not only has money been voted for a definite object, but substantial progress has been made towards effecting it. Inside and outside of Parliament there has, for the last thirty or forty years, been a general agreement of opinion that it is desirable, in the interests of convenience, efficiency, and economical administration, that the public offices should be grouped in and near Whitehall; and the office of H.M. Works and Public Buildings has done what in its power lay to give effect

last year Parliament empowered the Department to acquire compulsorily any property within the area which it was unable to purchase on agreed terms, and to erect all

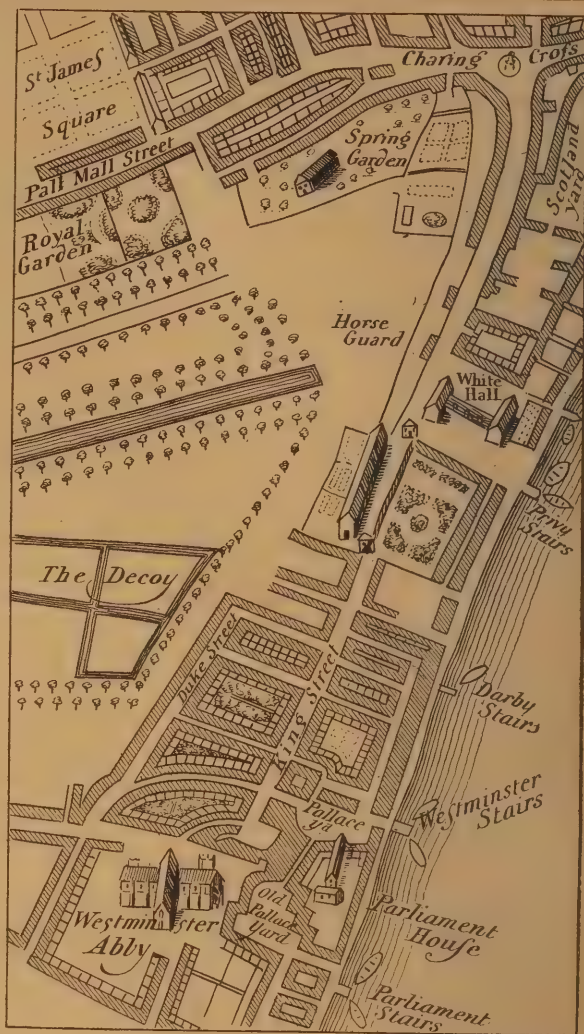
\* The business of the Board of Agriculture, Inspector General of Reformatories, Irish Office, Parliamentary Counsel, Board of Trade, War Office, Office of Works and Commissioners in Lunacy, is almost entirely carried on in hired buildings (although these are for the most part situate on Crown lands), for which rents amounting to upwards of £1600 per annum are paid by Government. These buildings are in Pall Mall, Abingdon Street, Bedford Street, Covent Garden, Whitehall Gardens, Great Queen Street, Westminster, and St. James' Square, amongst other scattered places.

indeed—to the Committee of the House of Commons, to which the question of allocation was referred. Mr. Taylor's proposals were, in brief, that on the Great George Street side new offices for the Board of Trade, (now in Whitehall Gardens and elsewhere) and the Education Department should be erected, and certain much needed additional space afforded for the Local Government Board; that at Spring Gardens—adjacent to the proposed extension of the Admiralty Buildings, and on an available triangular space belonging to the Government—the Offices and Works, and Woods and Forests

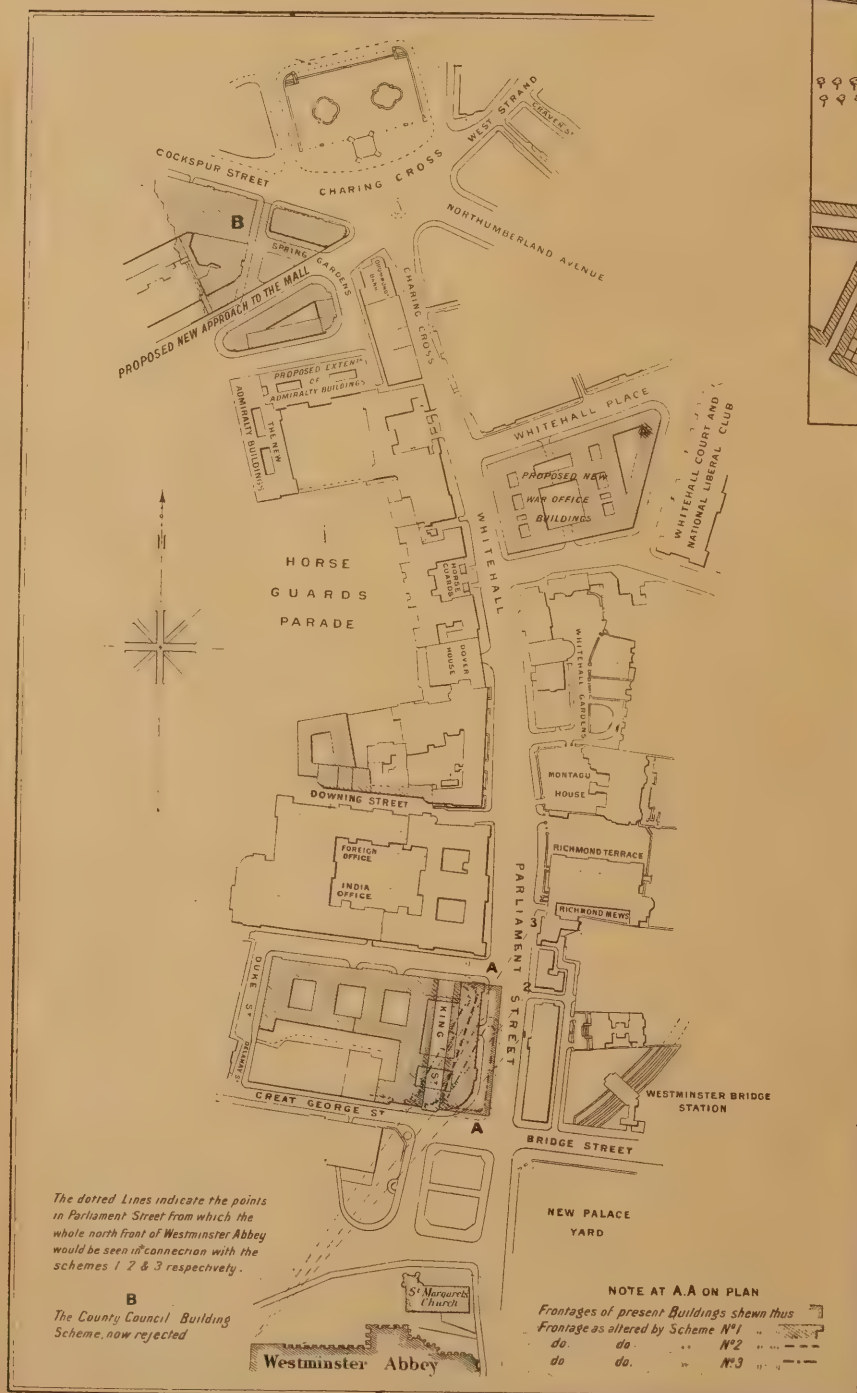


and the Secretariat of the Civil Service Commission should be placed; that on the Carrington House site the War Office (now in Pall Mall) should be erected, and that in Downing Street the Irish Office, Board of Agriculture, and Parliamentary Counsel should be accommodated. With the exception of the official residence, which has been at the disposal of all successive First Lords of the Treasury since it was handed over to Sir Robert Walpole, all the old brick buildings on the northern side of Downing Street should, in Mr. Taylor's view, be pulled down, and the street completed and extended about 90ft. upon the Horse Guards Parade, the new buildings to be in line with the corresponding angle of New Admiralty Offices. Additions and alterations would be made in the First Lord's residence, and it seems that the western view from it would be broken by the carrying out of the scheme. The adoption of the plan generally would provide a new War Office on the eastern frontage of Whitehall, the only other Government department on that side being the Charity Commission, which would retain Gwydr House; while on the west there would extend from

near Spring Gardens to the Abbey a line of public offices—Admiralty, Horse Guards, Scotch Office (in Dover House), Privy Council, Treasury (with room for the whips displaced from Downing Street), the Foreign Office block (which includes the Colonial, India, and Local Government Offices), and the new group of buildings on the Great George Street site containing the Education Department, Board of Trade, &c. Our public servants would under this plan be suitably housed, departmental work would go forward with greater efficiency and at less cost; there would be carried out, as a part of the scheme, a widening of Parliament Street and a general improvement of the locality; while the new extension of the Mall through Spring Gardens would bring Buckingham Palace into the far background of the noble vista which would be opened from



DRAWN BY R. FISHER.



DRAWN BY R. FISHER.

Charing Cross. What will the taxpayer have to pay for all this? The cost of acquisition (or value where in hand) of the proposed sites is estimated at £1,360,000; and that of the buildings is set down at £1,280,000, but several most valuable sites would be released by providing the accommodation proposed, and would realise, if sold, it is estimated £1,130,000, leaving the net cost of the whole scheme at £1,509,000 which, if spread over fifty years, would inflict no very terrible annual burden on the public.

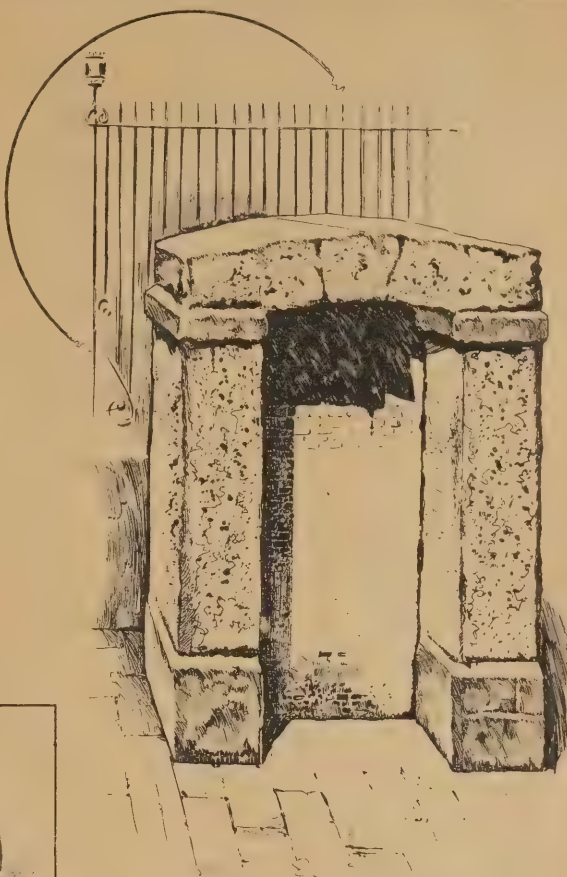
The Commons committee of last year made one specific recommendation; that it was desirable to acquire as soon as possible the various interests in the property at Whitehall, situated on what is known as the Carrington House site, and to proceed with the erection upon it of a new War Office; and effect is to be given to this recommendation by a Bill, of which H.M. Office of Works has already given public notice, and which will have to run the Parliamentary gauntlet during the ensuing Session. Not that there is likely to be much opposition to the measure, seeing that a number of the houses are already occupied by Government departments, and that the freehold of all the properties on the site is part of the hereditary estates of the Crown. The committee thought that on this site and on those at Parliament Street, Spring Gardens, and in the neighbourhood of Downing Street, with the aid of certain re-arrangements and exchanges of space in the existing Government departments, adequate accommodation could be provided for all the departments which it is desirable to locate in the vicinity of the Houses of Parliament. The Committee went on to observe that any scheme for additional buildings on the Downing Street site would involve the alteration or demolition of some at least of the buildings now standing there, while in the cases of the Great George Street site, and the



Spring Gardens site, important questions of street improvement arose, but as the details of these and the general scheme called in some points for more mature consideration, the Committee advised that reference be again made to them thereon next session.

One of the points, and possibly the main point, upon which the Committee hesitated to give a decision was that of the exact situation of the frontage eastwards of the Government buildings proposed to be erected on the Great George Street or Parliament Street site. This latter thoroughfare must in any case be widened on one side, so as to be in line with the Foreign Office block, but the Committee considered, though without coming to any conclusion upon it, the question of setting back the existing frontage in connection with that of the opening up at the earliest point of approach from Charing Cross of the whole of the north front of Westminster Abbey. If the new frontage were erected in line with the existing Government buildings, the whole of the north front of the Abbey would be seen from a point about the southern end of the Whitehall Club, or about 270ft. from the north-east corner of Parliament Street; a second or intermediate plan would extend the view of the whole front to Derby Street, while a third would take it back nearly 500ft., or as far as Grindley's Bank. Plan two is "neither one

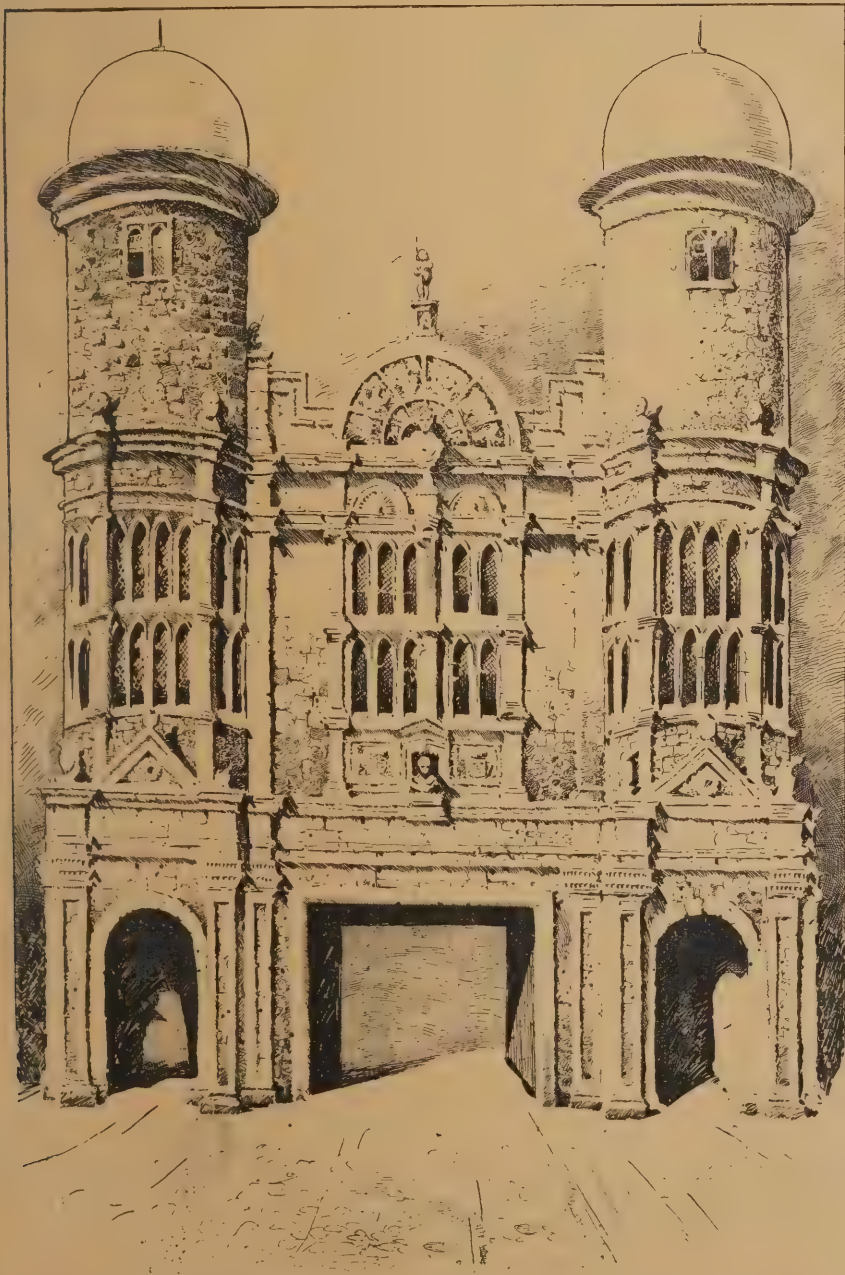
thing nor the other," so that the choice obviously lies between the first or parallel road scheme and the third or trumpet-mouthed road scheme, under which Parliament Street would be gradually widened out to something over 250ft. at its southern extremity. Mr. Taylor by a re-arrangement of plan number one, was able to find in number three as much accommodation as is required without the need of acquiring more land, by leaving where they are, three departments of the Board of Trade, who do not appear to be particularly anxious to be removed from their present quarters, and although Architecturally—speaking solely of the building proposed to be erected—Mr. Taylor preferred the first scheme, he was disposed to think, having regard to the space that would be thrown open under the third scheme, that this would be the better, not only from the point of view of picturesque effect, but on the utilitarian ground, which, after all, we cannot afford to



GATE AT TOTHILL FIELDS PRISON.  
SKETCH BY R. FISHER.

despise—of the better accommodation which it would afford for the large amount of vehicular traffic running in this part of Westminster. This is, then, the question to which we invite the attention of the Profession and of the public. It will, in all probability, come before a Committee of the House of Commons again in a few weeks, and these bodies are not averse from, but indeed generally welcome, suggestions on professional matters from those competent to offer them.

However this question of frontage and vista may be settled, the acquisition of the Great George Street site by the Government, and the erection of the new offices, will involve the final disappearance of what is left of King Street, once the most important thoroughfare in the City of Westminster, and the sole road by which, for ages, king or commoner, priest or peasant, could reach Abbey or Palace from Charing Cross. It was at one period intersected by the Long Ditch, which, running where is now Gardener's Lane, and finding its way round the Abbey to the river again, with the Thames insulated Thorney Island; and over this stream Matilda, consort of Henry I., built a bridge. In the time of Henry VIII. King Street had on its eastern side gardens or meadow land, running down to the river. King Street Gate (not Holbein's Gate, which stood in a line with the south end of the Banqueting House) stood near where is now the end of Downing Street; near the southern extremity of King Street was the High Gate of Richard II. The street was so muddy and ill-kept that we read of faggots being thrown down to mend the way when a great procession was to pass, and so narrow that some of the people who crowded to see Queen Elizabeth and her nobles pass by to the Opening of Parliament were suffocated or crushed to death. Sir Thomas Knevet, who captured Guy Fawkes, lived here, and here died Spenser for lack of bread. Among other residents in this once famous street were Lord Howard of Effingham, Carew, General Fairfax, Oliver Cromwell (who indeed set out from here to Ireland), Dr. Sydenham, Lord Buckhurst (afterwards Earl of Dorset), and Mrs. Oldfield. In Gardener's Lane the industrious and



KING STREET GATE, WESTMINSTER, DEMOLISHED 1723. SKETCH BY R. FISHER.



accomplished etcher, Hollar, died with the bailiffs in his house. The first brick residence in the street, that of Dudley, second Lord North, was built about the beginning of the last century. The decline of King Street dates from the formation of Parliament Street, under an Act passed in 1756, this being one of a series of important improvements effected at about the same time in Westminster. The part of King Street extending from Downing Street southwards, disappeared not so many years ago in connection with the extension of the Government offices towards the Abbey, and the remainder will in a few years be, like Broken Cross, Fludyer Street, and a score of other once well-known spots in Westminster, but a memory.

### THE LEANING STEEPLE OF BARNSTAPLE.

BUT for the fortunate intervention of Sir Gilbert Scott, the ancient leaning steeple of Barnstaple Parish Church would, says the "Western Morning News," many years ago have been cleared away as an eyesore and an impediment. From time to time the Church had been "restored" until it became a thing of Architectural shreds and patches. Sir Gilbert Scott was consulted in 1864, and doubtless the execution of the poor old spire was again suggested, for he "expressed surprise that a feeling existed in favour of destroying it, as his impressions were strongly in its favour, it being a most remarkable and interesting structure, giving character and quaint antiquity to the aspect of the Church." It is built entirely of wood, and yet has well survived the trials of 508 years. A peculiarity about this nodding steeple is that it is not in any way tied into the tower upon which it stands. It is composed of English hewn oak, many of the timbers being selected by their natural shape for the positions which they occupy. Octagonal in shape, and the sides almost concave in character, the spire is supported on two Gothic arches of oak, springing from the walls of the tower. Upon these rest two cross beams, supporting the central stanchion, which continues to be the main support to the apex. Four smaller stanchions, and eight still smaller, form the frame of the steeple, and these are tied by cross beams, all forming a perfect network of timber. Outside, the frame is cross-boarded with inch oak, coated with lead, and how admirably effective the structure has been in resisting the elements its strength at the present moment indicates. Unlike other belfries, there are four large louvres on the same level, and higher up there are even two more. A feature of the steeple is the overhanging turrets for the quarter and hour bells, the latter thus being hung clear of the structure. Last year the set of six bells was increased to eight, the former being rehung. The heavy bells are quite distinct from the spire, the frame being fixed in the walls of the tower, quite apart from the steeple, which is, therefore, unaffected by the vibration caused by ringing. All the original six bells seem to have been recast in 1803. Curiously enough, the spire overhead turns towards the south-west, as if in protest against the action of the sun alone plays, as the ancient dial over one of the doors denotes. There has been no subsidence of the stone tower—merely a contraction of lead and oak on that portion of the spire exposed to the sun's heat for 500 years. Notwithstanding this serious (and continuous) leaning, Sir Gilbert Scott appeared perfectly satisfied with the stability of the wooden erection, and regarded it with evident interest as something unique in Architecture.

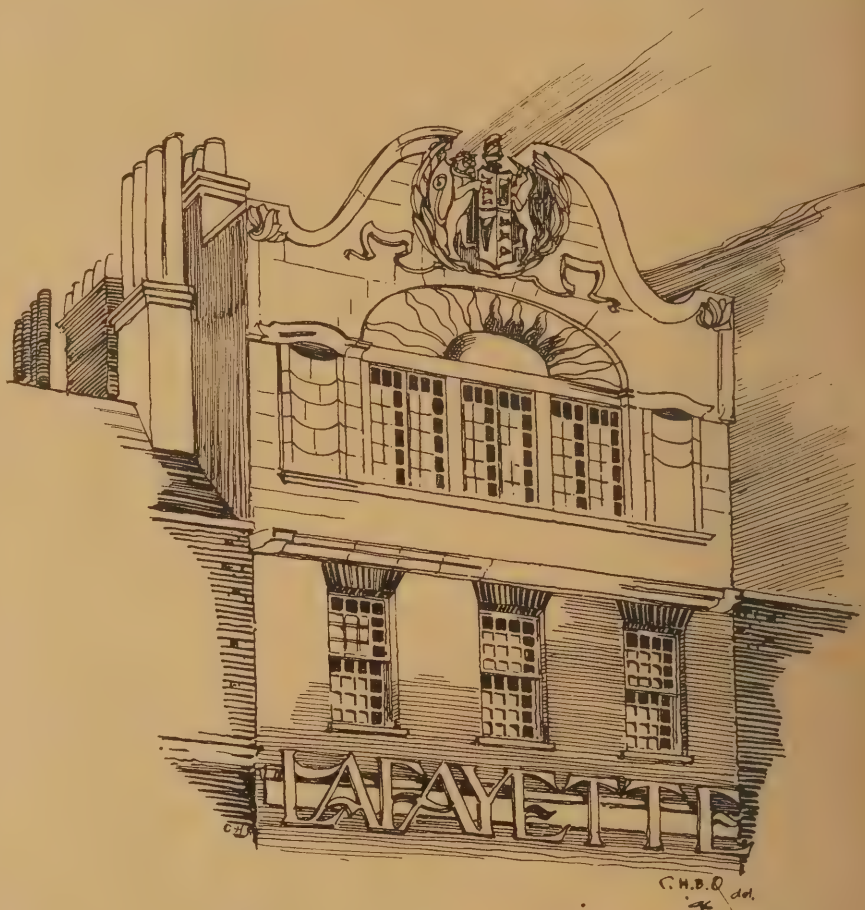
The famous monastery of the Great St. Bernard has been seriously damaged by an avalanche.

### NEW INVENTION FOR DISPELLING FOG AS APPLIED TO PHOTOGRAPHY.

THE most important feature of the re-modelling of 179, New Bond-street, which has just been completed for M. Lafayette, the well-known photographer, is perhaps the arrangement by which the studio is cleared of fog—one of the most deadly enemies of the camera. To put the case simply, the difficulty which has to be met is the freeing of the atmosphere from the foreign opaque substances which it has absorbed, and which break up the rays of the electric light, nullify its penetration, and are themselves photographed in front of the sitter. The system in question gets rid of these opaque impurities by keeping the fog out of the studio in the first place,

being carefully proportioned so that an equal distribution of warm air is obtained over the entire building. The fresh air enters the rooms near the ceiling, and the top of the room acts as a reservoir into which the fresh air is introduced, and whence it is gradually dispersed over the whole room, doing away entirely with draughts. The vitiated air is drawn out through outlets at the bottom, and both inlets and outlets are fitted with louvre registers, so that they can be regulated at will. In hot weather the fresh air is brought into the building, filtered, passed through a cooling chamber, and taken over the building in a like manner, and thus both in winter and in summer the warming, cooling, and ventilation of the building is under entire control. This it should be remembered is not a theory, it is a tested and tried practice.

We give sketches of portions of the general



179, NEW BOND STREET: UPPER PART OF FRONT. E. W. WIMPERIS, ARCHITECT.

and secondly, by thoroughly drying the air inside and so precipitating the solids which obscure it. Artifice gives you the transparent air of southern skies. The artifice in this case is represented by a warming and ventilating apparatus invented by M. Lafayette, and executed by the Sturtevant Engineering Company, of Queen Victoria Street, E.C., and may be best explained as follows:—Starting at the air inlet, where the fresh air is admitted into the building, there is a specially constructed filter through which the air must pass, and in so doing be freed of its impurities. It is then drawn through a warming apparatus composed of coils of steel steam-piping completely cased in a sheet steel casing, thereby eliminating all risk of fire. These heating coils are supplied with steam from a low-pressure steam boiler, which is so arranged in relation to the heater that the steam flows automatically from the boiler to the heater, and the condensed water returns automatically to the boiler.

The air having been purified and warmed to about the heat of a summer atmosphere, is then passed through an electrically driven fan and conveyed to the different parts of the building by sheet-iron ducts, the sizes of these

work. The upper part of the front is faced with glazed terra-cotta, partly plain and partly modelled, from the kilns of the Burmantofts Company, of Leeds, and is framed in stonework, as all non-constructural facing work of this sort should be. The stained glass and the glass mosaics of the symbolical sun on the front have been executed by Messrs. Powell, of Whitefriars. The electric-light wiring and fittings are by Messrs. Strode, and the general building work has been carried out by Messrs. Prestige and Co., of Cambridge Wharf, Pimlico. The Architect is Mr. Edmund W. Wimperis, of 22, Conduit Street, W.

ABOUT £150 has already been received in subscriptions towards the movement started for a memorial bust of the late Lord Randolph Churchill, which it is proposed to place within the parliamentary precincts.

We understand that Princess Henry of Battenberg has purchased some grates and mantelpieces from Messrs. George Wright and Son for her Isle of Wight house, having visited their showrooms in Queen Victoria Street for the purpose of making her own selection.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





INN. PHOTO SPRAGUE & CO. 15, 16 EAST HANOVER STREET, LONDON, E.C.

CONVALESCENT HOME, BOGNOR: FOR THE EAST LONDON HOSPITAL FOR CHILDREN.  
MESSRS. CHESTON & PERKIN, ARCHITECTS.



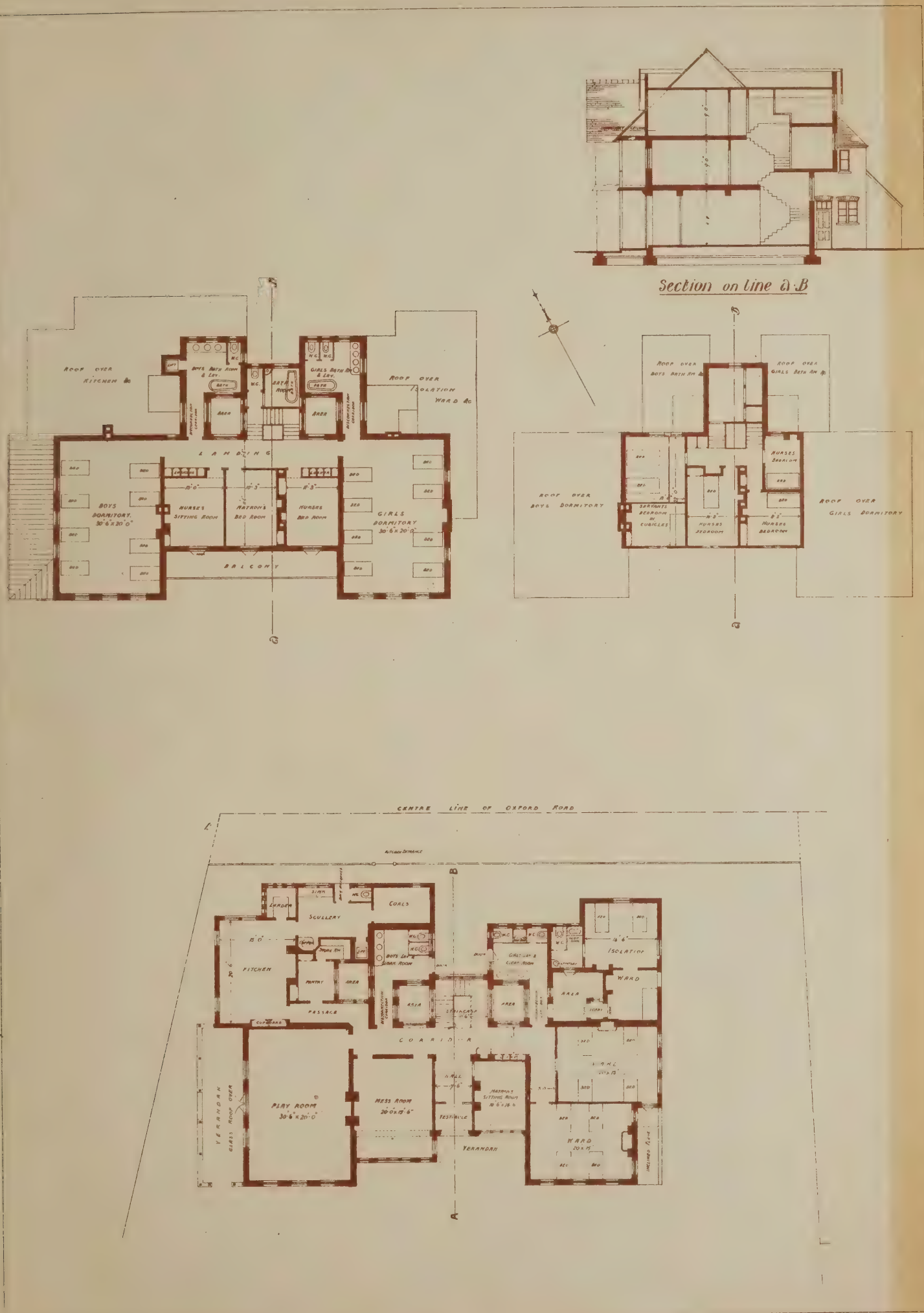


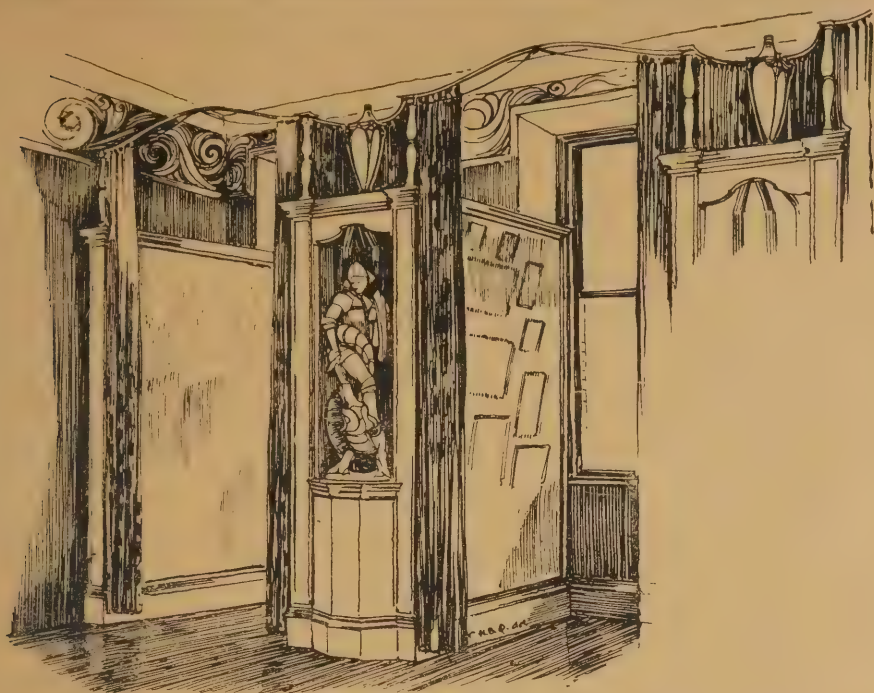
PHOTO-LITHO. SPRAGUE & CO. 425, EAST HARDING STREET, FETTER LANE, E.C.

CONVALESCENT HOME, BOGNOR: FOR THE EAST LONDON HOSPITAL FOR CHILDREN.  
MESSRS. CHESTON & PERKIN, ARCHITECTS.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





179, NEW BOND STREET. THE WAITING GALLERY. E. W. WIMPERIS, ARCHITECT.

## GREEK SCULPTURE AND GREEK LEGEND.\*

BY F. S. GRANGER.

THE precise subject of the remarks which I am about to offer will be the Sculpture of the Acropolis of Athens, and the Legend of Athena, the divine protector of the Athenians. Both Legend and Sculpture are so intimately connected with the Architecture of the Acropolis that I trust you will not regard the time wasted which we shall devote to them. The Greek temple as a whole—taking the building along with its ornaments—has never been surpassed for excellence of design, perhaps has never been equalled. This does not prevent us from agreeing that, as Architecture only—building apart from Sculpture—some of the cathedrals and abbeys of the thirteenth century are nobler works than even the Parthenon. But if you take the two together—Architecture and Sculpture—you must assign the palm to Greece. Interesting and beautiful as Mediæval Sculpture often is, it falls short of the knowledge and technical skill of Greek Sculpture. No one can seriously maintain that Mediæval Sculpture, at any rate on this side of the Alps, is comparable to Greek work of the first or even of the second order. And this consideration will affect our estimate of Greek Art as a whole. The excellence of the Parthenon, for instance, rests upon a certain balance of subordinate excellences. It is a perfection depending upon harmony. I shall try to show how various the elements were that entered into this harmony; how Architecture, Sculpture, both applied to a building and standing free, and colour decoration, united together to express certain religious beliefs, and to answer certain religious ends. We need not be surprised, therefore, that the work of Stuart and Revett should have led, at the end of last century, to a revival of Greek Architecture, and that Vitruvius and Palladio had to yield to the Architects of the temples upon the Acropolis. This revival, however, suffered from the defects of most revivals. The Architecture of Greek temples was applied to purposes for which

## IT WAS UNFITTED.

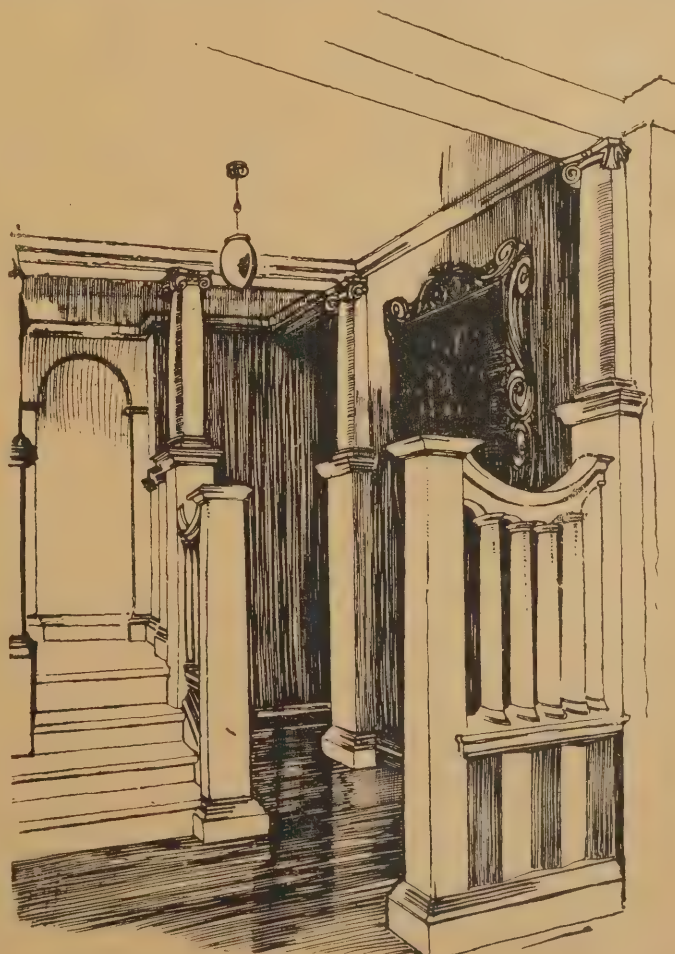
Moreover, the spirit of the style was misunderstood in a most important particular. Colour decoration was left almost out of account. Greek buildings, on the other hand, showed a brilliant scheme of colour in which the white

marble surfaces contrasted with the gold, and blue, and vermilion of the Sculpture and the mouldings. Hanover Chapel, therefore, of which Mr. Paul Waterhouse has given an interesting account in the "Journal" of the Institute, was not a building in a truly Greek style. Architects have tried to convince themselves that certain rules of proportion are enough to ensure impressiveness of design. But the public takes little interest in the geometrical recipes of which we have heard so much, and here for once the public instinct

is correct. Greek Architecture in England has suffered still more seriously from being used without the Sculpture, for which the pediments and friezes offer the frame. Reference is sometimes made to the fact that the entrance to the Athenian Acropolis, the Propylæ, had no Sculpture in its pediments. There is reason to believe, however, that the original plan included this Sculpture. Greek Architecture stands, then, in the

## MOST INTIMATE RELATION

with the Allied Arts, and some of its apparent defects arise from the necessities imposed upon it by this relation. A building in the Greek manner, without plastic ornament and without colour, falls as far short of the true spirit of the style as the pale shadows of the Greek after-world over against breathing men and women. The very fitness of Greek Architecture, therefore, for its special purposes, led to its being found unsuitable, under the changed conditions of English life. It furnished very obvious handles for attack to those who admired the mediæval styles, and much was said about its imperfections. After these two stages, first of indiscriminate imitation, and then of equally indiscriminate rejection, there is come the third stage, that of the temper that judges, the critical stage. We are ceasing now to take sides, and are trying to understand. There is a very large public—I speak comparatively—which is interested in the development of Ancient Greek Art, and the studies of several generations of Archæologists are converging upon fairly certain results. I am attempting to focus some of these results upon a familiar field of Architectural study, in order that it may appear in its true light. I should be glad to think that we carried away a somewhat clearer idea of the actual achievement of Ictinus and his fellow Architects. We owe to Mr. Penrose a more correct idea of the exact structure of the Parthenon. There remain the further and secondary considerations on which I have touched. It has sometimes seemed to me that when we go back to antiquity, whether of the Greek world or of the Middle Ages, we ought also to carry with



179, NEW BOND STREET, THE STAIRCASE HALL. THIRD FLOOR.

\* A paper read at the Architectural Association on Friday night.



us the method and temper of the ancient critics. Matthew Arnold, in his essay upon the "Study of Poetry," has formulated a method which is strikingly in accordance with their precepts. He suggests that the student of poetry should carry in his memory a few fine lines of poetry and apply them as touchstones; not, indeed, because all fine poetry is alike, but because our judgment becomes more acute when it has before it the materials for a comparison. Let us apply this to the

#### CRITICISM OF ARCHITECTURE.

If we become thoroughly familiar with the design and detail of one or two fine examples in each kind we shall have with us a standard by which we can measure the quality of any work that may be set before us. We shall not, indeed, ask that the details of the building that we are judging shall be like those of the test example. We shall find, however, that the faults of a building of second or third-rate design will be more apparent in the presence of really good work. Such a method, it seems to me, is also the right one for those who are themselves engaged upon Design. If the mind is continually refreshed by the study of fine examples, it will become better able to criticise its own work. This is the ancient method of imitation as opposed to the modern. Let us turn back for a moment to Hanover Chapel. We are referred to the Temple of Athena at Priene for the details of the external order, and to the Erechtheum for the general proportions of the front. St. Pancras Church goes much further even than this. The building is like a composite photograph in which half the buildings of Athens are struggling for the first place. "It is a poor temper," says an ancient critic, "that is content to follow closely that which is being imitated." Hence it may be said of most of the buildings of our Greek revival that they are not in the Greek manner. It may seem a somewhat barren conclusion to this part of my paper, but I do not know how to express it better than by saying that the

#### DISTINGUISHING FEATURE OF GREEK ART

is a disinterested love of beauty. In contrast with our modern effort to be striking, or to be edifying, the Greek was content to be confined within the limits of his own Art and to seek the beautiful. The pursuit of truth for its own sake, and apart from technical purposes, finds little encouragement in the present; the pursuit of the beautiful finds even less. It is the imperishable glory of the Greek mind that it devoted itself with an enthusiasm that has never been surpassed to these two great ends. Let us now see how the Greek love of the beautiful found expression in the works of Art upon the Athenian Acropolis. This oblong eminence was the centre from which the city spread and contained the sites of the greatest sanctity. It was the Mount Zion of Attica. Long before the Persian invasions, long before the building of the Parthenon and the Erechtheum in the shapes in which we know them, Athena was worshipped upon the sacred spot to the north of the Parthenon. Several legends grew up round the place. According to the belief of the Athenians, Athena had originally to contend with Poseidon, the God of the sea, for the worship of the Athenian state, and the visitors to the Acropolis could see the olive tree which Athena made to spring up as a proof of her power. Her rival Poseidon, to show his power, cleft the rock with his trident and a spring of salt water gushed forth from the place. The King of Athens, who acted as arbitrator, awarded the palm to Athena. The contest was represented in the

#### SCULPTURES OF THE WESTERN PEDIMENT

of the Parthenon. The eastern pediment of the same building portrayed the birth of the goddess. According to a quaint old legend, she was born from the head of Zeus. A black, figured vase shows us how the event was imagined by the Athenians of the sixth century. Zeus is sitting upon a throne with a lion's head at the back, and a winged sphinx underneath as a support. He is robed in a tight-fitting tunic, and a mantle is thrown round his shoulders. He holds the lightning

in his right hand, and gesticulates with the left, while from his head Athena springs up equipped with shield and spear. Ilithyia, the goddess of childbirth, stands before Zeus, and moves her hand in a characteristic manner. Still further to the right is Ares, the war-god, armed with lance and helmet and with the Medusa shield. Behind the throne Apollo celebrates the joyful event by music on his lyre, and Hermes, the messenger of heaven, with his winged shoes, traveller's cloak, and broad-brimmed hat, is ready to carry the news to Athens. There is no reason to doubt that the ordinary Athenian believed sincerely in these legends. So strong was their belief that the tyrant Pisistratus took advantage of it, and by a curious device secured his return from exile. He dressed up a tall woman in the attire so familiar to the city, and the people seem to have been deceived into thinking that their divine patroness was recommending them to receive back Pisistratus when he rode to Athens with the pretended Athena by his side. In the height of the glory of the city the same sincere simplicity of belief was still shown. During the building of the Parthenon a wonderful piece of fortune befel, which, says Plutarch, showed that Athena did not hold aloof, but was helping to accomplish the work. A very zealous workman slipped and fell from the scaffolding, and was in a condition so dangerous that he was despaired of by the physicians. Pericles was affected painfully by the accident, but was visited by Athena in a dream, and was informed of the remedy. Of this he made use, and the man was healed. In order to record the event, the great statesman erected a statue to the goddess as the giver of health, Athena Hygieia, and the pedestal of this statue, with the inscription, is still to be seen at the entrance to the Acropolis. I do not know why we should accuse Pericles of hypocrisy here; other Athenians of the most brilliant intellectual endowments were characterised by the same devout temper as that which in their descendants struck the Apostle Paul 500 years later. Athens was not only the centre of the profoundest culture; it was also one of the most religious cities in Greece. The conclusion to be drawn is a very important one. It was first and foremost through the religious emotion that the masterpieces of Phidias and his contemporaries affected the average Athenian. Only in the second place was note taken of their

#### PERFECT WORKMANSHIP.

The rude wooden image in the Erechtheum that fell from Heaven, before which the famous lamp of Callimachus for ever burned, was doubtless more revered than the great statue of the neighbouring Parthenon. The Artist was not the master, but the minister of the religious feeling, and ran great risks if he turned aside from his appointed task. Phidias was imprisoned upon a charge of impiety because he had portrayed himself and Pericles upon the reliefs of the great shield of Athena. As the character of the Athenian State changed, so also did the character of their goddess. When the Athenians were a people of farmers, she was thought to give rains and abundant crops. Hence, in the eastern pediment of the Parthenon she is accompanied by the Hours who bring the harvest season, and by the Sisters of the Dew. As the goddess of the sailor, she contrived the magical vessel in which the Argonauts sailed to find the golden fleece, and her temple on the promontory of Sunium brought comfort to the ships that beat round that dangerous coast. As the patroness of victory she was called Athena Nice, and in order that she might never desert her people she was

#### REPRESENTED WITHOUT WINGS.

But the goddess was more than the patroness of the farmer, the merchant, and the soldier; she was the embodiment of wisdom. It was her inspiration that guided Odysseus on his wanderings, and Heracles throughout his labours. This ideal figure which reflected so closely the interests and aspirations of the Athenian state was boldly identified with the democracy, and worship was paid to her as Athena Democratia, the personification of the people. There is a beautiful little relief in

the Acropolis Museum; it represents the goddess leaning pensively upon her spear, her eyes fixed upon the memorial stele before her, which may be supposed to contain the names of deceased warriors. This charming design shows that she could sympathise as well as inspire. We may enter now, perhaps, into the spirit with which the Athenians celebrated every year the birthday of the goddess at the great festival of the Panathenaea, July 28. This began in the early morning with a procession to the Acropolis, in order to offer a new robe, or *peplos*, to the goddess—a piece of saffron cloth embroidered elaborately with the conflict between the gods and the giants. This robe was conveyed in state along the streets to the Acropolis, and there was hung round

#### THE GREAT STATUE,

or, perhaps, before it, as a curtain. Let us take the ideal figure of Athena as a clue, and let us join, so to speak, in the procession of the citizens of Athens. We shall find that the great masterpieces of plastic Art are all, as it were, set to the key of this religious ceremony; the main idea of it—the birth, the power, and the honour of Athena—being like a pervading diapason. The sculptures of the Parthenon are not exercises in which merely the skill of the Artist is displayed: they are the vehicles of living religious ideas. As we approach the Acropolis, let us suppose that the magic of fancy has restored to their former splendour the ruins of the entrance and of the temples which lie beyond. By the careful comparison of the actual remains and of the literary evidence, the Archaeologists of this century have gradually restored the arrangement of the works of Art upon the Acropolis, and we are enabled by their aid to substitute for the existing ruins a picture in which the buildings and the sculpture are united into a harmonious whole. The view is taken from the restoration of Thiersch. One of the most prominent objects was the colossal bronze statue of Athena the Defender, which rose to a height of 25ft. The point of the spear was visible for a great distance, and the sailors, as they were tacking up the Saronic Gulf from Sunium, kept a look out for the moment at which the familiar landmark should appear across the low hills of the coast. This work has perished, without leaving any visible trace, except a rough representation upon certain coins. As you pass between the columns of the Propylaea on to the rocky plateau, the eye is caught by the rich colour of the crystalline limestone rock. It is of a heavy red or maroon passing into dark purple or indigo. But in some lights the effect is changed. My first view was gained one evening as the sun was nearing the horizon, and the rays of light, which were almost level, so struck the surface of the limestone that it seemed of a light rose colour. Against this the white columns of the Parthenon stood out with great streaks of dull gold where they were stained by the weather, while, behind the rock and the white marble and the weather stains, the clear evening sky formed a background. In a well-known passage of the Seven Lamps

#### MR. RUSKIN COMPARES

to their disadvantage, the Greek temples with the coloured Architecture of Venice. But nothing can be more wonderful than the strange flickering of the white marble columns as they seem to flame out against the blue. Over this brilliant foundation, coloured ornament was applied, like a delicate embroidery, to the chief Architectural features. As you pace the summit of the Acropolis you can see many a marble moulding still carrying the traces of this. Colour was applied to Sculpture by the Greeks not less systematically than to their buildings. It is curious that the notion of coloured statuary should be so repugnant to the prevailing taste, and yet there is scarcely a museum of classical antiquities in which traces of colour are not to be found. We saw that, for want of colour, Mr. Cockerell's Hanover Chapel, with all its elegance, was not in sympathy with the true spirit of Greek Architecture.

(To be continued.)



## THE EDUCATIONAL TRAINING OF ARCHITECTS.\*

By LEOPOLD EIDLITZ.

DURING the last half of the present century the questions "How are Architects to be Educated?" and "Are we ever to have a New Style?" have been prolific sources of discussion. The answers to the first of these questions vary between the two extremes—"Architects shall not be educated at all," and "They shall be taught to know everything"; and to the second, that "We will probably never have a new style, but that such a thing may happen in the course of time"—a long time. These discussions are carried on with mutual forbearance and good feeling, but without any other result than an expression of opinion by the majority of the disputants that students of Architecture shall learn something of the technique of building, if this can be done without the suppression of inherent genius. Genius in this case means a lively poetic imagination, capable of remembering, selecting, and combining existing forms into a whole, which shall be picturesque. It has been observed by practical Architects that an extended mathematical and scientific training breeds able constructors (engineers), but is detrimental to the Artistic perceptions of the students. Existing forms may be repeated or combined by human imagination, but new forms can result only from

## NEW FUNCTIONS LOGICALLY DEVELOPED.

Up to the thirteenth century, Architects were builders who arrived at progressive methods of construction, mainly by practical experiment, the laboured results of which were stored up as rules-of-thumb by guilds and individuals, and modelling and decoration were mainly matters of feeling, but of the feeling of men who thoroughly knew their methods of construction. The guilds and their rules are past and gone, but during the last century the science of mechanics has been developed. This science enables us to compute with precision the strains caused in all combinations of matter which have served, or may hereafter serve, to form structural elements. To illustrate briefly: We know, a certain distribution of weights being given, which is to be sustained between two points of support, what is the line of pressure caused by these weights, hence what the form of the arch to sustain them with the least amount of material? Or, the form of an arch being given, what is the ideal distribution of loads which corresponds accurately to its resistance? Or, again, the form of an arch being given, which we know *not* to correspond with the distribution of its loads, what will be the magnitude of the strains produced in any part of it, and how are these strains to be resisted? We know exactly what is the lateral pressure of a given arch, and what is the stability of an abutment needed to resist it. We can compute the transverse strength of a beam or a lintel, the bending moment of a pillar, or the deflection of either, under loads so small that it cannot be measured. Now, we are all ready to admit that this knowledge is useful, and perhaps necessary to the student of Architecture, to enable him to construct buildings that shall be stable and enduring; but many of us doubt that it has anything to do with Architecture as a fine Art, which means with the composition of Architectural monuments which shall be beautiful to look at and expressive of their purpose and meaning. I presume that all Architects agree that form, modelling, and decoration constitute

## THE ELEMENTS OF BEAUTY

and expression, and that of these *form* is the most important. If we imagine every piece of sculpture, carved decoration, and moulding removed, say, from the Cathedral at Amiens, so that nothing remains but the bulk of piers, arches, vaults, and buttresses, the ruin will still express a Christian monument of great beauty. Now, the Ecclesiastical expression is

\* A paper written by Leopold Eidlitz, of New York, and—in his absence—read by Mr. John Slater at the Royal Institute of British Architects.

owing to what, in music, would be called the *motif*, which is Christian in character, lofty in its conception as a house of God, and in the *grouping* of its parts, which designate worship in the chevet, the presence of officiating priests in the transepts, the people in the nave, the aisles with their processions, chapels, and confessionals; while harmony is certainly due to a just and accurate treatment of structural parts and their mechanical value, which is determined by local strains. In music, neglect of a strict mathematical relation of sounds results in discord. So, in Architecture, harmony of form can be attained only by a strict observance of the mathematical relation of strains. Harmony of strain means that stress should be always resisted by a proportionate amount of material—no more, no less. This does not mean that there should be no more material used than is absolutely necessary to perform a given amount of mechanical work, such, for instance, as we consider proper in economic structures, factories, warehouses, tenements, &c.; but, whatever the amount of material to be used in a given Architectural monument, which, in the opinion of the Architect, is commensurate to its character of stability, dignity, and elegance, shall be proportionate to actual strains throughout the whole design. To be explicit, each building material sustains a certain amount of strain at the breaking point. The actual strain permitted in any structure in practice is but a fraction of the ultimate strain of the material at the breaking point. This fraction is known as the factor of safety, and should, for the same material, vary in different buildings in accordance with their dignity. The Architect may use

## ONE FACTOR OF SAFETY

for a schoolhouse, another for a library, and yet another for a Church. The factor of safety so chosen becomes the keynote of his design, and a constant reference to it insures harmony. Factors of safety vary with the different materials, and more or less depend on limits of elasticity, methods of construction, probable effects of the weather, corrosion, &c. Strain is the sum of weight, its direction, and resulting bending moments. It appears from the above that the greater the ultimate resistance of the material the greater is the admissible maximum strain, hence the more elegant the structural forms. It occurs that in the use of modern rolled iron, form becomes attenuated far beyond the limits of the forms the Architect is familiar with. It may be asked here, and doubtless many a respectable member of our Profession would ask, what the author could have done with an ugly iron or steel pillar riveted up of rolled material? Without discussing that question at this time—although it may be asserted with confidence that a post of that description is not at all outside the pale of aesthetic possibilities—it may be suggested that a cast bronze column was perfectly practicable, and so was a granite column of sufficient diameter to carry the load. What the Architect had in mind, however, was not the question of mechanical work to be done, nor the question of relative strains and an harmonious Architectural development of forms, but the beauties of the Greek portico, which must be preserved in spite of new conditions and the invention of new material. Of course, no new style of Architecture can be expected when new conditions, such as a twenty-five story office building—or the invention of a new material, such as rolled steel—are referred to the Greek portico, instead of the law of gravitation.

## A GREAT STUMBLING-BLOCK

to the student of Architecture is the constant and exclusive reading of its history, which is tacitly presented by schools, and avowedly accepted by students to be a system of building which serves all the purposes of a philosophy—or a Science and Art—competent to teach building scientifically and artistically under conditions which never occurred in the history of the past. The mathematical training in modern schools and Universities is usually sufficient to enable the student to devise methods of construction, and when devised, to compute with accurate resulting

strains. Students who then enter an Architectural course are turned over to a special teacher of Architecture, who tells them to design buildings of any kind—from a storehouse to a Cathedral—not in accordance with their acquired knowledge of mechanics, but in accordance with methods pursued by the Greeks, the Romans, &c., who were not at all familiar with the science of building as now understood, but who constructed merely in accordance with their practical experience. For further information the student is referred to *Art History*. Now, the Greeks, the Romans, and the master-builders of the Middle Ages, though not scientific in the modern sense, understood form, because they practically knew the mechanical function of structural elements, and had a realising practical sense of the relation of masses, hence also of the form, modelling and decoration of these masses. The modern student of Architecture has no experience in building, and when he enters the academic course, discards from his mind his previous scientific attainment, which never existed in the shape of forms, but merely in

## AN AGGREGATION OF MATHEMATICAL REASONINGS.

He is not taught how to refer to that reasoning in developing forms, but instead, is asked to study forms in the abstract as presented in history. The system of the *Ecole des Beaux-Arts*, which is imitated in many schools outside of France, is utterly subversive of possible logical Architecture. Students are required to prepare sketches, often of important Architectural monuments, in from six to sixteen hours. By rules of the school, these sketches may be measurably foggy, as long as the finally completed drawings can be construed to be somehow indicated in the original sketch; this means that the process is a matter of composition of form, and not a rational development. Criticism of these designs by teachers admits transgression against good construction as comparatively pardonable, but insists on observance of traditional treatment of form as imperative. The study of Architectural history (more especially if perused critically) is doubtless beneficial to the Architect, but should be postponed for a post-graduate course, or should be left for private reading after the academic course is completed. A future text-book of Architecture for Universities, polytechnic schools, and academies of the Art of Architecture, will doubtless bear the title "The Theory, Practice and Art of Building." . . . What is meant by Architectural scales may be best illustrated by one or more examples, for instance:—Given a pillar of a certain length, and the load it supports in pounds, what will be its sectional area, and what its form, modelling, carved ornament, and colour decoration (if any) in a warehouse, a public school, a library, a court-house, and a parish church, when the pillar is made of wood, cast iron, wrought iron, bronze, brick, sand-stone, marble or granite. The text-book would answer these questions, and illustrate the answers by drawings and diagrams. It would state how variations or treatment would accrue by reason of difference in the length of the pillar, also how pillars of similar nature have been treated in notable monuments of the past, and discuss the merit of such treatment, and point out its material defects. Wall piers considered as pillars would be treated in the same way. Then would follow the consideration of braces, capitals, and corbels. Further, that of lintels, arches, groins and cupolas, and the resulting lateral pressures and abutments, and also of roofs, stairs, and incidental structural elements. Assuming the Architectural scales to comprise the first part of the text-book, the second part will treat of the

## CONSTRUCTION OF SINGLE CELLS,

and the combination of these into piles. The students would attend lectures on the *rationale* of structural elements and composition, but would devote most of their time to drawing structural parts, and finally entire buildings and monuments, not by copying from the text-book, but by an individual treatment of the subjects contained therein under the guidance



of a professor and his assistant or assistants. The latter would see to it that adherence to strain is strictly pursued. By this process, students would in their work be corrected and helped daily, and would progressively acquire a habit of referring design to building, and its mechanical import. That monuments thus conceived and designed will be expressive of their meaning, and the individuality of their author, cannot be doubted; nor that they will be harmonious in themselves and will vary from the forms of the past in the degree as new wants, new material, new methods of construction vary and excel those handed down to us in history. When a natural organism decays and dies, it still exists in its elements, though not in its original form. These elements under different environments combine again into new organic forms of different function. Science and Art obey a similar law. Principles established by experience continue to live as accepted truths, when the forms of artificial organisms which they originally developed have ceased to be fitting or useful to human needs, more especially when those principles first crudely announced have become accurately determined by quantitative analysis. The cross-bow and modern rifle, the spinning-wheel and the present spinning-machines, and ancient galley and the armoured steamer, all serve as practical illustrations of the above. Architecture alone, of all human pursuits, retains obsolete forms, and neglects underlying principles and organic laws. It must be remembered, however, that this was not the case prior to the fourteenth century. Five hundred years of decrepitude leads thinking minds to question a possible resuscitation; and when now and then such a possibility is seriously contemplated, we talk of centuries and generations, because past progress has consumed such periods of time. But when we consider the great strides of the present century, owing to the knowledge and application of positive scientific methods, the metamorphosis of Japan, for instance, within the last generation, purely by the acknowledgment and practical acceptance of these methods, we must come to the conclusion that a period of one generation is quite sufficient to initiate renewed rapid progress in Architectural Art, always provided that we are willing and helpful to refer it to its true and fundamental principles, and to teach it rationally.

### EXETER CATHEDRAL.

THE Dean and Chapter of Exeter, says the "Daily Chronicle," are obviously a good deal afraid of the Society for the Protection of Ancient Buildings. The committee of that society, having ascertained that certain work was in progress on the west front of the Cathedral, wrote first to the Cathedral Surveyor, Mr. E. H. Harbottle, and asked him what was actually being done to the west front. Mr. Harbottle replied "that necessary repairs to the west front of the Cathedral are being done under the direction of the Dean and Chapter;" whereupon the committee wrote to the Dean and asked whether he would allow the society to know what was being done. The Dean was abroad, but Canon Edmonds showed the communication of the society to the other members of the Chapter, who, "with all the courtesy that is due to your society," informed that body that the Dean and Chapter "do not wish to be brought into relations with it in the matter of what we are doing at the west front of the Cathedral." From our own correspondent we learn that all that is being done is the restoration of carving, mouldings that have been nearly lost sight of, and some of the stepped blank arcading in the gable, together with the restoration of the great west window.

THE Baths Committee of the Islington Vestry has reported in favour of the erection of Turkish baths, capable of accommodating from thirty to thirty-five persons at a time and "fitted in the most approved manner," as an addition to, the Hornsey Road Public Baths.

## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

March 10th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

WE learn that the plans for extending the accommodation at the Guildhall School of Music by the provision of additional classrooms are being proceeded with, but it is not probable, owing to the interests that have to be considered, that the scheme will be ready for submission to the Court of Common Council for at least a month at the very earliest. The Music Committee is fortunate enough to include amongst its number four Architects, and they have been, as it were, constituted as a sub-committee to arrange the technical details, and put into shape the rough ideas that find favour. It is likely that the scheme will prove a more costly one than was at first thought probable. It will not, however, provoke opposition on that score, as the Committee propose to submit with the building plans, a suggestion that will have the effect of sensibly augmenting the income, while at the same time reducing the expenditure of the school.

THAT the London County Council has declined to contribute towards the cost of the proposed widening of Watling Street is to be regretted. To call the improvement one of metropolitan importance is an exaggeration however; as a matter of fact, it will chiefly benefit the warehousemen, who, under existing circumstances, experience at times no little difficulty in receiving and despatching goods with any amount of expedition. For the future, the Sewers Commission will be well advised to confine their applications to the County Council to improvements that must be generally admitted to be metropolitan in character.

THE new laboratory which is being built in Clement's Inn for the Somerset House analysts is not so far forward as the Board of Works expected it would be, considering the time it has been in hand; it looks now as if it will take another twelve months to complete, although the total contract is only some £23,000. The space which the analysts are occupying in Somerset House is very badly wanted by other departments in the building. In the laboratory the staff used to number 43, now it is 74 strong; but as all these will migrate when the building in Clement's Inn is completed, the congestion in that branch will only be comparatively short-lived. The growth in all other departments has been almost equally great, and judging by the experience of previous years, it will continue.

A NEW military hospital is to be erected outside London in connection with the scheme for fortifying the City. The proposal has been under the consideration of the military authorities for some months, but it was difficult to obtain a suitable site. Within the last few days such a site has been secured in a central position so as to be easily reached from any part of the fortified hill tops. Plans have already been prepared, and it is expected that in a few days the work will be commenced.

By the erection recently of a substantial Portland stone wall at the Embankment side of Somerset House, near Waterloo Bridge, a great improvement in the appearance of that handsome pile has been effected, the work having been carried out in unison with the prevailing style of Architecture of the building. The part thus reclaimed was formerly known as the Dock House, and was in use a few years ago as a waterway for the entrance of barges from the river into Somerset House. In addition to the erection of the wall, a large room has been constructed which will be used as a repository for papers, &c. The work has been carried out under the direction of Mr. Williams, Clerk of the Works, Royal Courts of Justice.

Two recently elected full members of the Academy will serve this year on the Council—Messrs. Richmond and Broughton. The rule is that the recent R.A.'s take their places amongst the five new members who at the commencement of each academic year succeed to five out-going members. Thus in the year 1894 four of the five—Messrs. Alfred Gilbert, MacWhirter, Henry Woods, and Henry Moore—were R.A.'s elected within the twelve months. This year there have been many vacancies filled up, Messrs. Crofts, Jackson, and Sargent, in addition to the two already mentioned. These new R.A.'s, however, have not to serve this year. The Academy has a further rule that no full member's election can be regarded as complete until he has actually received his diploma. Till then he is an "Academician elect." Six months have to elapse from the date of election till the presentation to the Queen, and the sending in to the Academy of the diploma picture and its acceptance are conditions precedent to the ceremony.

A QUAIN old building—another link with the past of Barnstable—has just been demolished in Boutport Street, close to the site of the North Gate, and adjoining the premises of Mr. J. Rowe. From the oak panelling and general construction, it appears that the house was of Seventeenth Century construction and style, but compared with surrounding buildings, it appeared to the ordinary passer-by as possessing greater antiquity. Considering the ancient character of the Borough, there is a surprising absence of the antique in building at Barnstable. A couple of houses at Newport are believed by experts to be much older than the one which has just disappeared; and the interiors of others have undoubtedly respectable antiquity, even if their frontages have been modernised.

THE Committee charged with making arrangements for the erection of a statue of the Queen at Dundee, in commemoration of her sixty years' reign, has had a consultation with Mr. Harry Bates, A.R.A., who has been commissioned to design and erect the statue. A good deal of conversation took place in regard to the bas-reliefs, and ultimately it was left to Mr. Bates to make suggestions and submit models. A strong feeling, however, prevailed that the bas-reliefs should be representative of the characteristics displayed by the Queen in her long life, such as her visit to the wounded soldiers on their return from the Crimea, and her humility and kindly acts in her Highland home. As to the statue itself, nothing definite was fixed upon; but suggestions were made that the bronze figure of her Majesty should be in a sitting posture, and that the pedestal should be of granite, the whole rising to a height of about 15ft.

THE suggestion that the Chelsea Vestry should apply to Lord Cadogan to have conveyed to them the old Chelsea "Physic Garden" on the Embankment near Cheyne-walk, in commemoration of the Diamond Jubilee, seems to offer a faint hope of a satisfactory termination of a long-standing agitation; but unfortunately the matter does not rest with Lord Cadogan, but with the "Apothecaries' Company. The case affords a striking example of how the objects of the "pious founder" may be frustrated, and mischief done where good was intended. The



garden was conveyed in 1721 by Sir Hans Sloane, then Lord of the Manor of Chelsea, to the Apothecaries' Company by deed of gift, on condition that it should at all times be continued as a "physic garden" for the "manifestation of the power and wisdom and goodness of God in creation, and that the apprentices might learn to distinguish good and useful plants from hurtful ones." But the "Royal Botanic Garden," as it is officially called, is now surrounded by houses, and is really no use for these purposes; and though there is a greenhouse and a medical library there, the growing of medical herbs has come to be a mere formal compliance with the terms of the gift. Science would certainly lose little by converting this quaintly pretty spot, with its statue of the worthy Sir Hans and its magnificent old cedars of Lebanon, into a pleasure garden open to the public. At present it is hidden from sight on one side by a high and particularly ugly brick wall, and on the other can only be dimly discerned through a close set iron railing.

MR. H. HARDWICKE LANGSTON writes to the Times, under date March 1st, that the condition of some of the paving of Gray's Inn Road is at present a standing menace to the public safety. "Recently," he says, "a loaded omnibus was overturned, near King's Cross end, by the wheels coming in contact with the tram lines, the wood paving having worn away, leaving the metals standing up as a kerb in the roadway. I noticed a coal wagon athwart the lines last week, with a hind wheel broken from this cause, as I was informed, and of course blocking the traffic. A loaded tramcar following was pulled out of its track, and made a detour to get on to the line again at the imminent risk, as it seemed, of being overturned. On passing this morning I measured at one place where the metals were nearly two inches above the sunken or worn-down wood pavement. This was opposite one of London's hospitals. It struck me at the time that it would be a useful contribution to hospitals if 'street accidents' which could be prevented were not made the means of drawing on their limited funds."

At the weekly meeting of the London County Council last week, the Works Committee submitted a return of the cost of estimated works which have been completed by the Works Department during the half-year ended September 30th last. This shows that the total value of the work executed in the six months was about £149,000, of which £11,357 was for jobbing works. Of the nine principal works, four were executed slightly under the revised estimates, two slightly exceeded the estimates; two were considerably in excess of the estimates, and one was considerably under. Mr. Adams, the newly-appointed manager of the department, has made a report giving reasons why in the case of the erection of dwellings at Shelton Street, and in the widening of Sandys Row, the work should have cost much more than the estimate. With respect to the first-named work, where the excess is nearly £3000, Mr. Adams points out that there were considerable delays after it was started in carrying it out, for which the Works Department was not responsible, and which enhanced the cost. The blocks of buildings were in very confined areas, and separated from one another by intervening streets and houses, causing great inconvenience, increasing the cost for superintendence, lighting, watching, &c., over the amounts provided in the estimate. With regard to the Sandys Row widening, Mr. Adams says that the excess cost on this work amounts only to about £346, nearly the whole of which was spent on hoarding, &c., not allowed for by the late manager when accepting the estimate. It was assumed that the courts opening upon Sandys Row could be closed, and that but little hoarding would be required, but afterwards, owing to complaints from the inhabitants, an additional expense of £312 17s. 5d. had to be incurred for constructing special hoarding, and providing and watching gangways fronting each of the five courts with double gateways to each for the passing of steam cranes.

## Professional Items.

ABERDEEN.—The interior of the Town Hall and Council-Chamber has just undergone a needed renovation. The work was placed in the hands of Messrs. Hay and Lyall, who emblazoned the ceiling and otherwise decorated the interior of the hall exactly twenty years ago. The ceiling, as is well known, is in panels decorated with the coats of arms of prominent town and county families. These have required no attention since 1877, but as difficulty has often been experienced in distinguishing the various family arms, each of the eighty-four panels has now been fitted with a silver scroll with the family name picked out in black letters below the heraldic device. Seven of the panels are still retained, with black shields, and can be filled in as occasion may arise. The walls and cornice have been re-decorated in the colours recommended in 1877 by Sir George Reid, P.R.S.A.

CASTLEBAR.—The first sod of Castlebar new Church was turned last week. The new Church will be erected in close proximity to the old one. Mr. Walter Doolin, Dublin, is the Architect.

CHURCHOVER.—The re-opening of the interesting old parish Church at Churchover took place a few days ago. For many years the Church had been gradually going to decay, and in the past, attempts have been made from time to time to patch it up. The oldest portion of the Church is a small tablet, now built into the new west wall, and this is supposed to be older than the font, which is of very early Norman period, and older than the records of the Church, which date back to 1321. Necessary funds, estimated at about £2500, being guaranteed. Messrs. W. and C. A. Bassett Smith, Architects, of London, were consulted, and it was found that it would be necessary to practically re-build the Church entirely, with the exception of the tower. On Ash Wednesday, 1896, Messrs. King and Ridley, to whom the work of re-building was entrusted, commenced the demolition of the old Church. The only portions which it was found possible to retain were a window now placed at the east end of the north aisle, three arches in the south arcade, and the north door, which has now been hung at the south entrance. The beautiful monuments, which had been very improperly fixed on the chancel walls, have been placed at the west end of the south and north aisles. For the miserable old gallery, lighted by skylights, the north aisle has been substituted, and the chancel has been built in its original shape, namely, square instead of a rounded end. The building itself has been built with Weldon and Atterton stone, with a tiled roof, the interior of the roof being of Baltic fir in the Decorative style, to match the other parts of the building.

DERBY.—Cardinal Vaughan performed the opening ceremony of the new Roman Catholic Church of St. Joseph, at Mill Hill, Derby. The site was purchased in 1876, since which time a school chapel has existed on it. The plans were prepared by Mr. James Hart, Architect, of Corby, Grantham, and the contract was given to Mr. J. Clarke, builder, of Nottingham. The foundation stone was laid last April.

St. Peter's Church is admittedly sadly in need of restoration, and it appears from the scheme on foot that nothing short of the rebuilding of a large portion is contemplated. Already nearly £2300 has been promised, and £4500 more is needed. Messrs. Walker and Slater have the work in hand, and the restoration of the north aisle and nave has been already commenced.

DUNDEE.—Mr. George C. Buchanan, Dundee Harbour Engineer, has prepared a report with reference to the proposed extension of the eastern wharves and the erection of sheds. He states that in accordance with instructions the new shed has been designed 300ft. long by 120ft. broad, and its estimated cost is £5500. He had carefully considered the

suggestion as to a relief shed on the north side of the eastern sheds, and he believed that such a shed would be of immense service. The proposed shed must, he thought, largely relieve the congestion. He had, therefore, prepared a plan for a shed similar in size to the new shed, but in lieu of brickwork and masonry walls he proposed to use steel ribs covered with galvanised corrugated iron. If used as a store, such a shed would hold 40,000 bales of jute, would be quite as durable as those constructed of masonry, and would cost complete about £3000, or less than three-fifths of the cost of those now in use. With regard to the proposed shed on the site of the southern section of the sheds at the Cattle Depot, it would, having regard to the condition of the river wall and wharf at that point, be inexpedient to build a shed without first having these repaired. The report will be considered at an early meeting of the Works Committee.

The contract for the mason and iron work of the new Pearl Assurance offices in Dundee has been placed with Messrs. D. and A. Powrie, builders, Dundee. The contract price of the new structure is between £3000 and £4000. Building operations have already begun. The Architects are Messrs. C. and L. Ower.

DUBLIN.—Mr. Edward Lee last week opened the extensive premises which have been entirely reconstructed in Mary Street, Dublin. The building covers an area of nearly 4000ft., and has been erected from plans prepared by Mr. W. Kaye Parry, of Dame Street. The contractors were Messrs. Joseph Pemberton and Son, Charlemont Street, and all the plumbing work has been executed by Mr. T. W. Little. The shop itself extends the whole depth of the block, and is about 35ft. wide, and the balconies or galleries are approached by a staircase.

EXETER.—Gifford's Hotel, High Street, Exeter, has just undergone considerable alterations and extensions at a cost of £600. The old refreshment-room and entrance-passage in Castle Street have been entirely re-decorated and fitted. The walls and ceilings are lined with lincrusta Walton, finished in chrome tints, with fittings in mahogany. The internal portion of the shop towards High Street is decorated and fitted in a somewhat similar style, but an entirely new front has been put in. The whole of the work has been carried out by Exeter tradesmen from the designs and under the superintendence of Mr. J. Archibald Lucas, Architect. The general contractors were Messrs. Tree and Bolley, the decorator, Mr. R. J. Mills, the plumber and gas-fitter, Messrs. Hubber and Son, the upholsterers, Messrs. Mark Rowe and Sons, the carvers, Messrs. Hems and Sons, and the suppliers of the cut glass, Messrs. E. James, Rowe, and Co.

HUDDERSFIELD.—The Thornton Lodge New Wesleyan Chapel, Huddersfield, was formally opened on the 24th ult. The building has been erected from the designs and under the superintendence of Mr. W. H. Blakeley, of Netherton, the honorary Architect. The interior of the chapel presents an attractive appearance, is well lighted and ventilated, and is heated by Messrs. Milan's hot water system. It will comfortably accommodate about 200 persons. There are also a school-room and two vestries.

During the past few weeks the interior of St. Paul's Church, Huddersfield, has undergone re-decoration, &c. Messrs. Lunn and Cardno were entrusted with the decoration, and J. H. Taylor and Co., Macauley Street, had charge of the electric light installation. Mr. I. Hordern has presented to the Church a reredos in the form of a triptych in oak, richly moulded. The lower portion of the triptych consists of a moulded base of several members, above which are four cusped panels, the dividing styles of which are carved representing the vine and the rose. The reredos has been made by Messrs. Buckley and Co. Messrs. Graham and Jessop have carried out all the structural work involved in the raising of the pulpit, and fixing of the reredos.



**KEIGHLEY.**—The Keighley Cycling Club has erected a new club-house in Cavendish Street. The building was formally opened last week. The new house has been designed by Messrs. W. H. and A. Sugden, Architects, Keighley, and about 120 to 150 cycles can be stored in the basement. The ground floor is mainly occupied by a large cycle shop; and the first floor is a lofty and commodious club-room, committee-room, dressing-room, &c.; the second floor is occupied by a billiard-room, well-lighted from the top, a refreshment bar, card-room, &c. The cost of the entire undertaking cannot be much less than £3000.

**KESTEVEN.**—At a meeting of the Asylum Committee of the Kesteven County Council, held at Sleaford, the plans for the proposed Asylum at Rauceby were considered, together with the report of the Umpire. The plan of Mr. G. T. Hine, of 35, Parliament Street, London, has been accepted, his estimated cost being £96,000. A premium of £150 has been awarded to the second best plan from Messrs. Giles, Gough, and Trollope, 28, Craven Street, London, and a premium of £100 to Messrs. Henry Crispe and Oatley, of Clare Street, Bristol. The accepted plan has now to be approved by the Lunacy Commissioners and the Home Secretary, while the County Council has also to signify its assent. Under these circumstances the work will be scarcely commenced before next winter. The erection of one asylum recently, somewhat similar to the proposed buildings at Rauceby, occupied over three years before it was completed.

**LONDON, S.W.**—The Bishop of London consecrated, on the 1st inst., the additions which have been made to St. Gabriel's Church, Pimlico. The additions, which consist of north and south aisles, a new south chapel, a west gallery, and a west porch, have been carried out by Mr. John Thompson, of Peterborough, at a cost of £6000, from the designs of Mr. Arthur Baker, of the firm of Messrs. Baker and Turrill, in harmony with the original design. The interior has been enriched by the groining of the roofs of the aisles, and by the richly-carved oak front of the west gallery carried on a stone arcade. The chancel has also been beautified by a new east window, designed by Mr. Kemp.

**LOWESTOFT.**—The memorial stones were laid on the 4th inst. of the new home of the Lowestoft Young Women's Christian Association, on Regent Road. The Architect, Mr. Alfred Clark, prepared designs for a building combining an institute and a home, part of these being now carried out, while there is ample room for further extension when desirable. It is plainly constructed of red bricks, with string courses and red stone dressings, while there will be a tower at the Regent Road corner.

**OYNE, N.B.**—The public school at Oyne, which has been closed during the last seven months, pending the carrying out of important additions and improvements, was formally opened on Friday, the 26th ult. While the space in the school, both superficial and cubic, has been adequate to meet the Department's regulations, the obsolete character of the building, and specially the defective ventilation and lighting, has on various occasions been unfavourably commented on by H.M. Inspector. After consultation with H.M. Inspector and with Mr. Duncan, Architect, Turiff, the Board unanimously resolved to remodel and extend the present building in preference to erecting an entirely new structure. The alterations projected included the heightening of the walls and new gables, an enlargement of the main room, and the provision of lavatories and cloak-rooms. Contracts were entered into with Mr. Simmers, Dyce, for the mason work; Leslie, Inch, for the joiner; Pirie, Fyvie, for the slater; Laing, Inverurie, for the plumber; and Watson, Turiff, for the painter. The result is now a building, divided into three spacious, well-ventilated rooms separated from each other by glass partitions, having each a separate entrance, and with accommodation for about 180 scholars. The cost of the alteration is about £400.

**PETERHEAD.**—Very satisfactory progress is being made with the deepening of Port Henry harbour at Peterhead. The underfounding of the piers, although somewhat delayed for a time, is now proceeding apace; and the squad of men employed at this work at various points are rapidly catching up with the deepening operations, about one-third being already finished. The masonry on the north side of the new inner jetty is all but completed, and a commencement has been made at the south side. This jetty, as resolved upon recently by the trustees, is to have an arm built at the outer end, leaving an opening of 45ft. between it and the existing jetty, in which "booms" will be provided for use in rough weather. It is expected that the inner basin, thus secured, will be largely taken advantage of by fishermen for "laying up" their boats in winter. A small portion of the debris is being utilised to reclaim a piece of ground at the Ronheads, in order to form a roadway outside the land proposed to be handed over to the Railway Company. About two-thirds of the retaining wall for this purpose has been built. By far the greater portion of the excavated material is, however, being used to reclaim a portion of the foreshore at the south bay, about 230 waggon loads being transferred daily from the harbour works and deposited on the foreshore.

**STOCKPORT.**—The large stained glass windows which have been put into St. George's Church, Heavily, which we illustrated in our last issue, were made and fitted by Messrs. Shrigley and Hunt, of Lancaster.

**SWANSEA.**—A new jetty is to be constructed at the half-tide basin of the Prince of Wales Dock, at a cost of £5000. Messrs. Thomas Watkins and Co. have received the contract.

**TAUNTON.**—A special meeting of the Taunton Town Council has been held to consider the advisability of securing a portion of the Parade as a site for the Town Hall as a memorial of the Queen's reign. It was estimated by some speakers that the hall would cost about £40,000.—The desirability of erecting the Town Hall was affirmed.

**TITCHWELL.**—Some time since the tower, roof, and several portions of the chancel of the Church of St. Mary the Virgin at Titchwell were condemned as unsafe, and an estimate, amounting to £400, for restoring the Church was prepared. The contract of Messrs. Cornish and Gaymer, of North Walsham, for £409 was accepted, and has been carried out satisfactorily, who have, in addition, spent £100 on the old Norman tower, which was found to be in a most unsound condition.

## Correspondence.

### COMMISSIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I read with much interest Mr. Bidlake's article published last week in the JOURNAL on the above subject, and entirely agree with him that a great amount of illegal commissions are accepted by some Architects and those calling themselves such—principally the latter in my experience—from tradesmen and Quantity Surveyors, and I think if your JOURNAL finds its way into the hands of other than the professional public, the exposing of such practices in its columns cannot fail to be of service to honest members of the profession, especially so if you can point out the manner in which such tricks are performed, or how they can be detected. It is somewhat of an object lesson to those "in the know" to read the article referred to and then turn to your lists of tenders, and find the tenders for several jobs, principally by one provincial firm of Architects, with accepted tenders ranging from less than £200, and to note that all of these have "quantities" taken by another provincial gentleman with a double-barrelled name. What does it mean? I have had a good many years' experience of London and country

builders, and I never yet found one who required quantities for a job of less than £1000, and in my opinion any Architect who imposes an extra 2½ per cent. on a client for quantities for a job of less than half that sum is a man who we should look askance at. Under any circumstances I think, however, that the Quantity Surveyor does not personally suffer very much, for 2½ per cent. is too much for his work if 5 per cent. is the remuneration for the Architect. His work is done and done with, and he gets his money almost at once, instead of waiting sometimes years for it as Architects have to.

I am, Sir,

Your obedient servant,

ARCHITECT.

March 4th, 1897.

### SOCIETY MEETINGS.

**The Architectural Association of Ireland.**—A meeting of this Association was held at the Grosvenor Hotel, Westland Row, on Tuesday evening, the 2nd inst., the President (Mr. R. Caulfield Orpen) in the chair. Amongst those present were Albert E. Murray, Geo. M. Ross, Joseph Holloway, vice-president, T. Slevin, M. J. Tighe, and R. Butler, hon. secretary. Mr. W. Kaye-Parry, M.A., B.E., gave a lecture on Drainage and Sanitary Construction. The lecturer gave an interesting and instructive account of the progress of sanitary science in recent years.

**Edinburgh Architectural Association.**—The Edinburgh Architectural Association, by permission of the directors, visited the North British Distillery on the 27th ult. The head brewer, Mr. S. Stevenson, conducted the party over the buildings, which occupy about eleven acres of ground, and have about sixteen acres of floor space. Henning's pneumatic drums were shown at work, and the various processes to which the grain is subjected were followed from the grain stores to the still-house. Among those present were Messrs. John Watson, T. P. Marwick, and A. Hunter Crawford.

**Leeds and Yorkshire Architectural Society.**—In connection with this Society a lecture was given at the Leeds Institute, Cookridge Street, on the 1st inst., by Mr. T. Butler Wilson, of Leeds, on "Modern House Interiors." Mr. Butler Wilson spoke of the awakening interest on the part of the public in the decoration and furnishing of their houses, and deplored the fact that Architects had allowed the direction of these matters to pass out of their hands. He suggested that the reason lay in the apathy of the profession with regard to decorative Art, and that their interest had been absorbed almost wholly by structural Design.

**Glasgow Architectural Association.**—At a meeting of this Society on Tuesday, the 2nd inst.—Mr. George S. Hill, A.R.I.B.A., in the chair—Mr. D. Theodore Fyfe read a paper on "French Mediaeval Fortifications." The essayist pointed out that past work must be studied with respect to the conditions under which it was created. He proceeded to enlarge on the different types of the domain, a chief's dwelling, showing how this building evolved in the chateau of later times. The essayist gave a description of the number of the best examples, diagrams of which were ranged round the wall, and showed that every part of these fortifications had its origin in the laws of defence.

**The Edinburgh Architectural Society.**—At a meeting of this society on the 3rd inst., Mr. J. A. Williamson in the chair, Mr. R. S. Lorimer delivered a lecture entitled "Some Notes on the Artistic Work and Influence of William Morris." Mr. Lorimer traced the history of the firm of William Morris and Co. from its foundation; dealt with Mr. Morris as a Craftsman, as a teacher and lecturer, as a founder of the Society for the Protection of Ancient Buildings, and as a publisher and printer; and showed some of the books produced at his Kelmscott Printing Press. The lecturer was accorded a vote of thanks on the motion of Mr. A. R. Scott, seconded by Mr. Lorne Campbell.



# INDEX OF ILLUSTRATIONS AND CONTENTS.

ILLUSTRATIONS.	PAGE	CONTENTS.	PAGE		PAGE
Litho Plate Supplement:—Convalescent Home for the East London Hospital.—Messrs. Cheston and Perkin, Architects.		London Statues	61	Exeter Cathedral	70
An Old Cottage. By Edith Dawson	61	Individuality in Art, by T. G. Jackson, R.A.	62	Bricks and Mortar	70
View of Westminster Abbey, with suggested improvement in Parliament Street. Sketched by R. Fisher	63	The New Government Offices, by S. J. Fisher	63	Professional Items	71
Gate of Tothill Fields Prison	65	The Leaning Steeple of Barnstable	66	Correspondence	72
King Street Gate, Westminster	65	New Invention for Dispelling Fog, as applied to Photography	66	Society Meetings	72
179, New Bond Street—Upper Part of Front; The Waiting Gallery; The Staircase Hall	66, 67	"Greek Sculpture and Greek Legend," by F. S. Grainger	67		
		"The Educational Training of Architects," by Leopold Eidlitz	69		

SURVEYING AND SANITARY SUPPLEMENT:—	PAGE
The Planning of Small Houses, by H. V. Lancaster, A.R.I.B.A.	xvii
"Sanitary Science," by Paul Ogden	xviii
Surveying and Sanitary Notes	xix

## "THE BUILDERS' JOURNAL" ADVERTISERS.

Names and Addresses with the page on which their Announcements Appear.

Adams & Co.	vi	Couzens, G. and F., Cardiff	—	Hope, Henry, Birmingham	—	Robson & Co., Sunderland	—
Adams, Robert, London	—	Cox, Sons, Buckley & Co., London	—	Hyde & Co., G., London	viii	Rogers, S. E., London	xi
Adams, T., & Sons, Ltd., Birmingham	viii	Dennis, Henry, Ruabon	—	Itter, A. W., Peterborough	—	Safety Tread Syndicate, Ltd.	x
Albion Clay Co., Ltd., London	—	De Ridder, R. P., Liverpool	xi	Jones & Attwood, Stourbridge	—	St. Pancras Ironwork Co., London	v
Allday, J. L., Birmingham	—	Doulton & Co., Lambeth	i, ii	Jones, James, Birmingham	—	Self-Lock Roofing Tile Co., Ltd.	—
Anaglypta, Darwen	vii	Easton, Anderson & Goodlen, Ltd.	vii	Jones and Willis, London	—	Skidmore, Thos., & Son	i
Ashmore, Benson, Pease & Co., Ltd.	—	Eastwood & Co., London	xi	Kauri Timber Co., Ltd., London	—	Smokeless Fire Co., Ltd., London	xi
Attwood, J., Stourbridge	ix	Ellis, Partridge & Co., Leicester	—	Kaye, Joseph, & Sons, Ltd., London	—	Stanley Bros., Ltd., Nuneaton	x
Ball, H. A.	—	Elsley, Thomas, London	xii	King, John, Liverpool	—	Stiff & Sons, London	iii
Barnett, Edward, Walsall	—	Emley & Sons, Newcastle-on-Tyne	—	Lewis, J., London	—	Strode & Co., London	i
Barrows & Co., Ltd., Banbury	—	Etridge, J. J., Junr., London	viii	London Hoist and Chain Co.	—	Szerehney & Co., London	iv
Bath Stone Firms, Ltd., Bath	viii	Ewart & Sons, London	—	London Plate-Glass Insurance Co., Ltd.	xi	Talbot Co., Leeds	v
Batchelar, J., & Co., London	viii	Farmiloe, G., & Sons, London	—	McNeill, F., & Co., London	ix	Thornton-Pickard Mfg. Co.	viii
Bayliss, Jones & Bayliss	viii	Farrar, E., & Co., London	—	Maw & Co., Ltd., Jackfield	—	Twyford, Ltd., Hanley	—
Bell, R., & Co., London	—	Fawcett, M., & Co., London	—	Measures Bros., Ltd., London	—	Ward, B., & Co., London	vii
Bennett, John, London	—	Gibbs Bros., Loughborough	viii	Medway, M. T., & Co.	—	Warings, Ltd., London	—
Blackman Ventilating Co., Ltd.	xi	Glover, F. A., & Co., London	i	Mellows & Co., Sheffield	—	Waygood, R., & Co., Ltd., London	i
Blundell, Spence & Co., Hull	—	Goodwin, W., & Son, Withington	x	Minton, Hollins & Co.	—	Webb & Co., London	—
Boote, Ltd., T. & R., Burslem	—	Gooding, W., London	xi	N. A. P. Window Co., London	—	Wilkinson, W. B., & Co., Ltd.	—
Brady, G., Manchester	—	Granite Silicon Plaster Co.	—	Oates & Green, Ltd., Halifax	—	Williams, G. A. & Son	iii
Briggs, W., Dundee	—	Gregory, Thomas, & Co., London	x	Parker, Robert, & Co., Liverpool	—	Wilson & Co., London	—
Burmantofts, Leeds	vi	Grundy, John, Ltd., London	—	Patterson, J. & H., Manchester	i	Woolams, Wm., & Co., London	—
Candy & Co., Ltd., London	—	Hamilton & Co., London	—	Perkins, A. M. & Sons, Ltd., London	—	Wragge, Geo., Manchester	—
Carter & Co., Poole, Dorset	—	Hartley and Sugden, Ltd., Halifax	—	Pilkington Tile and Pottery Co.	xi	Wright, G., & Co., Rotherham	—
Charteris & Longley, London	i	Hentschel, C., & Co., London	i	Roberts, Adlard & Co.	i	Young & Marten, Stratford	i, ii
Claridge's Asphalte Co., Ltd.	—	Homan & Rodgers, London	i, vi			Young & Co., J., London	x



THE  
**N.A.P.**  
Safety Windows  
supplied by the  
N.A.P. Window Co., Ltd.,  
159, Victoria St., S.W.

THE  
"Top Bolt"  
PATENT  
For the Alteration of  
Existing Windows.

G. A. WILLIAMS & SON.

BLINDS

21. QUEEN'S RD. BAYSWATER LONDON. W.

## STIFF & SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS,  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

For Illustrated Price Lists apply to

JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
March 13	Restoration of Roof, St. Blazey Church, Cornwall	T. Jones	Edmund Sedding, Architect, 12, Athenaeum-st., Plymouth.
" 13	Alterations and Additions to Pen-y-lan Inn, Aberaman (Aberdare)		T. Broderick, Ashbrook House, Clifton-street, Aberdare.
" 13	Board Schools, Carnarvon	School Board	R. Lloyd Jones, 14, Market-street, Carnarvon.
" 13	Moulding and Fitting Shop, Belper	Park Foundry Company	M. Hunter, Belper.
" 13	Additions and Repairs, Junction Hotel, Dorchester		A. L. T. Tilley, 16, Cornhill, Dorchester.
" 13	Police Station, Galgate, near Lancaster	Standing Joint Committee	H. Little, 21, Pitt-street, Preston.
" 13	Creamery Buildings at Oola, Kilmihill and Eflin	Limerick Co-operative Society, Limited	W. Stokes, Mulgrave-street, Limerick.
" 13	Houses (two), Siddal (Yorks)		Jackson and Fox, 22, George-street, Halifax.
" 13	Club Premises, New Swindon	North Wilts Conservative Club	W. Drew, 22, Victoria-street, Swindon.
" 13	Two Semi-detached Villas, Whitby	Capt. Nicholson and Ramsdale	E. H. Smiles, 5, Flowergate, Whitby.
" 13	Two Entrance Lodges, Finwick (Lancs.)	Lancashire Asylums Board	F. C. Hulton, County Offices, Preston.
" 15	Bishop's Palace, Londonderry	Committee	S. P. Close, Architect, 53, Warring-street, Belfast.
" 15	Works, &c., to March 31st, 1900, North-Western District, Liverpool.	War Department	Director of Army Contracts, War Office, Pall Mall, S.W.
" 15	Wards, Mortuary, Boundary Walls, &c., Gainsborough	Guardians	Eyre and Southall, Architects, Gainsborough.
" 15	Masonic Hall, Carrickfergus	Building Committee	J. Boyd, Town Hall, Carrickfergus.
" 15	School, Ebbw Vale (Mon.)	School Board	G. Rosser, Victoria-buildings, Abercarn.
" 15	Board Schools, Cutsyke, Glass Houghton (Yorks.)	School Board	G. F. Pennington, Bridge-street, Castleford.
" 15	Board Schools, &c., Queensbury (Yorks.)	School Board	Drake and Son, Winterbank, Queensbury.
" 15	Houses (twelve), Sowerby Bridge (Yorks.)	Industrial Society	S. Wilkinson, Architect, Sowerby Bridge.
" 16	Cookery Centre, New Brompton (local contract)	School Board	S. Waterloo-road, New Brompton.
" 16	Club Buildings, Morley	Trustees, Working Men's Club	S. B. Birds, 47, High-street, Morley.
" 17	Infirmary, &c., at the Workhouse, Mansfield	Guardians	R. F. Vallance, Architect, Mansfield.
" 17	Nurses' Home, at Asylum, Caterham	Metropolitan Asylums Board	E. T. Hall, 57, Morgate-street, E.C.
" 17	Isolation Pavilion, Winchmore Hill	Metropolitan Asylums Board	Board's Offices, Norfolk House, Norfolk-street, W.C.
" 18	Wesleyan Chapel, Ulverston		E. J. Tave, Architect, Strand, Derry.
" 20	New Church, Cashilard (Ireland)		H. Douglas, Gigha.
" 20	Cottages (three), Gigha (Argyllshire)		W. Cathcart, Workhouse, Omagh.
" 20	Labourer's Cottages, Omagh		Board's Offices, Catford, S.E.
" 20	Annual Contracts, London	Lewisham Board of Works	Registrar's Office, New-road, Blackpool.
" 22	Cemetery Registrar's House, Blackpool	Corporation	G. C. Vernon-Inkpen, 75, King's-road, Southsea.
" 23	Public Elementary School, Portsmouth	School Board	City Engineers, Municipal-buildings, Leeds.
" 24	Police Station and Free Library, Upper Wortley	Leeds Corporation	Surveyor, 40, High-street, Barnet.
" 24	Fire Engine House, Stable, &c., Barnet	Urban District Council	R. M. McDowall, Architect, Castleford.
" 25	Offices and Shops, Castleford	Concert and Lecture Hall Company	Flockton, Gibbs, & Flockton, 15, St. James's-row, Sheffield.
" 27	Drapery Establishment, Sheffield	J. Walsh	H. Teather, Andrews-buildings, Queen-street, Cardiff.
" 31	County School	Newton School Governors	Commanding Royal Engineer (in each district).
April 1	Repairs and Materials (Triennial Contracts) House, Stanground, Peterborough	War Department	J. G. Stattebrass, Architect, North-street, Peterborough.
No date.	Brewery, Stourbridge	T. Frear	C. Johnson and Sons, Architects, Worcester.
"	Hospital, Sicklinghall, near Wetherby	North Worcestershire Breweries, Ltd.	T. E. Marshall, Architect, Princes-street, Harrogate.
"	Excavating, Underpinning, &c., Leeds	Wetherby Rural District Council	Wm. Bakewell, Architect, 38, Park-square, Leeds.
"	House, Shaw-street, Rochdale	London and Midland Bank	N. Mills, Architect, 67, Lord-street, Rochdale.
"	Oak Screen, &c., Parish Church, Rotherham	T. Firth	J. E. Knight, Architect, 20, Moorgate-street, Rotherham.
"	Schools, Ogden Baptist Chapel, Rochdale		Butterworth and Duncan, Architects, 4, South-parade, Rochdale.
"	Farmhouse, Coltclose, near Ivergill, Penrith		G. Watson & Sons, Architects, 3, St. Andrew's-place, Penrith.
"	Residence, Nab-lane, Shipley (Yorks.)		Arch. Neil, Architect, 16, Cookridge-street, Leeds.
"	Schools, Hope Congregational Church, Wigan		W. E. V. Crompton, Architect, Moot Hall Chambers, Wigan.
"	Chapel, School, and Hall, Eccles. (Lancs.)		T. D. Lindley, Architect, 150A, Stamford-street, Ashton-under-Lyne.



## JONES &amp; WILLIS,

MANUFACTURERS OF

## Wrought Metal Work, Architectural Carving and Joinery

For Ecclesiastical Purposes, Domestic and Public Buildings.

## Lighting Appliances, &amp;c.

Estimates given to Architects' own Designs.

Work can be inspected during execution.

OFFICES AND SHOWROOMS:—79, Edmund Street, Birmingham; 43, Great Russell Street, London, W.C.;  
Concert Street, Bold Street, Liverpool.

WORKS:—Eagle Works, Hornsey, N.; Porchester Street, Birmingham.



# DAMP WALLS CURED. BY MASONRY PRESERVED

## SZERELMEY STONE LIQUID,

Which absolutely Waterproofs and Preserves Bricks, Stone, Plaster, Cement.

IT HAS STOOD THE TEST OF TIME.

Approved and Adopted by Her Majesty's Government for MANY YEARS.

EASILY APPLIED, SMALL COST, RELIABLE.

FORTY YEARS' EXPERIENCE.

### PORCELAIN PAINTS

For Interior and  
Exterior Decoration.  
Beautiful Glazed  
Surface.

Do not Chip.

Non-Poisonous.

# SZERELMEY'S

HIGH-CLASS PAINTS.

### IRON PAINTS

For Wood or Iron.

GREAT - -

- - DURABILITY.

Prevent Corrosion.

Offices and Works: ROTHERHITHE NEW ROAD, S.E.

Telegrams:  
"SZERELMEY LONDON."



COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>ENGINEERING—</b>			
March 13	Deepening pool of the harbour, St. Peter Port, Guernsey	Harbour Committee	J. H. Duquemin, States Engineer, States Office, Guernsey.
" 13	Filter, Cupar-Fife	Commissioners	H. Bruce, Cupar.
" 15	Steel girder road bridge, Dumbarton	County Road Board	Crauch and Hogg, 165, Hope-street, Glasgow.
" 15	Steel receivers, London, E.C.	Corporation of Trinity House	C. A. Kent, Secretary to the Corporation.
" 15	Ventilating shafts (cast-iron), London, N.	Hornsey Urban District Council	E. G. Lovegrove, Engineer to the Council, Hornsey.
" 15	Water supply for baths, Walworth	Commissioners	Waterstaat, The Hague.
" 17	Dredging at the Hook of Holland	Commissioners	J. Eaglesham, Town Chambers, Ayr.
" 17	Steel girder road bridge, Ayr	Corporation	J. E. Swindlehurst, Borough Engineer, Burton-upon-Trent.
" 17	Sewage farm works, Burton-upon-Trent	Gas Committee	R. H. Townsley, Gas Dept., Municipal Buildings, Leeds.
" 17	Dry gas-meters, Leeds	Enfield Urban District Council	R. Collins, Council's Surveyor, Enfield.
" 17	Steam road roller (10 tons), London, N.	Water Commissioners	Mr. Macassey, Waterworks Office, Belfast.
" 18	Main conduit (4 miles 18 chains), Belfast	Corporation	C. H. Priestley, Town Hall, Cardiff.
" 18	Filter beds, foreman's house, etc., Cardiff	Water Company	Mr. Macassey, Waterworks Office, Belfast.
" 18	Main conduit, Belfast	Rural District Council	W. H. Walton, Clerk to the Council, Alnwick.
" 20	Taking down wooden foot bridge and building wrought-iron girder bridge, Alnwick		
" 22	Overhanging foot bridge, Arklow (Wicklow)	Corporation	Secretary to the Grand Jury, Court House, Arklow.
" 22	Reservoir, &c., Burnley		G. H. Hill and Sons, Albert Chambers, Albert-square, Manchester.
" 25	Steam road roller (10 tons), Stratford-upon-Avon	Town Council	R. Dixon, borough Surveyor, Stratford-upon-Avon.
" 25	Two Lancashire boilers, Wakefield	Guardians	Shepherd and Watney, Albion-street, Leeds.
" 26	Hot water supply, Lincoln	County Hospital Governors	W. Watkins, St. Edmund's Chambers, Silver-st., Lincoln.
" 31	Railway, reservoir filter beds, &c., Birmingham	Corporation	J. Mansergh, 5, Victoria-street, S.W.
April 13	Harbour work extensions at Ostende	Provincial Administration	Brussels, 17, Rue des Augustins.
<b>PAINTING AND PLUMBING—</b>			
March 17	Painting and Repairs, Victoria Park, London	County Council	Architect's Department, Spring-gardens, S.W.
<b>ROADS—</b>			
March 13	Flints, &c., Uckfield	Rural District Council	F. Holman, 86, High-street, Lewes.
" 13	Granite, &c., Chelmsford	Corporation	G. H. Sasse, 14, Museum-terrace, Chelmsford.
" 13	Slag and Granite, Oundle	Rural District Council	G. Coombs, New-street, Oundle.
" 13	Materials, 1 Year, to March 28, 1898, Padiham	Urban District Council	J. Gresson, Surveyor, Padiham.
" 13	Whinstone (1585 tons), Pickering	Rural District Council	R. Kitching, Clerk, Pickering.
" 15	Road Works, Alnwick	Rural District Council	G. Short, District Surveyor, Alnwick.
" 15	Asphalte Pavements, London, W.C.	St. Giles Board of Works	G. Wallace, Engineer to the Board, London, W.C.
" 15	Works and Materials, London, W.C.	St. Giles Board of Works	G. Wallace, Engineer to the Board, London, W.C.
" 15	Coal and Cleansing, &c., Roadways, London.	Bridge House Estates Committee	Comptroller, Guildhall.
" 16	Paving, Kerbing, &c., Chichester	Corporation	City Surveyor, Chichester.
" 16	Road Materials, &c., Fenton (Staffs.)	Urban District Council	S. A. Goodall, Surveyor, Town Hall, Fenton.
" 17	Materials, 1 Year, to March 31, 1898, St. Helens (Lancs.)	Corporation	G. J. C. Broom, Borough Engineer, St. Helens.
" 17	Team Labour, Burnley	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
" 17	Limestone and Granite, Burnley	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
" 17	Materials, 1 Year, to March 31, 1898, Littleborough (Lancs.)	Urban District Council	Council Office, Hare Hill-road, Littleborough.
" 17	Road Material, St. Thomas (near Exeter)	Rural District Council	A. E. Ward, 9, Bedford-circus, Exeter.
" 18	Materials, 1 Year, to March 31, 1898, Belper	Rural District Council	E. C. Cordon, Duffield, Derby.
" 19	Materials, Downham Market (Norfolk)	Rural District Council	T. Reed, Clerk, Downham Market.
" 19	Stone (5000 tons of Hartshill, &c.), Abingdon	Rural District Council	T. B. Warren, Surveyor to the Council, Abingdon.
" 20	Carting of Material, Huntingdon	Rural District Council	M. L. Lewin, District Surveyor, Newtown, Huntingdon.
" 20	Materials, 1 Year, to March 31, 1898, Middlesbrough	Rural District Council	W. H. Dixon, Surveyor, Kirby Carlton, Northallerton.
" 20	Making-up Carriage-way, &c., Surbiton	Urban District Council	S. Mather, Victoria-road, Surbiton.
" 27	Materials, 1 Year, to March 25, 1898, Colne (Lancs.)	Highways and Sewers Committee	T. H. Hartley, Borough Surveyor, Colne.
" 30	Tar Paving Footpaths, Southampton	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
<b>SANITARY—</b>			
March 13	Scavenging, Walsall	Rural District Council	A. H. Lewis, 1, Leicester-street, Walsall.
" 13	Removal of House Refuse, Twickenham	Urban District Council	W. Ruston, Town Hall, Twickenham.
" 15	Sewerage Works, Sidmouth	Urban District Council	Council Offices.
" 15	Materials (Various), Salford	Corporation	Borough Engineer, Town Hall, Salford.
" 17	Sewage Farm Works, Burton-on-Trent	Corporation	J. E. Swindlehurst, Borough Engineer.
" 17	Drain Tiles Works, Burton-on-Trent	Corporation	J. E. Swindlehurst, Borough Engineer.
" 22	Scavenging, 1 Year, to March 31, 1898, Bridlington	Urban District Council	F. Reed, 15, Hilderthorpe-terrace, Bridlington.
" 23	Sewers, Lewisham	Board of Works	Board of Works Office, Catford, S.E.

THE  
ST. PANCRAS IRON WORK COMPANY,  
ENGINEERS & IRONFOUNDERS.



Manufacturers of  
**IRON STAIRCASES**

(Straight and Spiral),

**IRON ROOFS, FOOT BRIDGES,  
IRON DOORS,**

**VERANDAHS, BALCONIES,  
PORCHES, GATES & RAILINGS.**

**GENERAL WROUGHT & CAST-IRON WORK.**

LARGE SHOWROOMS AT

**The St. Pancras Iron Works,**

PANCRAS ROAD, LONDON, N.W.

(Close to King's Cross, St. Pancras and Euston Stations.)





# "OPALINE"

The New Sanitary  
Slab Work for Wall  
Linings, Urinals, etc.

SEE ALSO

**ADAMS & CO.'S**  
.. SANITARY CATALOGUE ..

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

THE LEEDS FIRECLAY CO. L<sup>TD</sup>

**BURMANTOST'S WORKS** LEEDS

TELEGRAMS: Burmantosts LEEDS and Burmantosts LONDON

**CLAZED BRICKS**

**TERRA COTTA**

**FAIENCE**

**TILES**

**SANITARY WARE**

**POTTERY**

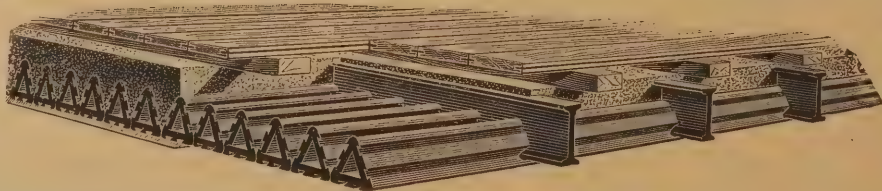
**SPECIALTIES**

**MANTELS FIRESIDES & HEARTHES**

SHOWROOMS & OFFICES, 16 Charterhouse St. LONDON. E.C.

## HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders.

CONSTRUCTIONAL STEEL AND IRONWORK.  
GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS**

LONDON { Offices: 17, GRACECHURCH STREET, E.C.  
Works: RATCLIFF, E.  
Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

MANCHESTER { Offices: 10, MARSDEN STREET.  
Works: WEST GORTON.  
Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

**FIRECLAY BRICK WORKS, PARKSTONE, DORSET.**

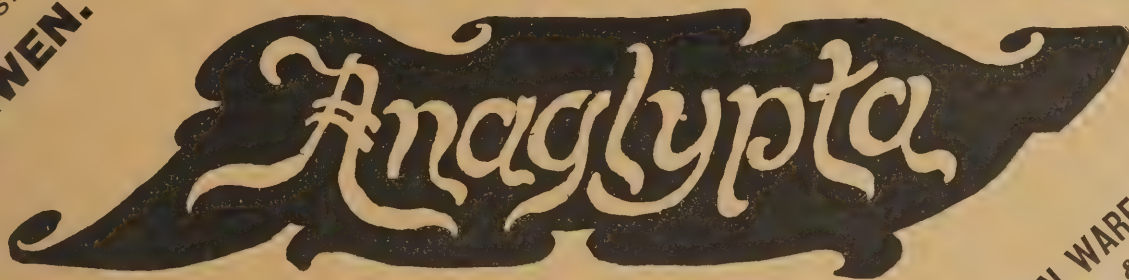


COMPLETE LIST OF CONTRACTS OPEN—continued from page v.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>SANITARY—Continued.</b>			
March 25	Sewer (600ft.), Barnstaple ... ..	Corporation ... ..	J. Bosson, Municipal Buildings, High-street, Barnstaple.
" 27	Sewers, &c., Gloucester ... ..	Rural District Council ... ..	J. F. Trew, County Chambers, Gloucester.
" 29	Drainage and Plumbing Works, Stone, Staffs. ... ..	Guardians ... ..	J. J. Chapman, Architect, Stone.
July 31	Sanitary Improvement Works, Oporto, Portugal ... ..	Corporation ... ..	Municipal Town Hall, Oporto.
<b>STEEL AND IRON—</b>			
March 13	Steel Tram Rail (6000 yards), Durban (Natal) ... ..	Corporation ... ..	W. H. Radford, Angel Row, Nottingham.
" 16	Wrought Iron Fencing, Barking (Essex) ... ..	Urban District Council ... ..	Surveyor's Office, Public Offices, Barking.
" 17	Cast-iron Pipes (550 tons), Burton-on-Trent ... ..	Corporation ... ..	J. E. Swindlehurst, Borough Engineer, Burton-on-Trent.
" 17	Cast-iron Water Pipes, 1 Year, to April 1, 1897, London, N. ... ..	Enfield Urban District Council ... ..	R. Collins, Enfield.
" 18	Cast-iron Pipes and Castings, Valletta (Malta) ... ..	Government ... ..	Chief Engineer, Waterworks Department, Malta.
" 20	Tube Plates, Lisbon ... ..	Stores Department, Lisbon ... ..	Rue de Chateaudun 28, Paris.
April 15	Rails (2665 tons), Bucharest ... ..	Direction of Roumanian State Railways ... ..	
<b>TIMBER—</b>			
March 15	Wood Block Flooring, London ... ..	Camberwell Vestry ... ..	Vestry Hall, Camberwell.
" 31	Timber (2000 loads), London, S.E. ... ..	Lambeth Vestry ... ..	J. P. Norrington, Vestry Hall, Kennington Green, S.E.

WORKS:  
**DARWEN.**

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF



THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
92 & 93,  
Great Russell St.,  
W.C.

# EASTON, ANDERSON & GOOLDEN, LIMITED,

3, WHITEHALL PLACE, LONDON, S.W.  
22, BILLITER STREET, E.C.

Telegrams—"EGYPTIAN, LONDON."  
Telephone—3695.

**ELECTRIC & HYDRAULIC LIFTS & CRANES,**  
**PUMPS, RAMS,**  
**WATER SUPPLIES, ENGINES AND BOILERS,**  
**ELECTRIC LIGHT AND POWER.**

 **MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST**  
**AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.**

## ECONOMY IN BUILDING.



**B. WARD & CO.,**

15, Gt. George St., London, S.W.  
And at CARDIFF, etc.

**PATENT STABLE PAVING.**  
**PAVING.**  
**FIREPROOF STAIRCASES.**  
**ARTIFICIAL STONWORKS.**  
**FIREPROOF FLOORS.**  
**WOOD BLOCK AND MOSAIC PAVING.**

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.  
Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.  
Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.  
Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others



## CONTRACTS OPEN.

**BARNET URBAN DISTRICT COUNCIL.**  
PROPOSED BUILDINGS AND DEPOT  
IN TAPSTER-STREET.  
EXTENSION OF TIME.  
TO BUILDERS.

TENDERS are invited for the ERECTION of FOREMAN'S COTTAGE, FIRE-ENGINE HOUSE, STABLE, BOUNDARY WALLS, and GATES at the above Yard in Tapster-street.

Plans and specification may be seen daily between NINE a.m. and FIVE p.m. on application to the Surveyor, at the Council's Offices, 40, High-street, Barnet.

Tenders, sealed, and endorsed "Tender for New Buildings, Tapster-street," to be addressed to me, and delivered at the Offices as above, on or before WEDNESDAY, MARCH 24th.

The lowest or any Tender will not necessarily be accepted.

H. W. POOLE,  
Clerk.

Barnet,  
March 3rd, 1897.

**BIRMINGHAM CORPORATION.**  
WATER.—ELAN SUPPLY.  
CONTRACT No. 6.—FRANKLEY RESERVOIR,  
FILTERS, &c.  
TO CONTRACTORS.

The Corporation of Birmingham are prepared to receive TENDERS from competent persons willing to enter into a contract for the CONSTRUCTION of about 14 miles of RAILWAY, a LINED SERVICE RESERVOIR to hold 200 million gallons, Eighteen FILTER BEDS having a total area of about 67,000 square yards, with the necessary inlet, outlet, washout, and overflow arrangements, and for other WORKS described in the bills of quantities.

The drawings may be seen, and specification and bills of quantities obtained, at the office of the Engineer, Mr. JAMES MANSENGH, 5, Victoria-street, Westminster, on the deposit of a cheque for £20, which will be returned after the receipt of a bona-fide Tender with the bills of quantities fully priced out.

Early application for particulars is necessary, as only a limited number will be given out, and none supplied after the 10th day of MARCH.

The Contractor will be required to undertake not to

pay less than the minimum standard rate of wages current in the district in which the works are situate. Sealed Tenders, addressed to me, and endorsed "Tender for Frankley Reservoir, &c. Contract No. 6," are to be delivered at my Office (post paid), at or before NOON of WEDNESDAY, the 31st day of MARCH next. The Corporation do not bind themselves to accept the lowest or any tender.

EDWARD ORFORD SMITH,  
Town Clerk.

Town Clerk's Office, Birmingham,  
Feb. 22nd, 1897.

**TO BUILDERS AND OTHERS.**

The Metropolitan Asylums Board are prepared to receive TENDERS from persons willing to contract for the ERECTION of an ISOLATION PAVILION at the Northern Hospital, Winchmore Hill, N., in accordance with plans and specification prepared by Messrs. PENNINGTON & SON, Architects, Hastings House, Norfolk-street, W.C., where such plans may be inspected between TEN a.m. and FOUR p.m.

Printed forms of Tender, specification, and bills of quantities may be obtained at the Office of the Board, Norfolk House, Norfolk-street, Strand, W.C., on payment of a deposit of Five Pounds (gold or Bank of England note), which will be returned to persons sending in a bona-fide Tender accompanied by the sealed bills of quantities.

Sealed Tenders are to be delivered at the Office of the Board, endorsed "Tender for Works, Northern Hospital," not later than TEN o'clock a.m. on WEDNESDAY, the 17th MARCH, 1897.

The Managers do not bind themselves to accept the lowest or any Tender.

By order,

T. DUNCOMBE MANN,  
Clerk to the Board.

Norfolk House,  
Norfolk-street, Strand, W.C.  
Feb. 23rd, 1897.

**THE PARK FOUNDRY CO. invite TENDERS**

for the General Contractor's Work in the erection of New Moulding and Fitting Shops, covering nearly 1½ acres (with the exception of the iron work to roof), to be erected on the Derby-road, Belper. Drawings and Specifications may be seen and Bills of Quantities obtained with Forms of Tender on payment of the sum of £2 2s., which will be returned on receipt of a bona-fide Tender and the Quantities (not necessarily filled in).

Sealed Tenders endorsed "Tender for Foundry," must be delivered to the undersigned by MARCH 13th, 1897. The lowest or any Tender not necessarily accepted.

MAURICE HUNTER, Belper.

**THOMAS ADAMS & SONS LTD.**

Dry Oak, Mahogany & Teak, Red & Pine Deals, &c.

Large Stock of Floorings and Match Boardings.

BLOCK FLOORING A SPECIALITY.

TIMBER YARDS AND SAW MILLS—

CRESCENT WHARF, CAMBRIDGE STREET, BIRMINGHAM.

Depôt for Bricks, Slates, and Building Material,

BREWERY WHARF, CAMBRIDGE STREET.

FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

Telephone No. 77 (Hop)

DO  
YOU  
WANT  
TO BUY  
RIGHT?

**HYDE**  
**GEO. HYDE & CO.**

173 & 175, KENNINGTON CROSS,  
LONDON, S.E.



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.



## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BARNET.**—For the erection of detached residence at New Barnet, for Mr. A. Tillman. Mr. F. Child, architect, 65, Chancery-lane, and New Barnet.  
A. Porter ... £2,130 Wells and Son ... £1,770  
J. Ellwood ... 2,115 Eddie and Son ... 1,657  
G. Daniels ... 2,090

**BEDFORD.**—For the construction of an underground convenience. Tavistock-street, for the Urban Sanitary Authority.  
B. Litchfield and Son ... £392 E. Pacey ... £366  
F. Corby ... 371 T. H. Coleman ... 335  
A. Corby ... 366 G. E. Fathers, Bedford\* 346  
\*Accepted.

**BRADFORD.**—For the erection of a weaving-shed and warehouse, Bowling. Mr. Fred. Holland, engineer, 11, Parkinson-chambers, Hustlergate, Bradford. Quantities by the engineer.  
Masonry.—Thomas Shackleton, Statt Hall, Clayton Heights, near Bradford ... £656 17  
Joinery.—J. Patchett, Queensbury, near Bradford ... 199 0  
Ironwork.—J. Cliff and Co., Old Foundry, Bradford ... 650 0  
Plumbing.—M. Slinger and Son, Wakefield-road, Bradford ... 90 0  
Slating.—Hill and Nelson, Bradford ... 100 0  
Painting.—A. Davey, Wakefield-road, Bradford ... 24 0  
[Amended tenders.]

**BRIGHTON.**—For the erection of the Roedean School (exclusive of engineering works). Mr. John W. Simpson, Architect, 10, New-Inn, Strand, W.C. Quantities by Messrs. Pinks and Watson, 45, Parliament-street, S.W.  
F. & H. Higgs £60,850 0 0 Holloway Bros. £53,400 0 0  
H. Lovatt ... 57,300 0 0 Stimpson & Co. 53,200 0 0  
W. Johnson & Co. 56,755 0 0 Barber & Oliver 50,419 0 0  
John Shillitoe & Son ... 56,000 0 0 Longley and Co. 49,969 0 0  
Peerless, Dennis, and Co. ... 54,100 0 0 Foster & Dicksee 49,794 0 0  
W. Botting & Son 53,750 0 0 W. Wallis ... 49,620 0 0  
G. R. Lockyer ... 53,560 0 0 Sattin and Ever- 46,107 0 0  
John Parnell and Son ... 53,408 12 2 P. Peters & Son, Horsham\* 44,937 0 0  
\*Accepted.

**BRIGHTON.**—For reconstruction of portion of pier, for the Brighton West Pier Company. Mr. W. H. Bailes, engineer.  
Ailsup and Co. ... £5,457 1 8 Shaw and Co. and Longley & Co. £4,458 3 0  
W. O. Brettell ... 4,794 17 7 A. Thorne ... 3,720 13 9

**SLATES. BRICKS.**

VELINHELI, BANGOR, PORTMADOC, GREEN, &c.

GOOD STOCKS ON HAND.

COMMON WIRE CUTS.

Large Quantities. Prompt Delivery.

**GIBBS BROTHERS,**  
LOUGHBOROUGH.

**J. J. ETRIDGE, JR.**  
SLATE MERCHANT,  
SLATER AND TILER.

ESTIMATES GIVEN FOR

**SLATING AND TILING,**

To be Executed by Contract in any part of ENGLAND.

**Penrhyn-Bangor,**  
**Oakeley-Portmadoc**

And other descriptions of Slates ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to

**BETHNAL GREEN SLATE WORKS,**  
Bethnal Green, London, E.

**THE BATH STONE FIRMS LTD.**  
BATH,

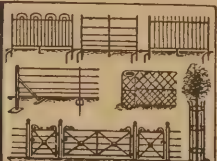
FOR ALL THE PROVED KINDS OF BATH STONE. FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

**IRON FENCING.**  
BAYLISS, JONES  
AND BAYLISS.  
WOLVERHAMPTON.

LONDON SHOW ROOMS: 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147, 149, 151, 153, 155, 157, 159, 161, 163, 165, 167, 169, 171, 173, 175, 177, 179, 181, 183, 185, 187, 189, 191, 193, 195, 197, 199, 201, 203, 205, 207, 209, 211, 213, 215, 217, 219, 221, 223, 225, 227, 229, 231, 233, 235, 237, 239, 241, 243, 245, 247, 249, 251, 253, 255, 257, 259, 261, 263, 265, 267, 269, 271, 273, 275, 277, 279, 281, 283, 285, 287, 289, 291, 293, 295, 297, 299, 301, 303, 305, 307, 309, 311, 313, 315, 317, 319, 321, 323, 325, 327, 329, 331, 333, 335, 337, 339, 341, 343, 345, 347, 349, 351, 353, 355, 357, 359, 361, 363, 365, 367, 369, 371, 373, 375, 377, 379, 381, 383, 385, 387, 389, 391, 393, 395, 397, 399, 401, 403, 405, 407, 409, 411, 413, 415, 417, 419, 421, 423, 425, 427, 429, 431, 433, 435, 437, 439, 441, 443, 445, 447, 449, 451, 453, 455, 457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479, 481, 483, 485, 487, 489, 491, 493, 495, 497, 499, 501, 503, 505, 507, 509, 511, 513, 515, 517, 519, 521, 523, 525, 527, 529, 531, 533, 535, 537, 539, 541, 543, 545, 547, 549, 551, 553, 555, 557, 559, 561, 563, 565, 567, 569, 571, 573, 575, 577, 579, 581, 583, 585, 587, 589, 591, 593, 595, 597, 599, 601, 603, 605, 607, 609, 611, 613, 615, 617, 619, 621, 623, 625, 627, 629, 631, 633, 635, 637, 639, 641, 643, 645, 647, 649, 651, 653, 655, 657, 659, 661, 663, 665, 667, 669, 671, 673, 675, 677, 679, 681, 683, 685, 687, 689, 691, 693, 695, 697, 699, 701, 703, 705, 707, 709, 711, 713, 715, 717, 719, 721, 723, 725, 727, 729, 731, 733, 735, 737, 739, 741, 743, 745, 747, 749, 751, 753, 755, 757, 759, 761, 763, 765, 767, 769, 771, 773, 775, 777, 779, 781, 783, 785, 787, 789, 791, 793, 795, 797, 799, 801, 803, 805, 807, 809, 811, 813, 815, 817, 819, 821, 823, 825, 827, 829, 831, 833, 835, 837, 839, 841, 843, 845, 847, 849, 851, 853, 855, 857, 859, 861, 863, 865, 867, 869, 871, 873, 875, 877, 879, 881, 883, 885, 887, 889, 891, 893, 895, 897, 899, 901, 903, 905, 907, 909, 911, 913, 915, 917, 919, 921, 923, 925, 927, 929, 931, 933, 935, 937, 939, 941, 943, 945, 947, 949, 951, 953, 955, 957, 959, 961, 963, 965, 967, 969, 971, 973, 975, 977, 979, 981, 983, 985, 987, 989, 991, 993, 995, 997, 999.





**BRISTOL.**—For making Fitzroy-street, and four other roads, Totterdown, for the Long Ashton Rural District Council. Mr. M. Fround, surveyor, 1, St. Stephen's-chambers, Bristol:—  
J. Perkins ... £1,936 16 W. Hurford ... £1,168 0  
Lloyd and Son ... 1,279 0 M. Durnford ... 1,161 0  
H. Weeks ... 1,232 0 A. J. Beavan ... 1,905 0  
W. Galbraith ... 1,230 0 Thomas and Webb ... 989 0  
Hughes and Weeks ... 1,181 0 W. Hickery, Knowle\* 949 0  
\* Accepted.

**CARDIFF.**—For paving, sewerage, &c., Romilly, Radnor, and Llanfair-roads, for the Corporation. Mr. W. Harpur, C.E., Borough Engineer, Town Hall, Cardiff. Quantities by Borough Engineer:—

*Romilly-road.*  
J. Rich, Cardiff,\* for sewer ... £205 2 0  
" " for road, &c. ... 1,145 1 10  
*Radnor-road.*  
" " for road, &c. ... 190 9 2  
" " for road, &c. ... 569 2 9  
For sewer only in Romilly-road.  
F. Ashley ... 234 4 0  
\* Accepted.

**DEVONPORT.**—Accepted for the erection of branch banking premises, for the Union Savings Bank, at Keyham-road. Mr. H. G. Luff, Architect, 64, Chapel-street, Devonport:—

Wm. Littleton, Devonport ... £1,518  
**FOLKESTONE.**—For the erection of public baths, for the Corporation. Mr. Reginald Pop, Architect, Radnor-chambers, Folkestone. Quantities by Architect:—

*Builder's Work.*  
Moody ... £3,187 0 0 Franklin ... £2,755 0 0  
Tunbridge ... 3,100 0 0 Webster ... 2,640 0 0  
Petts ... 2,967 0 0 Grayling ... 2,624 19 2  
Newman ... 2,858 0 0 Fearon (accepted) 2,564 0 0

*Engineer's Work.*  
Sugg and Co. ... £994 0 0 J. and F. May ... £625 0 0  
Rosser and Russell 782 0 0 Bradford (accepted) 608 10 0

**GRIMSBY.**—Accepted for the erection of business premises, Cleethorpe-road, Grimsby. Mr. Geo. W. Frost, Architect, 174, Heneage-street, Grimsby:—  
Wilkinson and Houghton, New Cleethorpe, Grimsby ... £900

**GRIMSBY.**—For the erection of a pair of cottages, Sheepfold-street, Grimsby, for Mr. W. Blanchard. Mr. Geo. W. Frost, Architect, 174, Heneage-street, Grimsby:—  
Ion and Lewis, Lim. £355 0 H. Emerson ... £296 0  
J. Pearson ... 346 16 A. Atkinson (accepted) 287 14

**HARTWOOD (Lanark).**—For the erection of two blocks of cottages at the Asylum, for the Lanark District Lunacy Board. Mr. J. Lamb Murray, Architect, Heavyside, Biggar. Quantities by Messrs. H. Robertson and Co., 167, St. Vincent-street, Glasgow:—

*Masonry.*  
John Purdie and Co. ... £1,950 2 4 J. Turner and Co. £1,612 7 3  
Wilson and Wallace ... 1,722 16 11 Son ... 1,575 4 5  
Dunlop and Co. ... 1,646 7 5 Robert Riddagh 1,506 5 9  
William Purdie ... 1,621 0 5 William Allan, Strathaven\* ... 1,461 6 3

*Joinery.*  
Robert Smellie ... £997 0 0 George Ferguson ... £931 12 2  
James Steele ... 961 10 0 son ... 832 10 0  
William Adam ... 944 11 5 John Baxter, Strathaven\* ... 832 10 0  
Muir and Davidson ... 942 12 7

*Slating.*  
R. and W. Anderson ... £231 14 0 James Currie ... £197 18 11  
Hamilton and Co. ... 221 18 7 James Brown, Shotts\* ... 184 19 5 1/2

*Plumbing.*  
John McEwan ... £209 17 7 James Hazel and Sons, High Blantyre\* ... £170 9 9  
John Spence and Sons ... 200 18 8  
Brown and Young ... 196 4 19 1/2

*Pastering.*  
John Forbes ... £277 8 4 James Brown ... £206 4 1 1/2  
Hamilton and Co. ... 228 13 10 R. and W. Anderson, Bellshill\* ... 202 9 5 1/2  
James Grant ... 224 4 7 son, Bellshill\* ... 202 9 5 1/2  
James Currie ... 218 0 2  
\* Accepted.

**HOUSLOW.**—Accepted for the erection of a detached house, Whitton Park Estate, Houslow. Mr. T. Merrison Garrod, Architect and surveyor, 172, Fenchurch-street, City:—  
Lucas and Son ... £1,982

**IPSWICH.**—For additions, &c., to offices, Tower-lane, for Mr. W. E. Kersey. Mr. J. S. Corder, Architect, Wimbourne House, Ipswich. Quantities by Mr. J. S. Parmenter, Ipswich:—  
Avis ... £1,422 0 0 Death ... £1,028 17 2  
Crisp and Smith ... 1,350 0 0 Marriott ... 1,026 17 0  
Hipwell ... 1,272 0 0 Pollard ... 1,015 12 8  
T. Kenny ... 1,194 0 0 Catchpool ... 994 0 0  
G. Kenny ... 1,140 0 0 Parkington ... 980 0 0  
F. Bennett ... 1,040 0 0 Sadler\* ... 979 0 0  
Girling ... 1,037 0 0 Coe ... 953 16 0  
[All of Ipswich.]

\* Accepted on an amended estimate.

**KEIGHLEY.**—Accepted for the erection of six houses and stores, Fell-lane, for the Industrial Co-operative Society, Limited. Mr. John Haggas, Architect, North-street, Keighley:—

*Masonry.*—Sugden, Mitchell, and Sunderland, Oakworth, near Keighley  
*Slating.*—W. Thornton, Bingley  
*Plastering.*—Wilson Bros., Oakworth-road, £1,500  
*Keighley*  
*Plumbing.*—Jas. Jackson, Lawkholme-lane, Keighley

**LEYTON.**—For sheds for water vans and steam road roller, and for sewer works. Mr. W. Dawson, engineer and surveyor:—

*For Sheds.*  
W. Lawrence ... £553 0 0 F. J. Coxhead, Leytonstone\* ... £485 0 0  
J. Haydon ... 544 0 0  
H. R. Rous ... 527 17 9  
[Surveyor's estimate, £400.]  
*Sewer in Boundary-road.*  
T. Adams ... £456 0 0 J. Wilson ... £300 10  
J. Burrell ... 448 10 J. Jackson, Leyton\* ... 297 0  
\* Accepted.

[Surveyor's estimate, £314.]

**LONDON.**—For rebuilding front, 24, Pyrland-road, Canonbury. Messrs. Bradbear, surveyors, Canonbury Station, N.:—  
Steel ... £139 10 0 George Barker ... £117 0 0  
Timson ... 136 0

**LONDON.**—Accepted for the erection of shop and flats at 55, Friar-street, Soho, for Mr. M. O'Leary. Messrs. Brunsden and Henderson, Architects, 47, Pall Mall, S.W. Quantities by Mr. J. Peebles, 88, Chancery-lane, W.C.:—  
W. S. Beaton ... £1,654

**LONDON.**—For building seven shops, Leytonstone-road. Mr. William Stone, Architect, 2, Great Winchester-street, E.C.:—  
F. and F. J. Wood ... £6,239 Roome ... £4,980  
Jennings ... 5,393 Sherwood ... 4,600  
Jarvis and Son ... 5,273 Steed ... 3,500  
Higgs ... 5,169

**LEEDS.**—For the demolition of old buildings, excavating, shoring, and underpinning for the London and Midland Bank, Limited. William Bakewell, Architect.

**LONDON.**—For erecting a wheelwright's shop and smithy, Times Wharf, Hoxton, for Messrs. Rickett Smith and Co., Limited. Messrs. Potts, Son, and Hennings, Architects, 9, Ely-place, Holborn:—  
W. Gladding ... £364 E. Green\* ... £300  
Mattock Bros. ... 315  
\* Accepted.

**LONDON.**—For rebuilding eight houses, Pollard-street, Bethnal Green. Mr. William Stone, Architect, 2, Great Winchester-street, E.C.:—  
Jarvis and Sons ... £2,940 Higgs ... £2,240  
Beale ... 2,560 Elkington ... 2,225  
Wire and Forrest ... 2,480

**LONDON.**—Accepted for the erection of additional bedrooms at St. Peter's Home, Mortimer-crescent, Kilburn:—  
R. A. Yerbury and Sons ... £1,082

**LONDON.**—For alterations and additions to three shops, Salmon's-lane, Limehouse. E. Mr. Herbert Riches, Architect, 3, Crooked-lane, King William-street, E.C.:—  
Hearle and Farrow ... £1,570 M. Calnan and Co. ... £1,446  
S. J. Scott ... 1,516 A. Webb (accepted) ... 1,288

**LONDON.**—Accepted for the erection of a warehouse, Stoke Newington. Mr. A. H. Attwater, Architect, of London and Brighton:—  
David G. Laing and Son, 2, Duke-street, Adelphi £2,100.

**MIDLETON (Ireland).**—For the erection of a dispensary and caretaker's residence, Castlemartyr, for the Union Guardians. Mr. Richard Evans, C.E., 53, South Mall, Cork:—  
Coffey ... £383 Hegarty ... £200  
O'Brien ... 360 Scully, Middleton\* ... 285  
\* Accepted.

**MIDDLESBROUGH.**—For the construction of roads, &c., at Asylum, Marton-road, for the Visiting Committee. Quantities by Mr. A. J. Wood, 3, Lancaster-place, W.C.:—  
Bastiman Bros., Middlesbrough ... £3,122

**RETFORD.**—For converting buildings into two houses, for Mr. F. Bannister. Messrs. Eyre and Southall, Architects, Retford and Gainsborough:—  
T. Hopkinson ... £280 A. Richmond ... £256  
C. Jones ... 275 F. Fenton (accepted) ... 246

**RETFORD.**—For building house, Victoria-road, for Mr. G. Skipworth. Messrs. Eyre and Southall, Architects, Retford and Gainsborough:—  
G. Fenton ... £480 T. Hopkinson ... £420  
F. Fenton ... 465 J. Wilson\* ... 400  
C. Jones ... 455  
\* Accepted.

**RIPON.**—For the construction of sewers, &c. (contract No. 7), for the City Council. Mr. H. A. Johnson, engineer, 14, The Exchange, Bradford:—  
F. N. Simpson ... £1,776 12 7 Chas. Walker and Co. ... £1,562 6 3  
A. Braithwaite and Co., 13, Park-square, Leeds\* ... 1,567 8 9  
\* Accepted.

**ROWLEY REGIS.**—Accepted, at a schedule of prices, for the execution of drainage works, for the Urban District Council. Mr. E. B. Marten, C.E., Church-street-chambers, Stourbridge:—  
John Mackay, Hereford.

**SELSE.**—For the erection of new schools at Selse, near Kendal. Mr. John Hutton, Architect, Kendal. Quantities by Architect:—  
*Building.*—John Thompson, Selse  
*Joinery.*—Anthony Nelson, Old Hutton, Kendal  
*Plumbing, Painting, and Glazing.*—Lawrence Airey, Kendal  
*Plastering.*—Steel and Co., Kendal  
*Sliding Partitions.*—John Stones, Ulverston

**SOUTHAMPTON.**—For rebuilding factory premises at Shirley, for Messrs. George Ings and Co., Limited. Mr. William Burrough Hill, Architect, Southampton:—  
C. Barter ... £1,697 Playfair and Toole ... £1,530  
H. Cawte ... 1,587 H. Stevens and Co.\* ... 1,480  
Jenkins and Son ... 1,546  
[All of Southampton.]

**STOCKPORT.**—For the erection of a boundary wall, Castle-yard, for the Corporation. Mr. J. Atkinson, C.E., Borough Surveyor, St. Petersgate, Stockport:—  
J. Briggs ... £145 W. C. Broadhurst & Co., Stockport (accepted) ... £125  
D. Mullaney ... 127

**STOCKPORT.**—For additions to Turkish baths, St. Petersgate, for the Corporation. Mr. J. Atkinson, C.E., Borough Surveyor, St. Petersgate, Stockport:—  
W. C. Broadhurst ... £140 0 T. Hoe, Hooper and Co. ... street, Stockport\* ... £109 1  
\* Accepted.

**STOCKWITH (East).**—For building Board schools for 156 children, for the School Board. Messrs. Eyre and Southall, Architects, Retford and Gainsborough. Quantities by the Architects:—  
J. R. Herratt ... £1,243 3 9 F. Beestall ... £1,100 0 0  
W. Colley ... 1,233 10 0 J. Woods\* ... 1,076 0 0  
T. Hopkinson ... 1,178 0 0  
\* Accepted subject to Department's approval.

**STANLEY (Durham).**—For the execution of road works, Mary-street, &c., for the Urban District Council. Mr. J. Routledge, surveyor, Council Offices, Stanley. Quantities by the Surveyor:—  
Geo. T. Manners ... £1,576 2 10 J. Wardlaw ... £1,192 1 1  
Wm. Johnson ... 1,432 7 0 Jos. Goldsborough ... 1,183 18 0  
A. Goldsborough ... 1,228 12 1 Chester-le-Street\* ... 1,183 18 0  
\* Accepted.

[Surveyor's estimate, £1,432 5s. 3d.]

**McNEILL'S FELTS** (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)  
**McNEILL'S SLAG WOOL** (Silicate Cotton), for Fireproofing and Soundproofing.  
AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to  
**F. McNEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works, Kirkintilloch, near Glasgow.



**H. A. BALL,**  
12 & 13, Chiswell St., & 26, Finsbury St., E.C.  
STOVES, RANGES, KITCHENERS, BATHS,  
RAILINGS, LOCKS, BRASSFOUNDING, &c., &c.  
HEAVY STOCK. PROMPT DELIVERY.  
**BUILDERS' IRONMONGERY**  
LISTS FREE ON RECEIPT OF TRADE CARD.



X

**TADCASTER.**—For the supply of broken granite road metal, &c., for the Rural District Council. Mr. Thomas Scott, surveyor, Aberford, near Leeds:—

	s.	d.	Tons.
Ord and Maddison	11	1	per ton for 1,000
Bradley Bros.	11	1	" "
Geo. Hodsman	11	1	" "
Jno. Delaney	10	6	" "
Shap Granite Company, Ltd.	10	8	" "
Summerfeld and Mead	9	6	" 500
Chas. Hornsey	10	3	" 500
G. F. J. Boigase	10	11	" 1,500
Geo. Hodsman	7	3	" 1,000
Leeds Steel Company, Ltd.	5	9	" "
John Green and Co.	7	5	" "
John Green and Co.	7	1	" 3,000
Skipton Rock Company, Ltd.	6	8	" 1,000
Total			14,500

Price 3s. 6d.

**GLOSSARY OF TECHNICAL TERMS**  
used in Architecture and the Building Trades.  
By GAVIN JAMES BURNS, B.Sc., F.S.I.  
Contains explanations of over 2000 terms.  
London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**  
—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

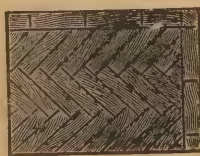
**ASSISTANT SURVEYORS, R.E. CIVIL STAFF EXAMINATION ANNOUNCED.** For terms for tuition, apply to Mr. G. A. T. MIDDLETON, A.R.I.B.A., 56, Dafforne-road, Upper Tooting, S.W. First place on three occasions.

**R.I.B.A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library. Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

Reading Cases may be had on application to the Manager. Price 1s. 9d. each.

**THE SMOKELESS FIRE Co. Ltd.,**  
Sole Proprietors of Marsh's Patents  
FOR THE  
**COMPLETE COMBUSTION**  
OF FUEL.  
Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.



**WOOD-BLOCK PAVING.**  
(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.  
Estimates and full particulars on application to  
**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM  
JOINERY WORKS,  
Clapham Junction, S.W.

**MASON'S PATENT** Used on the New TOWER BRIDGE.  
**UNWEARABLE,** Non-Slipping Sideway  
**NON-SLIPPING** Entrance Covers,  
**STAIR TREADS.** Hydrant, Manhole,  
Inspection, and other  
Covers,  
Coal Plates, &c.  
Contractors to  
H.M. War Office and  
the Admiralty.  
—THE SAFETY TREAD SYNDICATE, LTD.,  
15, Barbican, London, E.C.

**ILLUMINATION BUCKETS IN ALL COLOURS.**

Commemorating the 60th year of Her Majesty's Reign.

SEND YOUR ORDERS EARLY  
To

**J. YOUNG & CO.,** Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.  
Telephone No. 4712 (Hop).

## APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

## YOUNG ARCHITECT, A.R.I.B.A.,

DESIRES to ASSIST others

in the

PREPARATION OF DRAWINGS

at his own office.

G. SCORER, 28, Newman-street, W.

## TO ENGINEERS and SURVEYORS.

Young Gentleman, studying under professional tuition for the Municipal and County Engineers' Examination, wishes to Meet with either of the above who would be willing to take him as IMPROVER. Already Assoc. of San. Inst. by exam. Well up in Building Construction. Able to prepare plans, specifications, take off quantities, and estimate.—Address G. C. P., 46, Albany-street, Sittingbourne.

**ARCHITECT and SURVEYOR'S ASSISTANT** desires ENGAGEMENT. Neat and quick draughtsman, working and detail drawings from rough sketches, knowledge of surveying, levelling, specification, quantities.—A. J. M., 50, Artillery-road, Guildford.

**ESTIMATOR** desires ENGAGEMENT. Competent in taking-off quantities, preparing accounts, specification, sanitary reports, plans, &c., also general routine.—ESTIMATOR, St. Louis, Bassingham-road, S.W.

**COMPETITIONS.**—Consultant Architect gives EXPERT ADVICE on Hospitals, Infirmarys, Asylums, &c. Complete Competition Drawings Prepared.—Address, EXPERT, No. 43, Old Queen-street, Westminster.

**QUANTITIES PREPARED.** Estimates, measurements, or adjustments made, arbitrations personally conducted, by London Surveyor of 30 years' experience of town and country works.—SURVEYOR, 32, Springfield-road, London, N.W.

**ARCHITECT and SURVEYOR'S ASSISTANT** desires ENGAGEMENT. Highest testimonials and references. For the last 16 years in one of the principal London estate offices.—M., 171, St. Alban's-road, Watford, Herts.

**ARCHITECT'S ASSISTANT** DISENGAGED. Thirteen years' City experience in working drawings, details, specifications, measuring-up, superintendence of works, &c. Excellent references. Salary, £2 2s. per week.—G. A. P., 15, The Avenue, Kew Gardens.

**WANTED E. C. ROBBINS WORK ON TECHNICAL SCHOOLS.** DICKENS - LEWIS, Shrewsbury.

**WANTED** suitable FIRMS for FLOOD'S PATENT VENETIAN BLIND. When partly lowered the laths hang without the objectionable block at the bottom. Particulars. Prices.—S. Flood, High-street, Crediton.

## APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

## N. W.C.L. ASYLUM, DENBIGH.

The Committee of Visitors require a CLERK of Works for the additions and alterations at the Asylum, and hereby invite APPLICATIONS for the post.

The Salary offered is £3 per week. Candidates to state age, occupation, and previous experiences.

The applications to be forwarded, along with testimonials, to the undersigned, not later than TWELVE o'clock noon, on MONDAY, 15th inst., endorsed "Clerk of Works."

Canvassing the Visitors strictly prohibited.

WILLIAM BARKER, Clerk to the Visitors.  
The Asylum, Denbigh, March 1st, 1897.

**A QUANTITY SURVEYOR**, commencing Practice, is DESIROUS of SHARING OFFICES with an Architect with a view to mutual advantage.—Box 430, BUILDERS' JOURNAL.

**WANTED** a GOOD MAN used to working Portland stone steam sawing machine. State age, wage, and references.—Box, 431, Office of the BUILDERS' JOURNAL.

## THE URBAN DISTRICT COUNCIL of FARNBOROUGH.

**SURVEYOR AND INSPECTOR OF NUISANCES.** APPLICATIONS are invited for the APPOINTMENT of SURVEYOR and INSPECTOR OF NUISANCES for the Urban District of Farnborough.

The person appointed must be between the ages of 25 and 45 years, and will be required to reside in the District and to devote the whole of his time to the duties of the office.

The appointment will be made in the first instance for one year only, subject to the approval of the Local Government Board.

Candidates must be thoroughly qualified to perform the duties of Inspector of Nuisances, as defined by the General Orders of the Local Government Board and the Public Health and Sanitary Acts, and as Surveyor be

## BROWN AND DRAB GLAZED BRICKS.

(Largely used for Hospitals, Schools, &c.)

**WHITE & COLOURED ENAMELLED BRICKS.**

SALT GLAZED BRICKS.  
GLAZED SINKS.

**STANLEY BROS. (LTD.) NUNEATON.**  
SEMI-ENCAUSTIC PAVING TILES.  
Roofing and Ridge Tiles, Blue Bricks, Kerbings, Copings, Garden Tiles, &c.  
ILLUSTRATED LIST ON APPLICATION.

**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON,** LUGGARDINS WORKS, WITTINGTON,  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!

## WIRE DEVICES,

With Patent Wire Clips, to hold Bucket Lamps, in Crowns, Monograms, Letters, Feathers, and Window Blinds.

WRITE FOR DRAWINGS AND PRICES.





# Surveying and Sanitary SUPPLEMENT.

MARCH 10TH, 1897.

## PLANNING OF SMALL HOUSES.

By H. V. LANCHESTER, A.R.I.B.A.

(Continued from page v.)

### No. III.—PAIR OF COTTAGES AND SEMI-DETACHED HOUSES.

THE semi-detached house is, if we except the numerous pairs of cottages scattered about the country, a comparatively modern development. It coincides, more or less, with the advent of the suburb, and the earlier

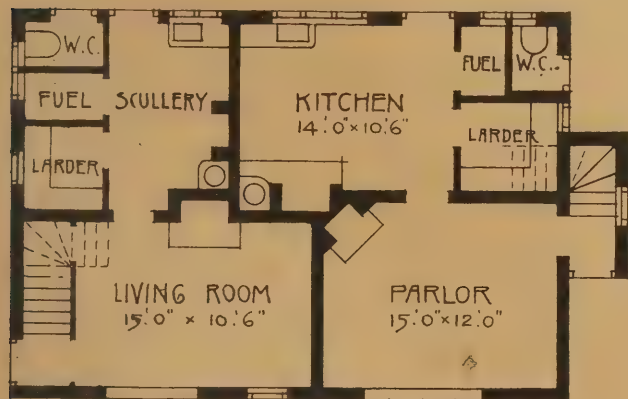
some houses of this class, did not disdain to suppress one entrance and make much of the other in order to create this illusion. It need hardly be urged that such a proceeding is both false in idea and inconvenient in practice; while in no way insisting that a pair of houses must be alike in all respects, it is obvious that when they are of a similar general character, it is absurd to enhance the importance of the one at the expense of the other. It is, perhaps, superfluous to discuss ideas so generally obsolete as these; at present the tendency is rather, if anything, in the opposite direction, and leaves room for more individualisation. Take for instance the design illustrated in plan No. 7. Here the front blocks may very well

principal entrances in juxtaposition, and consider it preferable to place them on the outer sides, as indicated in plan No. 6. I do not myself attach much importance to this, but it would be easy to arrange a pair of houses in which the plans do not repeat each other, so that the facade is not symmetrical and the entrances need not both be placed on the outer sides.

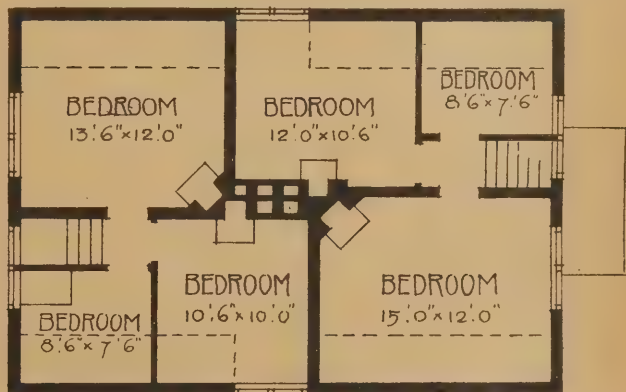
In design No. 6 it will be observed that the party-wall is built with a cavity; this should always be done where sitting-rooms abut to any considerable extent on each other, as otherwise the sound of music, and even talking, will pass freely from one house to the other, an ordinary 9in. wall being

### No. 5 — PAIR OF COTTAGES

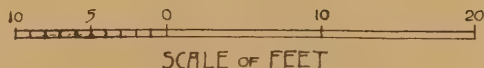
CUBE OF THE PAIR AT 12 = £75



GROUND FLOOR



FIRST FLOOR



examples may be seen in the long main roads that stretch in straight lines between the City and what were then isolated villages. They are more noticeable on the Surrey side, where the roads to Clapham and Brixton, Camberwell and Peckham offer many specimens of this early form. The semi-detached house of this period did not, however, differ so much from the more usual terrace type as to render it especially interesting. The succeeding efforts are, if anything, less in consonance with present ideas, as they principally consisted in various schemes to make the two houses appear as one. Even Sir Charles Barry, in designs for

be somewhat varied in detail, and the general effect would be that of two detached houses of different design.

As a general rule, in planning semi-detached houses it will be found that the kitchen offices must be placed on the outside, so as to avoid the necessity for any traffic to and from them passing the windows of the sitting-room that overlooks the garden. The only exception to this is in the unusual case of the tradesmen's entrance being from the end of the garden, when the kitchens to the two houses will be best placed side by side next the party wall. Some object to placing the

quite inadequate to prevent this taking place.

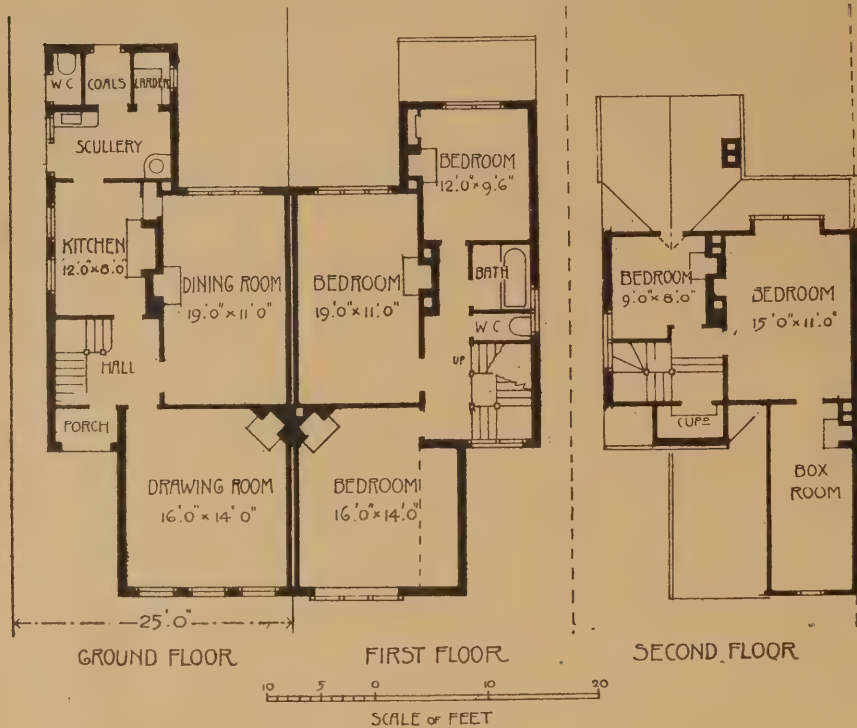
The frontages given in each case represent the minimum ones on which the designs could be built; in all cases a somewhat more liberal allowance would be desirable.

No. 5 represents a pair of cottages of varied plan, and introduces the cranked dividing-wall, which in this case enables the bedrooms to be better proportioned and more economically arranged. This scheme of carrying the party-wall in an indirect line was effectively utilised by the late E. J. Tarver in his plans for houses at Telford Park, but of course it



NO 6 - SEMI-DETACHED HOUSE

CUBE AT 12 = £90



can only be done in cases where large blocks of ground are being covered by one builder.

The other designs seem to call for few notes beyond the points already referred to. No. 6 would undoubtedly be improved if increased a few feet in width, and No. 7 is to be preferred if the outlook or aspect at the back is in a marked degree superior to that in the front.

### SANITARY SCIENCE.\*

BY PAUL OGDEN.

IN this, the first of a series of short articles, all that relates to drainage, water supply, and ventilation will be briefly considered. That part of the subject which, to my mind, is the most important—the arrangement of conveniences and their connection with the drainage—will be treated in detail. This branch of an Architect's business is the most exacting. Almost daily new difficulties arise, new theories are advanced, and new suggestions are made in an endeavour to effect a solution of all the complex questions of Sanitary Science. We must have lavatories, sinks, water closets, and all modern conveniences in our buildings of to-day, and to treat these so that they shall not endanger the health of the persons daily using them, constitute the chief problems of what we call our branch of Sanitary Science. Formerly it was the custom to seal up all the ends of the drains by traps, and cork up, as it were, the gases from the sewage. Although the traps are still used, the most popular system of to-day would appear to be to extract or ventilate the drainage and discharge the gases as far away and as high up as possible from channels of danger. This question of sewage disposal has attracted the attention of many engineers, and different schemes have been tried with varying success. Sewage farms have sprung up in connection with nearly all local boards and sanitary authorities, and all these authorities—or their engineers—have their own pet schemes of method of treatment. Pure air and pure water is what we require, and we cannot be healthy without them. It is difficult to obtain the former in large towns. It must, therefore, be purified as much as possible by the best known means, and, as Architects, it is our duty

to find out what the best method is! Bad air is aerial sewage, and must be purified before we can safely breathe it, just as much as foul water must be purified before it is consumed. Our corporations supply us with water practically pure, and it is our fault therefore if we do not treat it in a proper manner when delivered into our charge. The water cisterns should not be exposed to the glare of the sun, but covered in with properly fitting covers so that dust and other impurities cannot enter. After Architects and builders have finished their work, clients and all persons interested should be told that all sanitary arrangements require

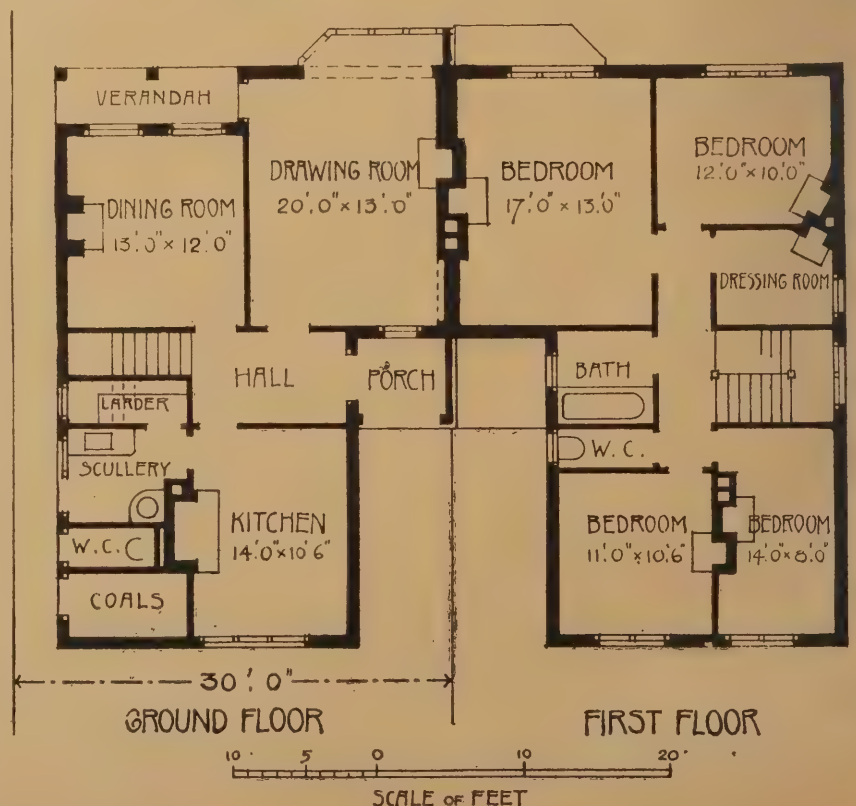
almost daily inspection to secure satisfactory working.

### SEWAGE.

Vegetation feeds upon decomposed vegetable and animal matter, converting substances noxious to the life of animals into healthy vegetation when dissolved by water and taken up by the rootlets of the plants. The same vegetation, after a sufficient growth, is in its turn the food of animal life which in the process of its growth, throws off the refuse to feed vegetation again. Of the useless organic matter to be removed from houses, that which is of animal origin is destructive to the healthy life of plants, and through them to the animals which feed upon them. Before this organic matter is fit for animals it must undergo a complete change through the stages of vegetable life. Sewage is changed chemically by natural or by artificial means. If sewage is exposed to the atmospheric air, it becomes oxidised which makes it essentially harmless; this is a natural chemical action. Sewage should never be allowed to be at rest; it should always be kept moving. There are several ways of disposing of sewage—surface irrigation, sub-irrigation, and intermittent filtration, and also by settling tanks. In this last method precipitation is hastened by some chemical, and to prevent fermentation a small quantity of milk of lime is added before the sewage arrives at the tanks. Some of the chemicals destroy the sewage for agricultural purposes. Where the ground is suitable the different processes of irrigation are the best. I notice that one of the questions set in the papers for the Institute examination last year was: "Describe any good system for disposing of the sewage from a country house, other than draining it into a cesspool." Now if the land were suitable, irrigation would certainly be one of the best known systems. This may be done by drains laying to and through the nearest land, placed, if possible, about a foot below the surface, and having joints butt to butt. The drain to the land must have the joints made perfectly tight, otherwise where well water is used it might be affected. Unless sewage is discharged on the land in sufficient quantity to cause a small flow, it cannot be turned into the various directions required

NO 7 - SEMI-DETACHED HOUSE

CUBE AT 12 = £90



\* A series of short articles on "Sanitary Science," by Mr. P. Ogden, will appear in successive numbers of this journal. The question of "Ventilation" will be dealt with next week.



from time to time. To meet this difficulty, an automatic sewage regulator has been invented by Mr. Rogers Field, and made by Messrs. Bowes, Scott and Read, of Westminster. The regulator stores up in a tank the dribble of sewage, and when the tank is full it is emptied automatically through a syphon pipe, and flows on to the land in a proper stream while it does flow. Thus each tank-fall may be turned on to any part of the land requiring it, and there allowed to rest until ready again for another supply. Similar inventions have been made by J. C. Edwards, of Ruabon, and Messrs. Dalton and Co., of Lambeth.

#### WATER SUPPLY.

Provide for 16 to 20 gallons per head per day in non-manufacturing towns, and in manufacturing towns, 20 to 30 gallons per head per day. Service tanks should contain three days' supply. Cast-iron pipes, properly varnished, should be used for street mains. It is not advisable to use mains less than 3in. in internal diameter. Lead should not be used either in service-pipes or in house cisterns, though wrought iron tubes with screw joints may be used for house service. All house taps should have screw joints, so as to admit of easy repairs. In joining and fixing wrought iron service-pipes care should be taken to insert double screw joints at convenient points to allow the removal of a length of pipe for alterations and repairs. Up-bends should be avoided, or a tap should be inserted to permit of the escape of accumulated air. Wrought iron pipes are cheaper, stronger, and more easily fitted than service-pipes of lead. Certain sorts of made ground in towns act rapidly and injuriously on both lead and iron pipes; furnace ashes, waste gas, chemical refuse, old building refuse containing lime and similar materials, have a very detrimental effect. Pipes should not be laid in such material without a lining of sand or puddle, or other special protection. Earthenware pipes may be used for water conduits provided the joints are not laid under pressure. A public supply of water should not be less in volume than 20 gallons daily per head of the population. High pressure and constant service should be secured whenever practicable. Water at and below 6deg. of hardness is "soft" water; above this range water is hard. Hardness in water implies one grain of bicarbonate or sulphate of lime in each gallon of water. Each degree of hardness destroys 2½oz. of soap in 100 gallons of water used for washing. Soft water is therefore commercially of more value than hard in proportion to the worth of 5oz. of soap to each 200 gallons for each degree of hardness. But soft water is also more wholesome, and effects savings in other operations—tea-making and in generating steam power, for instance. The cistern should be of slate or galvanised iron, and in all cases should have a lead tray or safe placed under. Doulton's supply a filter, which is submerged in the cistern and charged with animal charcoal, and drawn by ascension through a syphon pipe.

THE water at Glascoed, where the service reservoirs supplying Rhyl and district are situate, was turned on through the new main pipes a few days ago. The extension has entailed a cost of £6000.

WE understand that at a recent meeting of Exeter Corporation of the Poor, a recommendation was received from the special committee that plan E for the new hospital wing, prepared by the Surveyor, should be adopted, together with the end portions of plan B, and that the Surveyor be requested to supply new plans for a tramp ward. The report was adopted.

BRETHERTON'S buildings, in North John Street, Liverpool, were perhaps the first of any Architectural pretensions designed in Liverpool for commercial as distinguished from public purposes. Recently the Royal Insurance Company acquired a large block of property, extending from their existing offices to a narrow street lower down. They intend to demolish these premises, and to erect on the site a large structure for the purposes of their business.

## Surveying and Sanitary Notes.

At the Sanitary Institute examination, held at the Technical Institute, Swansea, thirty candidates presented themselves for examination, twenty-one of whom were successful.

THE Health Committee of the Liverpool Corporation, on the recommendation of the medical officer, Dr. E. W. Hope, has decided to appoint two lady inspectors in the sanitary department. They are to be principally engaged in house to house visitation in the poorer neighbourhoods. The innovation is anticipated with much interest. Two additional male inspectors are also to be appointed.

THE Dewsbury and Heckmondwike Waterworks Board has declined, in the interests of manufacturers, to do anything to harden the water, and thus render it non-absorbent of lead. Under those circumstances the Corporation has authorised a request that iron or tin-lined water pipes should be specified for new buildings. If this be necessary for new buildings, it seems only reasonable to suppose that something ought to be done with regard to old buildings.

A CORRESPONDENT writes:—"I shall be glad if you will call attention to the numerous rain-water channels in courts and across pavements which are choked up with filth and dirt in the City, and must be very detrimental to health. Apparently they are very rarely flushed out. I complained to one owner of a court, but he said it was not his business to clean out the channel, and, in reply to my inquiry, he suggested that it was the duty of the Commissioners of Sewers to do so."

MR. ROBERT JOHN HUGHES, District Sanitary Inspector, Liverpool, has been unanimously selected from over eighty applicants for the office of Inspector of Nuisances to the Rhyl Urban District Council, at a commencing salary of £120. In addition to a long practical experience, Mr. Hughes holds a number of important certificates in building construction, sanitation, drawing and allied subjects; and in his position as Hon. Librarian to the North-Western Sanitary Inspectors' Association, has evidenced an intelligent interest in the advancement of his profession. Mr. Hughes entered upon his new duties on March 1st, with the good wishes of all his Liverpool colleagues.

At a recent meeting of the Commons Preservation Society, the contemplated interference with common land by numerous private Bills now before Parliament was taken into consideration. Included in these Bills is that promoted by the Midland and Great Northern Railways Joint Committee, by which it is proposed to take ten acres of Southtown Common, near Yarmouth, and also to run a railway over the beautiful and extensive open space known as Dunton Denes, which is much used for recreation by the inhabitants of the locality. The Denes would be practically bisected, and unquestionably ruined, should the scheme be carried into effect. It was unanimously felt by the Committee that any interference with the land should be most strenuously opposed by the Society, and it was decided to secure the blocking of the Bill on second reading in the House of Commons. It was also decided to vigorously oppose the Christchurch Inclosure Allotments Bill, promoted by the Attorney-General. Under the Christchurch Inclosure Act, 1802, a large area of land was set out as a turf fuel allotment, and rights of turbary are freely exercised over it by many of the occupiers of small cottages in the district. Power is now sought to extinguish those rights and to sell 325 acres of allotment.

At a recent meeting of the Melton Mowbray Rural District Council it was stated that the Local Government Board had authorised the

Council to borrow £300 for sewerage improvements at Somerby, and it was decided that Mr. C. Ogden, surveyor, Leicester, be instructed to prepare specifications and obtain tenders for carrying out the work.

At a recent meeting of the Beccles Town Council, a memorial signed by 104 ratepayers and burgesses was brought forward, asking the Council to give effect to the general feeling "that the appointment to the surveyorship should be revoked, on the ground that Mr. T. W. Woodroffe was entirely without experience of the work; that, in the important works proposed to be carried out, it was most desirable that the Borough Surveyor should be competent and experienced in sewerage, sanitary, and drainage works, and that it was opposed to the public interest that this important office should be filled by a novice." The Council, however, declined to consider the memorial.

An enquiry was recently held at Yarmouth by Colonel A. G. Durnford, R.E., with reference to the proposed expenditure by the Town Council of £10,500, on the erection of a refuse destructor on the Corporation marshes, between Caister Road and the River Bure. The Borough Surveyor explained that the Corporation had previously applied for a loan of £8000, to erect a destructor near the Workhouse and Isolation Hospital, but the Local Government Board declined to sanction this site. Now it was proposed to set it up on a marsh between Caister Road, the main road into the town, and the River Bure. This, in the opinion of the Council, was the best site possible under the circumstances.

At a recent meeting of the Streets and Sewerage Committee of the Leeds Corporation, Mr. Appleton (Chairman), presiding, it was resolved to accept the tender of Mr. Isaac Gould, of Leeds, for the construction at Knostrop of a number of settling tanks. The effect of this will be to double the existing accommodation and to largely satisfy the requirements of the West Riding Rivers Board. By the terms of the contract, a heavy penalty is to be imposed in case the work is not completed within twelve months. The amount of the tender was £27,991. At the same meeting the City Engineer (Mr. Hewson) submitted a plan for the completion of the Hunslet rainfall sewer, of which the committee approved. It will now be laid before the directors of the Aire and Calder Navigation for sanction.

A CORRESPONDENT at Venice, says:—"As the public already knows, the sittings of the Sanitary Conference are conducted with closed doors. The reason for this is not to keep its conclusions secret, but rather the discussion by means of which the conclusions are arrived at. It is impossible that in an International Conference differences should not arise. National interests do conflict, and national jealousies are apt to be felt. England, with its enlightened views on sanitation, and its vast commercial interests, is naturally desirous of imposing the minimum restriction on traffic consistent with avoiding danger from the plague, and desires to keep open the great land and water highways of the world, especially that of the Suez Canal. On the other hand, some nations, back many decades in their knowledge of sanitary principles, and having little at stake in the carrying trade of the world, would go to any extent in repressive measures with a view to preventing the spread of diseases now prevalent in the East. At the Conference, I may say this, the views of England are steadily gaining ground. Besides, Dr. E. Thorne Thorne, of the Local Government Board Medical Department, and Surgeon-Colonel J. Richardson, of the Indian army, Dr. Cleghorn has just come direct from Bombay. The delegates are working very hard. They sit in the forenoon now as well as in the afternoon, and often for four hours at a time. The discussions are conducted in French, and the delegates communicate the decisions of each day to their respective Governments in cipher telegrams.



THE ceremony of cutting the first sod of the new storage reservoir to supply Larne, which is being constructed at an estimated cost of £5000, was performed on the 1st inst.

THE Glasgow Corporation Sewage Committee has appointed a sub-committee to consider the disposal of the sewage on the south side of the Clyde with the view of promoting a bill in Parliament next session to secure compulsory powers.

At a recent meeting of the Falkirk Town Council, the Clerk read the minutes of meeting of the Sanitary Committee, from which it appeared that reports by Mr. W. Black, Architect, and Mr. Neilson, sanitary Inspector, were read as to the proposed erection of model lodging-houses by the Council in East Bridge Street, and a motion that the provision of lodging-houses be adopted and proceeded with without further delay was carried. The Committee's recommendation was approved of.

At Luddendenfoot, Major-General Crozier, Inspector of the Local Government Board, held an inquiry into the application of the District Councils of Luddendenfoot, Warley, and Midgeley for a provisional order for power to compulsorily acquire under the Lands Clauses Act, land for a joint sewage scheme for the districts. The land sought to be acquired is twenty-six acres in extent, known as High Royd Farm, belonging mainly to the Halifax Infirmary and the Sowerby Bridge Parish Church. On this it is proposed to construct a system of settling tanks and land filtration, and then pass the effluent into the becks.

THE General Purpose Committee of the Isle of Wight County Council recently held an inquiry respecting the application of the East Cowes Council to enlarge their district. It appeared that the District Council wished an extension of the boundary in order to close the road between the two lodge gates at Osborne as desired by the Queen, and it was stated that the District Council had declined an offer of £2000 from Her Majesty, who subsequently, through her solicitors, suggested as an equivalent, a gift of land adjacent to the district, and to make a new road from East Cowes to Whippingham, so as to shorten the distance to the Church.

For a number of years the question of sewage disposal has been a difficulty with successive Yeovil Corporations, a fact accounted for by the sewage being of the foulest in the kingdom, attributable to the nature of the industries of the town. Considering that the treatment of sewage generally has, at the best, advanced scarcely beyond the experimental stage, it need occasion no surprise that Yeovil, in common with many other towns, with but few of the tremendous drawbacks there experienced, has been unable to steer clear of the operations of the Pollution of Rivers Act. Works for the carrying out of the experiments have been provided, and a portion of the town sewage is being treated there daily. The works, constructed at a cost of about £450, are equal to dealing with the sewage of a population of 500—an outlay of about £1 per head. The population of Yeovil is a rapidly increasing one, at present approaching 10,000; supposing, therefore, that the septic tank system is ultimately adopted as the method of disposal of the domestic sewage of the town as well as the refuse from the manufacturing, the ratepayers will have to face an outlay which may be calculated at between £10,000 and £15,000.

At a meeting of the Dublin Sanitary Association on the 25th ult., the question of hospital accommodation in Dublin was before the Council, and after considerable discussion the following resolution was adopted:—"That the Council beg to call the attention of the Corporation as the Sanitary Authority of

the City of Dublin to the want during the present epidemics of additional hospital accommodation for the treatment of infectious cases. That the Council of the Dublin Sanitary Association are of opinion that in order to relieve the congested wards of the Dublin hospitals of patients in the convalescent stage of the prevailing epidemics, the Sanitary Authority of Dublin should be urged to represent to the respective Dublin Boards of Guardians the necessity of adequate accommodation for such convalescents being provided."

At a recent meeting of the Public Works Committee of the Birmingham Corporation, the subject of the "Rotten Row" scheme, so far as it concerned the committee, was brought forward for consideration. Lord Calthorpe made an offer to present to the city a straight strip of land, about a third of a mile in length and thirty yards wide, running from Edgbaston Road the full length of the west side of Cannon Hill Park, for the purposes of a "Rotten Row." The offer was accompanied by the conditions that, in addition to constructing the "Row," the City Council should fill up the old millstream which runs in a zigzag direction across his lordship's land to the small bridge near Pershore Road, that the bridge across that watercourse should be abandoned, that Edgbaston Road should be widened and the bridge near the park gates replaced by a new one, and that the Council should also straighten the River Rea from Edgbaston Road to Calthorpe Park. The City Surveyor has laid before the Public Works Committee plans and estimates of the undertaking with respect to the straightening of the river, the making of the new road, and the construction of the bridges. The committee has discussed the scheme—which would be a great improvement, if an expensive one—at some length, and resolved to confer with the Baths and Parks Committee on the whole subject.

THE following report of the committee appointed to inquire into and report on the West Carr drain and the other drains of the town has been presented to the Retford Town Council.—The committee, as authorised by the Council, has consulted an engineer, Mr. J. C. Melliss, of Gresham House, Old Broad Street, London, on the subject of the sewage of the town. They are advised by him that a modern system of drainage, which will enable the sewage of the town to be diverted from the several streams and watercourses intersecting the town, is very greatly needed. Mr. Melliss recommends the construction of a modern system of pipe sewers throughout the town for the conveyance of the sewage proper, and a limited quantity of surface water, the remainder of the surface water being dealt with by a separate system of drains, for which the present sewers can to a great extent be utilised; the sewage by means of these pipe-sewers to gravitate to the Market Square, which is almost the lowest part of the town, and he thinks that with one exception this can be done without the employment of intermediate lifts. The exception to which he refers is the village of Ordsall, and he is of opinion that if it should be found necessary to lift the small quantity of sewage at that point it could be easily done by some simple means, such as a small hydraulic pump. From the Market Square, Mr. Melliss proposes the construction of an outfall sewer along Churchgate, Moorgate, and Bolham Lane to Bolham, so that the sewage would by these means gravitate to this point. The sewage would then have to be lifted to the higher land above Bolham Mills, and Mr. Melliss proposes to employ compressed air as the means of so doing. When lifting, the sewage will have to be dealt with either by broad irrigation or by precipitation and filtration. Mr. Melliss is of opinion that the land suitable for broad irrigation would not be sufficient for more than ten or twelve years, and therefore that precipitation and filtration should be adopted. For this purpose he recommended the purchase of an area of about 30 acres of the high land, which he is of opinion will suffice for

all future requirements. Mr. Melliss, when asked as to the probable cost of carrying out such a system of sewerage, replied that it was impossible for him to estimate the cost without preparing a detailed scheme for working out his proposal, and puts the cost of preparing such a scheme, together with a reliable estimate of the cost of carrying the same out at £50, this sum to merge in his general commission if he should be hereafter employed to carry out the scheme. The committee asks the sanction of the Council to its employing Mr. Melliss to prepare such a scheme and estimate.—The report was adopted.

THE Sanitary Committee of the Dundee Town Council continues to push on with vigour its crusade against insanitary buildings in all quarters of the city. There is not a single "slum" region which has not by this time felt the beneficent influence of its operations, and it is expected that before long every property which a year or two ago would have been described by the opprobrious epithet of "slum" will have been either renovated, rebuilt, or removed altogether. At present the Sanitary Committee is carrying on its operations in such quarters as the Bog, Lochee, Scouringburn, Greenmarket, Ann Street and Wellington Street, King Street, James Street, West Port, Miller's Wynd, Todburn Lane, Wallace's Pond, Hawkhill, Johnston's Lane, and Vault, where they are insisting upon the proprietors of all insanitary buildings rendering the properties fit for human habitation, and conformable to the rules of modern sanitation.

At a special meeting of a sub-committee of the Aberdeen Town Council, held for the purpose of considering the remit on the question of public baths, sketch plans were submitted from the borough surveyor's department of three schemes. The first and most expensive of the schemes was for the erection of baths on the vacant piece of ground between Schoolhill Railway Station and the Free South Church. In the plan a large building with a handsome frontage is shown. In the ground floor are four shops, and the first floor would be let for offices, while the baths are on the second floor, with entrance from Rosemount Viaduct. There would be two large swimming baths, Turkish baths, and fifty-five first and second-class slipper baths. The estimated cost of the building, apart from the site, is £23,000, and the feu-duty would be about £75 per annum. The site of the second of the schemes put forward is in the vicinity of George Street, lying between that thoroughfare and Causeway End. At this site the accommodation is almost similar to that proposed in the Viaduct, but the estimated cost is considerably less, viz., £20,400. The feu-duty, however, would be from £90 to £100 per annum. The third site is in the vicinity of Loch Street, and the building is somewhat similar to the second one. In this case the estimate is £19,000, and the yearly feu-duty would be about £100. In each case it is expected that the revenue to be derived from shops and offices would amount to at least £400 per annum, which would pay the interest on £13,000 of the money to be borrowed for the erection of the baths, leaving interest on only £10,000 to be met from the drawings from the baths, which it was declared would be more than sufficient to cover working expenses besides. The Schoolhill site was approved of, and the matter goes forward to the Council for approval.

THE construction of the new French Transatlantic cable, which is to be laid during the ensuing summer from Brest to New York, is rapidly approaching completion. It will have a length of 3250 nautical miles.

WHILE a number of workmen were engaged strengthening an old brick railway bridge over the Sencil Drain at Lincoln, the centre arch collapsed, and twelve men were thrown into the stream. All were speedily rescued. The bridge is to be replaced by a girder one, and traffic will not be seriously impeded.



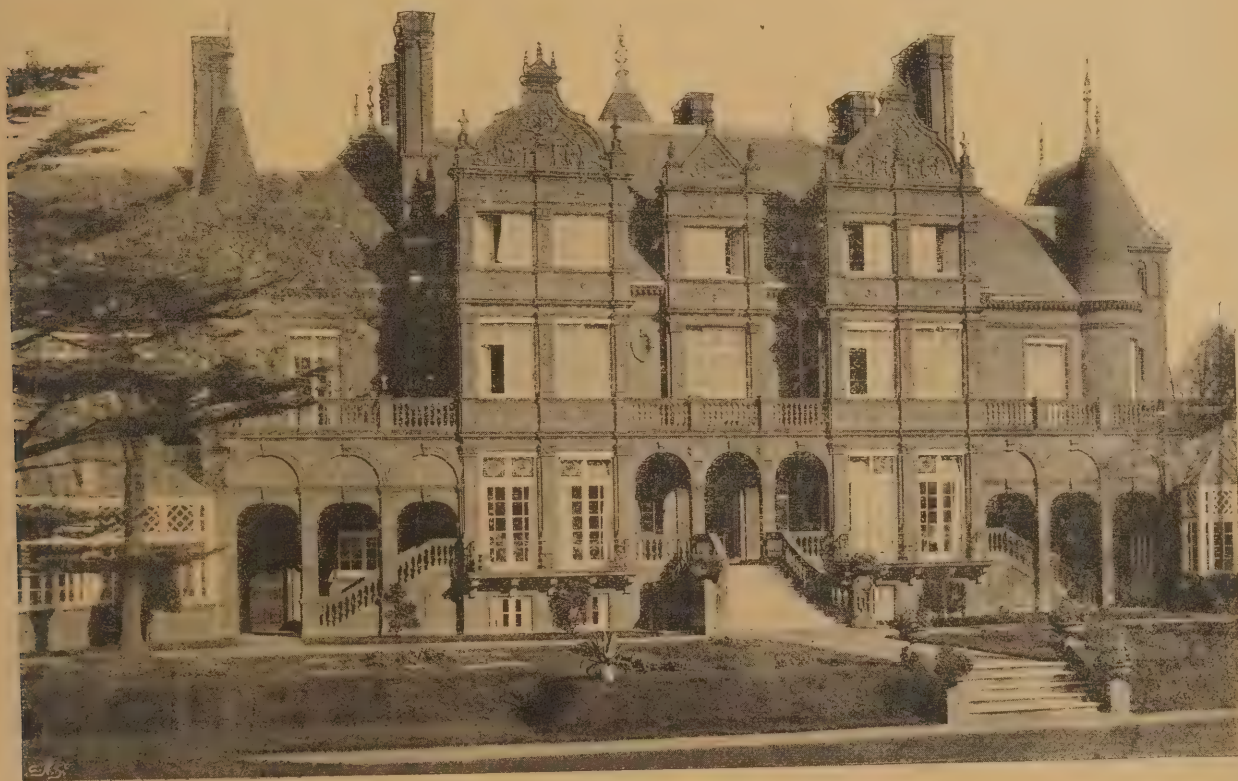


### Proposed New Buildings for the L.C.C.

THE House of Commons, with a majority of eighty-one on the vote, has cast forth the "London County Buildings Bill," and the Council has now to turn itself to some more economic and less aspiring scheme, and satisfy itself with a less ambitious site than that in Trafalgar Square. It is worthy of note that the Bill was originally known as "The London County Hall Bill," and we can only suppose that the title under which it was presented to the House was substituted as being more convenient to the ear, and in

such exaggerations and extravagance of hyperbole in its support must be very far to seek. Setting aside the Imperial and Constitutional sides of the question, we must still find that the representatives of the Council made a very sorry show on this occasion of the debate on the Second Reading of their Bill. All the figures quoted in support of the motion were subsequently shown to be manifestly understated, and the facts that were to support the theory that the selection of the Trafalgar site was an inevitable conclusion, a sort of decree of fate, were not fairly presented, or were distorted in their bearing on the question. These two points, however, are established. First, that the Council is in immediate want of extra accommodation for some 500 clerks, and a supplementary series of committee and other public and executive chambers incidental to the work of the Council. Secondly, that the vote of the Council in sanction of the Bill was not a party vote. It was no case of a "Progressive" majority, and a "Moderate" minority. Mr. Whitmore's estimate, "arrived at by a responsible expert," of £800,000 for the

of Cockspur Street with Charing Cross, whilst being probably the most expensive in London, if we except the site of the Bank of England, is also unsuitable Architecturally, in that its irregularity restricts the plan and affords no opportunity for raising a building of that dignity and importance which the Council indicates. In this connection a strange inconsistency of view was advertised by two of the representatives of the Council. Whilst Sir John Lubbock urged the acceptance of the Bill primarily because the alterations in the locality of the site, occasioned by the new street, would enable the Council to raise a building adjacent to, and in Architectural unison with, the Government offices now building on Whitehall Parade, Mr. Whitmore's emphasis was centred on the desirability of a building that would lighten the burden of the long-suffering ratepayers by letting its ground floor out as shops. It may not require an exorbitant scale of merit and qualification in Architectural taste and experience to build, not inadequately, beside a modern Government office; but to raise in addition at the same time upon such a site a



WESTWOOD HOUSE, SYDENHAM. JOHN L. PEARSON, R.A., ARCHITECT.

particular to the ear of those Conservative members who, according to the mover of the second reading, are charged with such a stoic attitude of aversion to the Council as would find expression in "Oh, bother the County Council and all its works," and who smell a Municipal "Palace" in every suggested increase of the Council's executive accommodation. This judicious picking of terms no doubt contributed to the disaster of the occasion, for the action of the House of Commons in over-ruling the expert testimony which the Council brought to substantiate and palliate its claim, implies a want of confidence—nay, an actual disbelief in the Council's sincerity and good faith. This may well be attributed to youthful transgressions of the Council in the past; but however ready the House of Commons might have been to accept the statements of Mr. Whitmore and Sir John Lubbock, the violent affirmations of Mr. John Burns would alone, and at once, have awakened its suspicion and distrust. The plausibility of any motion that should call for

acquisition of the site, reducible to £500,000 by the letting of the ground floor of the proposed building, for which he allowed £500,000, leaves the whole cost of the complete scheme at £1,000,000 sterling. It has, however, transpired that no plans have actually been prepared, and no details of the building settled, so that the Architect's estimate of the cost of the building is a loose and widely conjectural estimate. Further, it is exceedingly doubtful whether the site, which measures 84,000ft., would be covered by a building of the character suggested for £500,000. The site is remarkable for the length of its street frontage; and the present building consists among others of an important bank and assurance and steamship offices. Mr. Bartley stated confidently that the projected building would cost the Council at least £2,000,000, while Sir Blundel Maple said it could not amount to less than £2,500,000, at completion, and these figures were not challenged by subsequent speakers. This site, too, on the angle

dignified *Hotel de Ville*, above the orthodox plate-glass of haberdashers, tourist agents, and gas engine depôts, and yet escape perpetrating an own twin brother to the Grand Hotel over the way, is a task quite beyond the powers of the human Architect as revealed to us by history and personal experience. Mr. John Burns, on the occasion of this same debate, in picking objections to the various other sites at the disposal of the Council, referred to a particular site on the Embankment as not affording such a sound foundation as would assure a building capable of lasting two or three hundred years. This must seem palpable nonsense when we consider that it is the Embankment and St. James's Park (where the subsoil is equally treacherous) that are remarkable for the loftiest, costliest, and most important buildings in London. Surely the Hotel Cecil and the Houses of Parliament answer this objection. It is the ordinary, and not an extraordinary thing as Mr. Burns seems to think, to raise buildings in these localities on a raft, and a thick bed of



concrete over the whole site is the most usual way of constructing it. It is also to be noticed that the County Council has but lately sprung into existence, and that it is developing and modifying with each year. To raise a costly building for the use of an executive body which, in its present constitution, may prove but ephemeral of our present day, is premature, and indeed unjustifiable. Even now there is a strong tendency to reorganisation and decentralisation of the Council, and a devolution of its powers to local authorities. Until it may be seen how far these developments will proceed, and to what they will ultimately lead, the Bill should lie in abeyance. There is, we think, a practical reason for such an action. In the course of some few years a wide street is to be made in the neighbourhood of the Strand. On that occasion the Council will have an opportunity of acquiring cheaply a selected site that will afford it an unfettered plan, and possibilities of dignified Architectural treatment of the elevations of its "county buildings." Let the London County Council continue with its makeshift as heretofore, until its exact powers and functions are definitely settled, and this opportunity for a site arises.

### NOTICE.

#### The Architectural Review Academy Number.

THE EDITOR OF THE ARCHITECTURAL REVIEW will be glad to receive drawings intended for the Royal Academy for publication in the Academy Number. Drawings should reach this office at the earliest moment, with a notification as to whether they are to be returned to owners or sent direct to Burlington House.

#### HERALDRY IN ENGLISH MEDIAEVAL ARCHITECTURE.\*

W. H. ST. JOHN HOPE.

MR. ST. JOHN HOPE said he should confine himself to the historical period beginning with the accession of Henry III. in 1216, and ending with the death of Henry VIII. in 1547. The applications of heraldry to Architecture in this period were so numerous that it was not easy to deal with them in any degree of connection. Arms, badges, crests, and supporters were freely used in every conceivable way, and on every reasonable place. Whether the building were ecclesiastical, domestic, or secular was immaterial: there was no difference in the treatment of the heraldry nor limitation of its use. The earliest applications of armorial insignia were purely of a personal character, to distinguish a man from his fellows when all were alike disguised in their war harness. These insignia usually took the form of a device painted upon the wearer's shield or attached to his headpiece. Heraldry, consequently, is met with first in buildings in the form of painted or sculptured shields on the

#### MONUMENTAL EFFIGIES OF DEPARTED WARRIORS.

The value of armorial shields as a mode of picture-writing soon suggested itself when heraldry became a science, and the association of them with Architecture formed at once a beautiful form of decoration and a speaking historical record. The wall arcades of the nave aisles, and the tombs of Queen Eleanor and William de Valence, in the Abbey Church of Westminster, furnish the earliest and most charming examples of this combination. Another admirable thirteenth century example is the gatehouse of Kirkham Priory, Yorkshire. In the new nave of York Minster, of about the same period, various benefactors to the

Church are commemorated, after the Westminster fashion, by their shields of arms, thirty-two in all, sculptured, two to a bay, in the spandrels of the pier arches. A somewhat similar arrangement occurs at St. Albans in the beautiful decorated bays of the nave, built after the partial fall of the south side in 1323. In the North of England there were numerous fourteenth century buildings showing heraldic decoration with the Architecture—for instance, Bothal Castle, Alnwick Castle, Hilton Castle, Co. Durham, Lumley Castle, the Lion Tower at Warkworth, and Micklegate Bar, York. The presbytery and quire of York Minster contain in the spandrels of the pier arches a series of sculptured shields similar to those in the nave, and the great arches of the central lantern tower are also adorned with large and fine examples of the sculptured shields of arms of the builders and others. Taken as a whole, the fourteenth century, except perhaps in Yorkshire, was not very prolific in buildings decorated with heraldry; but it produced

#### A MAGNIFICENT SERIES OF MONUMENTS,

many of so elaborate a character as to form distinct features of the Churches wherein they stand. The more notable examples were enumerated and illustrated by the author of the paper. The so-called Perpendicular Style was very prolific in heraldic ornament and decoration, which was especially seen in East Anglia, where almost every large Church of the period is lavishly decorated with heraldry. Several examples were described. Fine displays of heraldry existed in many of the ornate fireplaces of the fifteenth century, notably at Tattershall, in Lincolnshire, and the bishop's palace at Exeter. The fifteenth century, like the fourteenth, was rich in heraldic monuments, and brought into fashion those beautiful stone structures that combine the monument with the chantry chapel, of which examples exist at Tewkesbury, St. Albans, Salisbury, Winchester, and elsewhere; one of the finest in design, as it is most remarkable in construction, being the bridge-like structure in Westminster Abbey Church, in memory of Henry V., whose tomb stands beneath it. Much of the Architectural heraldry of the first part of the sixteenth century is simply a continuation of that which preceded it. In large and costly buildings, however, the increased richness of the Architecture was accompanied by a corresponding

#### OUTBURST OF HERALDIC DISPLAY,

as in Henry VII.'s Chapel at Westminster (in particular the bronze doors); King's College Chapel, Cambridge; St. George's Chapel, Windsor; and Hampton Court. Selecting a few typical Architectural features, such as spandrels, bosses of vaults, &c., Mr. Hope proceeded to show the influence the introduction of heraldry had had upon their ultimate development, citing numerous existing examples. In conclusion, the author discussed, by the light of mediæval examples, the artistic treatment of heraldry in its application to Architecture—shields, crests, supporters, and various other features being dealt with in detail. The lecture was illustrated by a large number of lantern slides and coloured photographs of stall-plates of Knights of the Order of the Garter in St. George's Chapel at Windsor. The discussion was unusually brief. It was opened by Mr. J. A. Gotch, who, in proposing a vote of thanks to Mr. Hope, confessed that the latter-day examples of heraldry which had been presented on the screen pleased him more than those of earlier times, although the latter were of course the purest. Coarseness, and an ill-arrangement of scale were noticeable in detail in one or two examples, and such slight defects they welcomed with pleasure, for they encouraged rather than discouraged latter-day disciples. The series of examples which Mr. Hope had brought forward emphasised one thing—the advantage of studying heraldry in the round as well as in the flat, for by having to model a shield and not merely to draw it, they became better acquainted with its construction and how the various things which the shield bore were logically placed one in another. But apart

altogether from etherial and artistic considerations, heraldry was most valuable on account of the amount of light it threw upon history. Often the only clue one had of the history of a building laid in the shields with which the building was adorned, and heraldry therefore appealed to Architects with especial force.—Mr. J. J. Stevenson seconded the vote of thanks, and maintained that heraldry was merely a picturesque way of writing one's name on buildings; it belonged to the same order of things as public-house signs, which were meant as intelligent tokens to those who were unable to read. He believed that heraldic devices ought to be adhered to by those who had the right to use a crest, and he further believed that it ought to be a modern, practical thing.—Mr. Hugh Stannus thought it was a matter of duty on the part of the descendant of an old family to adhere to the heraldic device of the family, and as to the modern objection on the ground of the disuse of the helmet now-a-days, why the whole thing was merely a conventional method of stating a fact, and if they put the arms on a shield, he saw no reason why they should not put a crest on a helmet. They could look at this subject from two points of view. Firstly, heraldry was intended to tell a story as to who the person was who lived in a house or who the builder of that house was; secondly they could consider heraldry as a decoration. There were certain decorative principles involved, and although they wanted to tell a story, they wanted to do it in an artistic manner. Therefore it seemed to him that heraldry now-a-days, in connection with Architecture, was subject to the same law as Architecture, and required that a shield should have some sense of surface, and so forth. He regretted to hear Mr. Gotch descry modern heraldry, for he (the speaker) believed Mr. John Clayton, Mr. T. R. Smith, and a few others had produced heraldic devices quite as fine as those of earlier times, though it was, of course, from these earlier examples that they had taken their keynote. Nevertheless, if they studied these old examples they might hope to emulate, if not to equal them.—Mr. J. D. Grace remarked that the examples shown by Mr. Hope exhibited a very thorough knowledge of the general principles of heraldry, and of the meaning of the various insignia. Freedom was a very dangerous thing to adopt by those who had not gone through the mill; they saw it exemplified in Art every day, and it was for them to guard against such a fault. The speaker proceeded to favour modern heraldry, and made reference to a very fine example to be found in the Houses of Parliament.—Mr. Aston Webb (who occupied the chair in the absence of Professor G. Aitchison, A.R.A.) said they as Architects were fully alive to the question of heraldry in conjunction with their own Art, and they recognised very fully that the poetry and history of our buildings must always, in points of detail at any rate, largely depend upon the way in which heraldic devices were introduced. They recognised the value of the panel over the gateway of the small almshouses just as well as they recognised the magnificent result in the great castle or Church, and he was happy to think they could point to several very fine modern examples.—The vote of thanks to Mr. Hope was cordially carried and briefly acknowledged.

At Keighley the Board of Guardians are considering the necessity of providing a new Workhouse.

THE St. Olave Board of Guardians has decided to purchase the land and premises known as Slaygrove Farm, Ladywell, consisting of nearly 35 acres, as a site for a new workhouse, the cost of which is estimated at £180,000.

EXTENSIVEREDECORATING work has been carried on at Windsor Castle, both in the private apartments, and in the "State" portion of the Palace, for every available room will be required this summer for the accommodation of Imperial and Royal guests and their suites. The work will be completed while the Queen is abroad.

\* A paper read on Monday night at the R.I.B.A.



## Perspective in Every-Day Practice.

By WM. N. CUMMING, A.R.I.B.A.

### PART II.—“DOUBLE VANISH INTERIOR PERSPECTIVE.”

THE term “Double Vanish Interior Perspective” may be a little misleading, as it might imply that the method of dealing with an interior (which I am about to describe) is limited to the use of but two vanishing points, but it seemed the only way by which I could distinguish between two methods of treatment, viz., parallel perspective having one main vanishing point, and that other method in which we have two. Accidental vanishing points may occur in both cases, and I do not wish the student to be misled, and to imagine that in the one case

be in with regard to the object and station point, or point of sight, and if it is desired that we should work to the scale of 4ft. to one inch, the plan must be drawn to that scale, and all heights on the height lines laid down to the same scale.

In Fig. 2 will be seen the method of putting the box into perspective, showing the various height lines, position of vanishing points, &c., and it will be noted that this method gives a more living representation of the interior of the box than the same object drawn in parallel perspective. The plan is to the scale of 8ft. to one inch.

Fig. 3 shows the box with the picture plane placed behind the object in order to increase the size of the picture, and also serves to illustrate the use of the height line more clearly, and also the fact that the heights are set up on these lines to the same scale as that of Fig. 2, though the position of the picture plane is altered, the increased size of the picture being gained by the heights being

as the student will now be in a position to follow the diagram with ease, but I would like to draw his attention to the height lines for the various points in the picture, as I have found where it is necessary to vanish up from the height line to its respective perpendicular that one is apt to get a little confused as to which vanishing point the height should be carried. To make this clear, take the height line H L in the figure, this is the height line for the right-hand side of the room, and the position of the perpendicular for the end corner of the room is found at E on the picture plane. Mark off the height of this corner of the room and vanish up from V P I and you get the height of this corner; but it is also possible to get the height of this corner by using the other vanishing point; in this case, however, it is necessary to use a different height line, namely, that at H L 2 and proceed as before. It will help the student considerably if he keeps in mind that as a general rule all lines that tend to cross the line of direction are vanished to the distant vanishing point, and all lines tending in the same direction as the line of direction to the nearer vanishing point.

We have now got so far in our course of instruction that further progress can only be made by multiplying examples, which, though apparently presenting new difficulties in reality, only require repetition of the same processes with which we are now familiar, and as space will not permit of my giving the many examples that occur to me, I must leave the student to create them for himself. One thing, however, I would caution the student against, and that is proceeding with a perspective in what I would call a slipshod manner; everything depends upon method, and no time will be gained by rushing through any part of the drawing. Spare no pains in a careful delineation of the plan, as any little inaccuracy that may occur on plan will be magnified to a great extent when the perspective view is being set up. Also, when dealing with one portion of the design, take care that your height line for this part is denoted by some special mark on the picture, because you will find that as the perspective proceeds the lines will become multiplied, and frequently two height lines may approach each other so closely that a mistake is very easily made, and once made, is very difficult to rectify. So much so is this the case that I have seen it to be necessary to redraw the greater part of a perspective view in order to regain a hold on the particular height lines for the portion with which one is dealing.

It will be found that in interior perspective, both parallel and double vanish, that one of the vanishing points is invariably somewhere near the centre of the picture; care should be

everything must be vanished to the one vanishing point, and in the other case to either of the two vanishing points.

“Double Vanish Interior Perspective” differs from “Parallel Interior Perspective” principally in respect to the position of the picture plane and line of direction, the one of course being dependent upon the other, i.e., at right angles to the other, as we have seen. A, Fig. 1, is the object assumed to be a box with the nearest end removed as in Part I. of this article, P P the picture plane, P S the point of sight, D L line of direction, and C V centre of vision. The vanishing points are found as in exterior perspective by lines drawn parallel to the sides of the box, cutting the picture plane in the points V P 1, V P 2. It will be noted that neither of these points coincide with the centre of vision, thus differing from parallel perspective in which the vanishing point and centre of vision are one and the same thing. The position of the point of sight must be such that the extreme visual rays drawn from the picture to the point of sight do not make a greater angle than 30deg. with the line of direction; this is very important, as the distortion may be greater in double vanish perspective, should this limit be exceeded, than in parallel perspective. As a rule it will be found that the one vanishing point is at a much greater distance than the other, so much so indeed that it will almost be necessary in every case to employ the centrolineal or guiding lath for lines vanishing to this point. It will be necessary to employ height lines for both sides of the object, as it is evident from the position of the picture plane that we cannot put up a section of the object as we did in parallel perspective, thus losing one of the advantages accruing to that method of treatment of the subject, but we can, with care in using the proper height lines, produce a perspective with almost as great accuracy. Also it will not be possible for us to increase the scale of the picture so that we can apply that increased scale to the required heights, unless the plan is drawn to the large scale; for instance, assuming that our plan is drawn to the scale of 8ft. to one inch, we must adhere to this scale in working off our heights on the several height lines, whatever position the picture plane may

vanished up from instead of down to the several perpendiculars to which they refer. The one objection to this is that as the heights are all drawn to the scale of 8ft. to lin., greater accuracy is required in laying down these heights on the paper, especially if one is dealing with minute detail, such as the members of a cornice, and I believe it to be better, where possible, to draw the plan to the enlarged scale, and placing the picture plane between the object and eye to vanish down, as in so doing one ensures greater accuracy.

Fig. 4 is an example similar to that given in the first part of this article, viz., a small hall, and I have drawn the plan and section to the scale of 8ft. to lin., placing the picture plane behind the object in order that the

student may be able to follow the application of the various height lines, &c. It will not be necessary for me to explain the preliminary processes, such as finding vanishing points, &c.,

taken that this does not become a large and unsightly hole caused by, for instance, a loose or springy needle or pin being used for this point. I would, therefore, advise that a needle

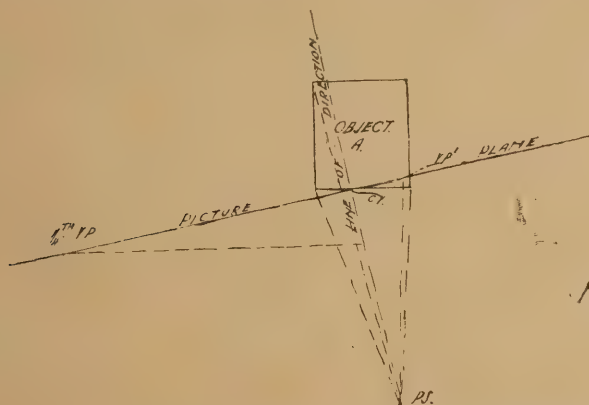


FIGURE 1.

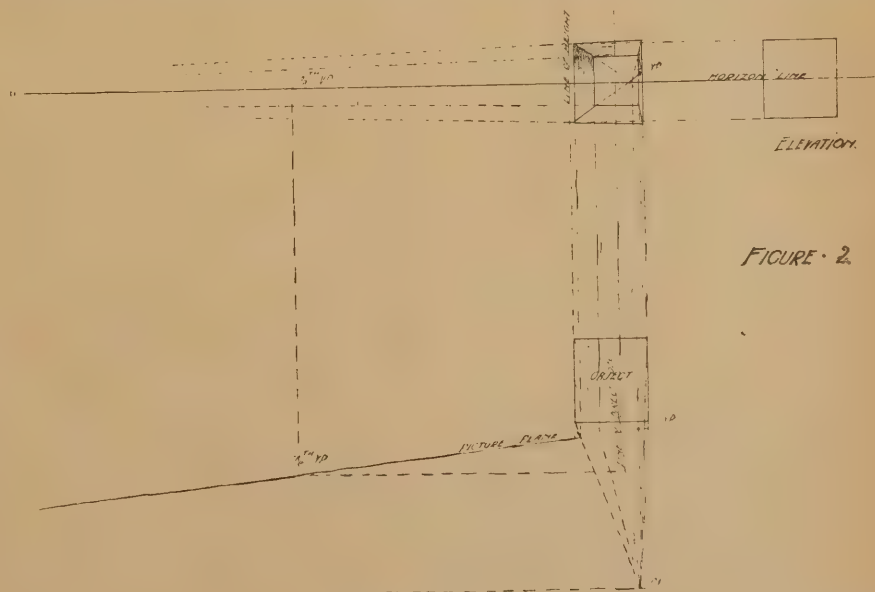


FIGURE 2.



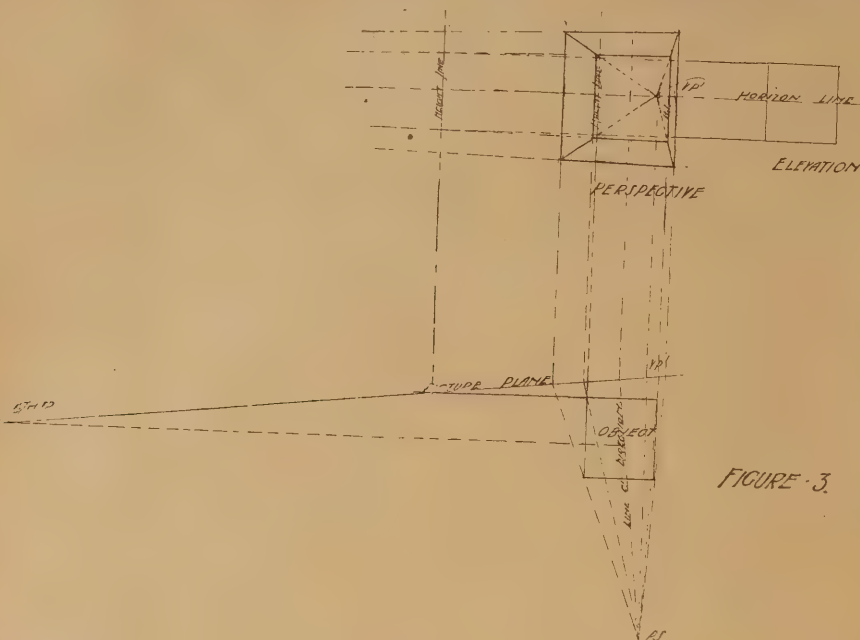


FIGURE 3.

## FRENCH FEUDAL CASTLES.

of medium thickness be used, and that it be driven well down into the board, so that the head projects only sufficient distance to allow of the straight edge catching against it; this will prevent wobbling and also enlargement of the hole, and when the perspective is complete may be withdrawn, leaving but little trace of its existence, any mark left being easily removed by turning the drawing on its face and rubbing the back of the prick hole with the finger nail or some hard instrument such as an ivory sector, this will restore the disturbed tissue of the paper, and the small hole made by the needle will be found to be almost invisible.

Once the student has grasped a knowledge of Theoretical Perspective, he will find that it assists him materially in many branches of the Profession. Difficulties frequently occur when sketching a building due to the tendency to shift the position of the eye in order to see the detail of certain portions of the building more clearly, and a knowledge of the laws that govern perspective will enable the student to automatically direct the perspective of the several portions of the building at which he is looking, thus producing a perspective sketch of the building having the vanishing lines of its various features in harmony. It will also help the student to better understand Design and Construction, enabling him to imagine his work in perspective and also to sketch with ease any portion of his design or construction which may not be clear in the geometrical drawing.

Before closing this article, I would urge the student to first master the general principles of perspective, and, having done so, to devote his attention to the Artistic treatment of the subject, not only for his own edification, but also that a well-drawn perspective goes far towards inducing one's client to be more liberal in his expenditure on the work with which he entrusts his Architect, and that many a good job has been gained by a well-executed perspective of a design catching the eye of a prospective client on the walls of the Academy.

In conclusion, I have not touched on the projection of shadows and reflections in perspective much used by French Architects in the delineation of their buildings, and must leave the treatment of this subject to some future occasion, as I feel that it were better that the student should digest what I have already written before he plunges into the intricacies of sinography, &c.

I hope that the few simple rules that I have given may tend to interest the student and encourage him to further study, and that I have helped to dispel the idea that the study of perspective demands a supernatural amount of brain-power in order to master its intricacies, as one would be led to suppose by the majority of works on the subject.

That of Etampes is in the form of a quatre-foil, Provins is octagonal, Chateau Gaillard and La Roche Guyon are pear-shaped, Beaucaille is triangular, Issoudun semi-circular, while Bonaguil takes the curious, and, as far as we know, unique, shape of a ship or a flat-iron. The most usual form of the early feudal keeps was rectangular, and it was not till the reign of Phillip Augustus, at the end of the twelfth and beginning of the thirteenth centuries, that, as the corners lent themselves too readily to the operations of the sapper and miner, the round form was adopted in preference. The donjon of Beaugency, which is rectangular in shape, dates from the eleventh century, and at the period of its erection must have been intended more for passive than active defence. At Beaugency a

## NOTABLE FEATURE

is a series of strong pilaster-like buttresses running up the face of the walls of the keep. Somewhat similar buttresses exist at Rochester, which in other points presents a considerable resemblance to Beaugency. The interior of the latter is now a mere shell, but the arrangements were probably the same as those of similar edifices of the period of its construction. The entrance was at the level of the first floor, and access to it was got by a ladder or by a small drawbridge communicating with a wooden staircase which could be destroyed in time of war. The interior would be divided by a partition wall which would either be carried up the whole height of the tower with openings at the level of the different floors, as at Rochester, or would be built solid and not taken higher than the second story, as in the Chateau d'Arques near Dieppe. The object of the latter device was,

ACCORDING TO M. VIOLLET-LE-DUC,

to constitute a double system of defence, so that if an entrance was forced into the lower part of either side of the donjon, and the occupants driven up into the third floor, they

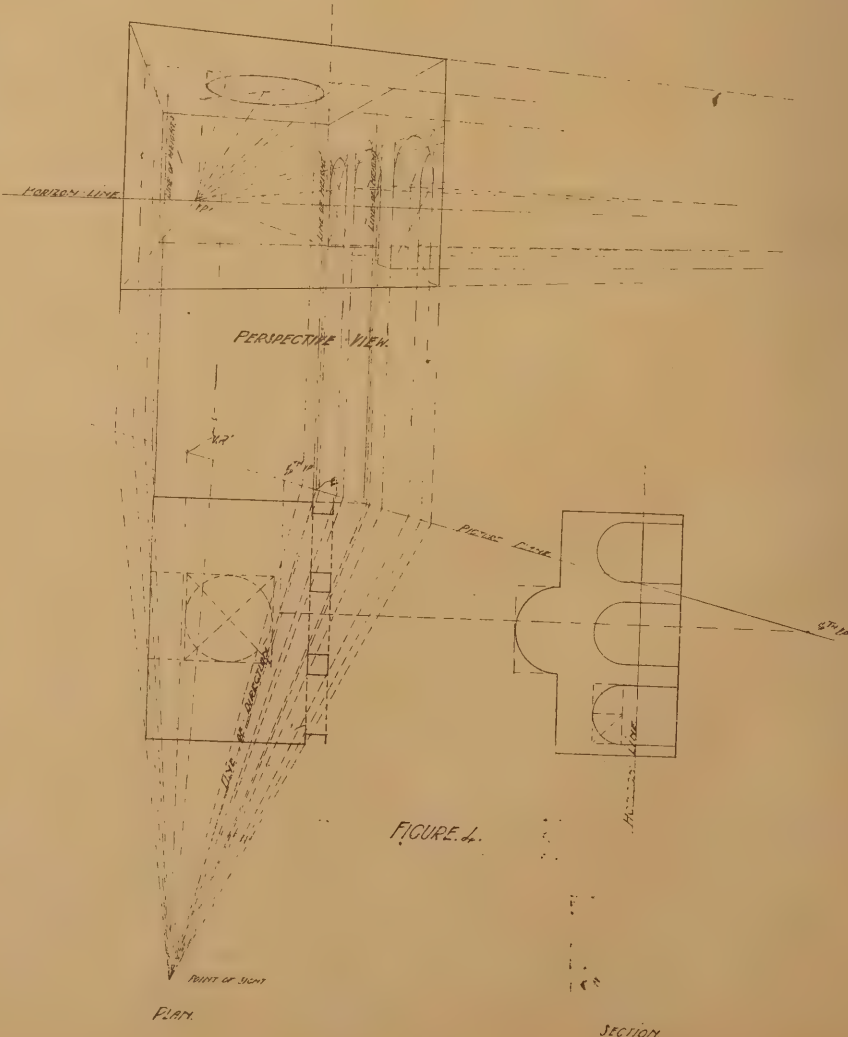


FIGURE 4.



could be supported by the other portions of the garrison coming to their aid, and by means of this reinforcement drive back the assailants as they struggled through the narrow passages. The large mullioned window openings are insertions dating from the sixteenth century, but a few of the original narrow Norman windows remain. The keep of Beaugency is sadly fallen from its former high estate, and is now used as a store for firewood, access to it being obtained by a doorway cut through the wall of the ground story. Closely adjacent are the buildings of a later Chateau, erected about 1440 by the famous Dunois. These are

#### GOOD EXAMPLES

of French fifteenth century Architecture. The later Chateau was frequently the residence of Royal personages, and was also for a time occupied by Henriette d'Entragues, one of the mistresses of Henry IV. At present the buildings are used as a *depot de mendicité*. The Architectural interest of Beaugency does not, however, end with the Chateau. In the immediate vicinity of the latter is the fine

its exterior, extremely plain and simple, its most notable features being the west and south porches. As you enter the Church by the western doorway, you cannot fail to be struck by the grandeur of the edifice, which is in the form of a patriarchal cross—that is, it has a double transept, a feature which, though not uncommon among our neighbours south of the Tweed, is almost unknown in France. The Abbey Church of Cluny, now destroyed, possessed two transepts, but, except St. Benoit, no French Church is so provided.

A SERIOUS fire recently occurred at the Cathedral of Verona. A number of sacred relics and several pictures were destroyed. The damage is estimated at about 15,000 francs.

The statue of Alexandre Dumas is to be erected in Paris on the square near that of his father. The statue of another Dumas, that of the brave General of that name, is to be added, and the open space will be named Place des Trois Dumas.

#### KEYSTONES.

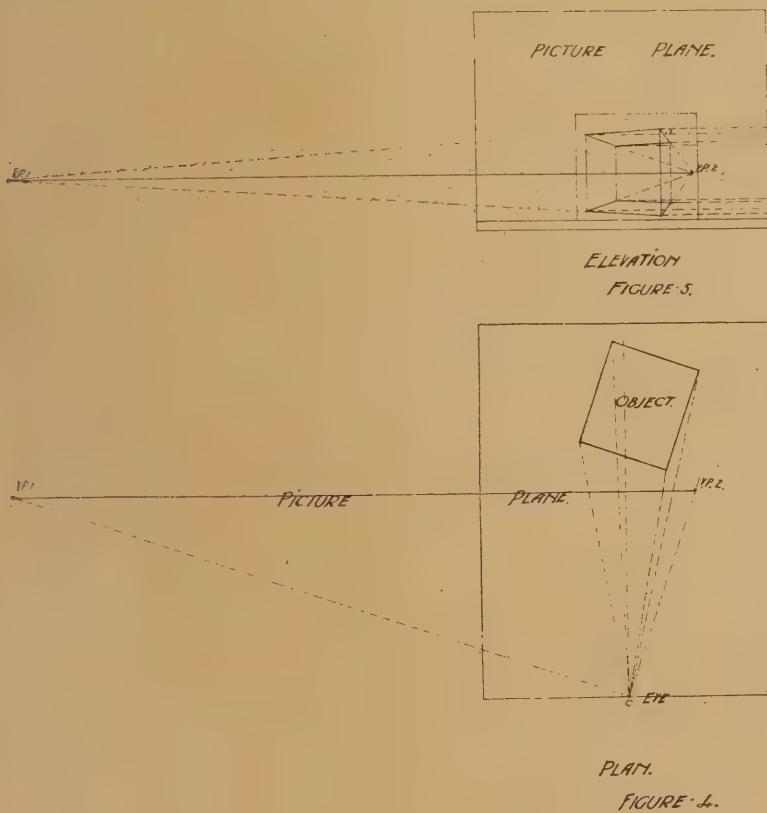
ABOUT 2000 houses have been destroyed by fire at Manila.

It has been found necessary to enlarge the National Schools at East Cowes at an estimated cost of £1500.

SUBSCRIPTIONS are being collected from old Etonian members of Parliament for a bust of Mr. Gladstone to be placed in the Upper School.

THE Theological College of the Presbyterian Church of England has arranged to lay the foundation stone of the buildings at Cambridge in May, to which, when completed, the College will be removed from the present premises in Bloomsbury, held on lease from the Foundling Hospital.

THE Governors of the proposed new technical school for girls at Shrewsbury have had before them an offer made by the Corporation of Shrewsbury for the sale of a site for the school of ten acres for £900. The new school is estimated to cost altogether between £6000 and £7000.



Church of Notre Dame, dating from the eleventh century, the interior of which has been spoiled by being daubed with wretched modern frescoes. It was formerly abbatial, and was burned by the Huguenots in 1567. The only other remains of the Abbey are part of the buildings of the *hospitium* and a round tower on the river bank. The curious Church of St. Etienne, built in the tenth century with a

#### TOTAL ABSENCE OF ORNAMENTATION,

and consisting of a long, narrow, aisleless nave, an apsidal choir, and a transept surrounded by a square tower, is now used as a municipal store. The Hotel de Ville dates from 1523, and is considered a *chef-d'œuvre* of elegance and harmony. The façade is profusely decorated, the mullioned windows having under them a row of sculptured panels, while over them is an ornamental balustrade. At the angles of the steep roof are *tourelles* with conical tops. In all probability the cost of the work was chiefly undertaken by the younger Dunois and his brother, the Cardinal de Longueville, and their arms appear over the doorway. The building is at present in course of restoration. The Church of St. Benoit-sur-Loire, the only remaining portion of the great Abbey of Fleury, is, in regard to

We are authorised to state that there is no foundation for the report which has lately appeared in certain newspapers that the London and North-Western Railway Company have purchased, or intend to buy, American steel, or steel rails, for use upon their line.

THE proposal to erect Corporation baths in Aberdeen at an estimated cost of £23,000 has been deferred. A considerable amount of opposition has been offered to the scheme, especially in view of the proposal to extend the bathing station at the sea beach.

PLANS for the new Post Office buildings to be erected in Dock View Road, Barry Dock, have been submitted to the Public Works Committee of the Barry District Council; and as they have now been altered so as to comply with the bye-laws, have been passed. Building operations will therefore commence immediately.

IN the matter of scaffolding, says a Paris correspondent, the Arc de Triomphe is likely to beat the record. A great portion of this which was taken down to do honour to the Tsar had been up for nearly eighty years. After six months' hesitation, the authorities have again begun to cover the beautiful groups Départ, Paix, and Triomphe, and the next century will probably see these poles and planks as fixtures.

MRS. WORTHINGTON has left her residence, Derwent Bank, Derby, to the Derbyshire Infirmary, for the purpose of a convalescent home. Should the Infirmary authorities deem the mansion unsuitable, they are empowered to sell it and benefit the institution to the amount of £10,000.

THE directors of the new line to London have decided to have their carriage works at Leicester and at Woodford, ten miles from Banbury. They have purchased 60 acres of land for the erection of locomotive sheds, sorting sidings, and other works, which are now in progress.

THE new block of offices adjoining the Westminster Palace Hotel in Tothill Street, Westminster, which is to be called Broad Sanctuary Chambers, is to be provided with an electric lift, to carry seven persons. The contract has been placed with Messrs. Easton, Anderson, and Goolden, Limited, London and Erith.

THE work of decoration at the Yarmouth Town Hall is completed. The plans were drawn in the Town Surveyor's offices, and the carrying out of the designs was entrusted to Mr. J. E. Dyson and Mr. J. T. Goffin, two local tradesmen. The whole scheme of the decorations has been worked out in shades of grey, terra-cotta, and cream, with gold enrichments.



## GREEK SCULPTURE AND GREEK LEGEND.\*

BY F. S. GRANGER.

(Continued from page 68.)

LET us proceed to note that the modern schools of Sculpture, which professedly derive from the antique, are separated from their originals by a similar interval. I do not mean to assert, of course, that such buildings and such sculpture cannot be of the first order without the use of colour, but I venture to maintain that they are parodies rather than imitations, if we view them with respect to their originals. We have no less an authority than that of Praxiteles, the sculptor of the Hermes of Olympia, for saying that Sculpture is benefited by

## THE APPLICATION OF COLOUR.

The recent discovery of the beautiful sarco-phagi at Sidon, with their beautiful colouring, has furnished us with a standard by which we may appreciate other works of Art. that have been less fortunate. "The colour thus applied," says Professor Gardner, "does not obscure the texture of the marble nor the delicacy of the moulding; on the contrary, it makes both more visible by giving a variety to the monotonous whiteness of the surface; it relieves the fatigue otherwise caused by the study of colourless form, and assists the eye to observe many subtleties of modelling which it might otherwise be unable to appreciate." I am quoting from the excellent handbook of Greek sculpture recently published by Macmillan. The author was, until recently, the director of the British School of Archaeology at Athens, and in that capacity has laid many English travellers to Athens under very deep obligations. I had the advantage of Mr. Gardner's company during one or two visits to the Acropolis, and I gladly avail myself of this opportunity of acknowledging my indebtedness. I am supposing that we have now passed by the great bronze statue of Athena, and that we have the Erechtheum on our left. While the modern Architect is struck by the irregular disposition of the building and the refined delicacy of its detail, the Athenian would think of the venerable image of the goddess, of her sacred olive tree, and of the salt water spring of the sea god.

## THE BEAUTIFUL FIGURES

of the southern porch have also a sacred office; they are really representative of the young girls who carried certain sacred baskets in the triumphal procession. Does it not seem as if they, too, were about to fall in with the company, as they stand there with one foot moving forward? If the maidens of the Erechtheum seem to be moving towards us, the figures on the frieze of the Parthenon are keeping pace with us. For between the columns of the Parthenon we catch continually fresh glimpses of a band of sculpture, the marble counterpart of the procession of the Athenian people for ever travelling towards the eastern door. The example is taken from the western frieze, and represents some of the Athenian cavalry. It is specially interesting for the beauty of one of the heads. This type seems to have been imitated widely upon contemporary coinage. But we must not stray very far into the by-paths that open on either side; the procession is still moving on towards the eastern entrance. In the centre of the eastern frieze the chief person in the Athenian hierarchy, the Archon Basileus, receives from a boy the new robe that has just been brought for the divine guardian of the city. When the spectator reached the eastern end of the temple he found overhanging him the great cavernous pediment in which the more than life-size sculpture stood out from the background with almost oppressive reality. Surely there, on the annual festival, as the horizontal rays lit up the sculpture in the early morning, it would seem as if the mysterious birth of Athena were happening. The crude realism of the vase

painting which we studied a short time since could not satisfy the great Artists who worked upon the Parthenon. Fortunately there is a relief, now in Madrid, which enables us to imagine with some likelihood what the central portion of the group must have been. We may suppose the Sculptor to have dwelt rather upon the mystical signification of the old legend; the coming forth of a spirit of wisdom from the mind of the supreme god, wisdom strong in the possession of spear and helmet and buckler—with the spirit of victory reaching forth the olive crown in the sure confidence that it would be earned. It would be difficult to exaggerate the influence which this vivid presentation of their patroness exercised upon the Athenian mind; even the most foolish of the Athenian orators must have been sobered, and the most stupid have had some glimmering of intellect, when from the assemblies of the citizens in the plain below they looked up to the Acropolis and thought of all that it meant. When Constantine in his new capital dedicated his great Church to the Holy Wisdom—Santa Sophia—the dedication was in striking harmony with the ideal embodied in Athena. If the influence of the goddess floated down from the Acropolis upon the city below, it found its concentrated expression in the great statue of Phidias. Of the statue itself

## EVERY TRACE HAS PERISHED,

and we must seek a substitute in the copies that have survived the wreck of the classical civilisation. Of these the most useful is the little statuette found near the Varvakeion Gymnasium in Athens, and named from the place of its discovery. "The statue," says Pausanias, who saw it in the second century of the Christian era, "is made of ivory and gold. In the middle of the helmet is a sphinx, and on either side there are griffins. The goddess stands erect, clad in a robe which reaches to her feet. On her breast is the head of Medusa wrought in ivory. With one hand she supports a victory of about four cubits in height, and in the other she holds a spear. A shield is placed against her feet, and near the spear is a dragon. On the pedestal the birth of Pandora is represented." The little statuette is concordant enough with the description of Pausanias to make us think it to be a fairly accurate representation of the general composition of Phidias' great work. There are still remaining traces of colour, of red and blue upon the sphinx, and of red upon the aegis. But the statuette falls far short of the style of the original. Let us correct it by reference to a head

## FOUND NEAR THE ACROPOLIS.

It is supposed to be copied from the work of Phidias. The eyes have been represented by a bony material inserted in the sockets, and the hollows of the pupils were once filled in with some gem or enamel. The hair was gilt, as we may see from some traces, and the head was covered with a helmet. I know scarcely any other object which enables the modern better to realise the vivid effect of Greek sculpture; its power "to bring the living features out of marble," a power so poetically figured in the legend of Pygmalion. With these introductions, let us enter the presence of the great statue as Fergusson, I think, has restored it. The details of the restoration are more or less open to question, and although I trust the drawing fails to do justice to our conception of the goddess, it may serve to concentrate the ideas with which we have been occupied. Let us sum up our conclusions. We began by observing that the Architectural surroundings of Greek sculpture were rendered much more vivid by the help of colour than modern Architecture designed in Greek styles would lead us to expect. We noticed, further, that the use of colour in sculpture must have produced an effect somewhat unfamiliar to our modern taste. These two considerations warned us against supposing that we have really fathomed all the

## MEANING OF GREEK ART.

We noticed also, that the real source of the Artistic unity of the works of Art upon the Acropolis was to be found in certain beliefs of

a religious character, beliefs which offer some striking points of resemblance to the mediæval beliefs which, in their turn, found a similar expression in Sculpture. Let us contrast these conditions with the conditions of the present. There now in England is no general and vivid imagination of sacred personages and events to which the Artist can appeal, or to which he can minister. I am not concerned to discuss whether such an imagination does or does not deserve cultivation. I am merely stating a fact which is of transcendent importance for the public interest in Sculpture. Secondly, and lastly, by foregoing the use of colour, the Architect and the Sculptor resign the most powerful charm at their disposal. I will ask you to think of the drab stonework, and the dull Sculpture of the British Museum façade, and, when you have done so, to agree with me that Greek Architecture and Greek Sculpture have never been really revived in England.

The discussion was opened by Professor Gardner, who wished to emphasize, even more than Dr. Granger had done, the loss we suffered through the absence of colour in our Sculpture and our Architecture. Of course they must remember that the conditions in England were very different from what they were in Greece, and he was afraid that if we were to build a Parthenon in London it would not at the end of ten years look at all like the one in Athens; the soot would obscure it. We had conceived the notion that colour was applied to obscure inferior material, but we should find in the Greek statues and temples that the colour was applied with the greatest moderation only to the smaller lines, and never in such a way as to obscure the whole front. We must, of course, admit that the Greeks had used colour to cover up the inferior buildings, but still he could not help thinking that the forms of classic Architecture would seem more living if we could only see them in the fulness of colour given to them by the Artist.—Mr. Grey Skipworth followed. Granting that colour was to be used in Architecture, what modification was to be made? How would we use colour in London? He had been very much struck by the want of something to relieve the dullness of London buildings, and he asked if it would not be possible to do something to improve the material and consequently the appearance of the numerous brick buildings in the Metropolis.—Mr. G. H. Fellowes Pryne thought the religious feeling which the Sculptors of Athens brought to bear upon their work, and evidence of which was also discernible in Mediæval Architecture, was deplorably deficient in modern Sculptors. Another lesson they could learn was that the Artist and draughtsman ought to be more in touch with the Architect, and the Architect more in touch with the Craftsman. They were "floundering in the dark" as regards London material, and until they found a material which would show off their decorative work, he was afraid no improvement would be brought about.—Mr. Banister Fletcher did not think we in England should ever see the introduction of colour on sculpture, and he really did not see the necessity for it. The use of coarse stone—necessary when colour was to be used—was one of the greatest drawbacks.—The Chairman wound up the discussion, remarking they all felt that it was impossible to conform to the condition that if Greek Art was to be imported into England it must be imported with its sculpture and its colour. In England there was no religious inspiration to lead us to concentrate our efforts upon great monuments, but at any rate there was some municipal inspiration, and he looked forward to the time when in England even second and third-rate towns would have a very fine building in which the history of the town was embodied.—A vote of thanks to Dr. Granger was carried, and briefly acknowledged.

PLANS have been passed for a new railway station at Lancaster to cost £50,000.

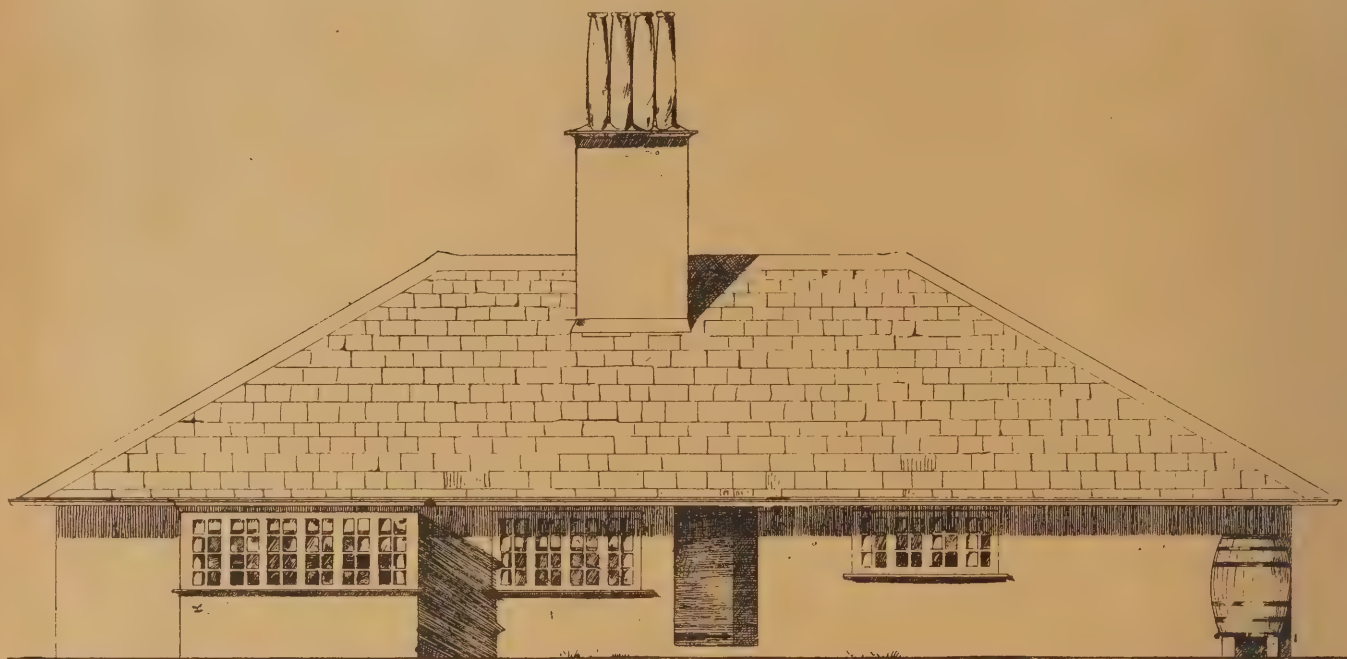
A SUM of £16,000 has been offered by the authorities of the New York Museum to an artisan in the Johnstone ironworks for an old painting in his possession, which has been found, on examination, to be a valuable Rubens.

\* A paper read at the Architectural Association on the 5th inst.

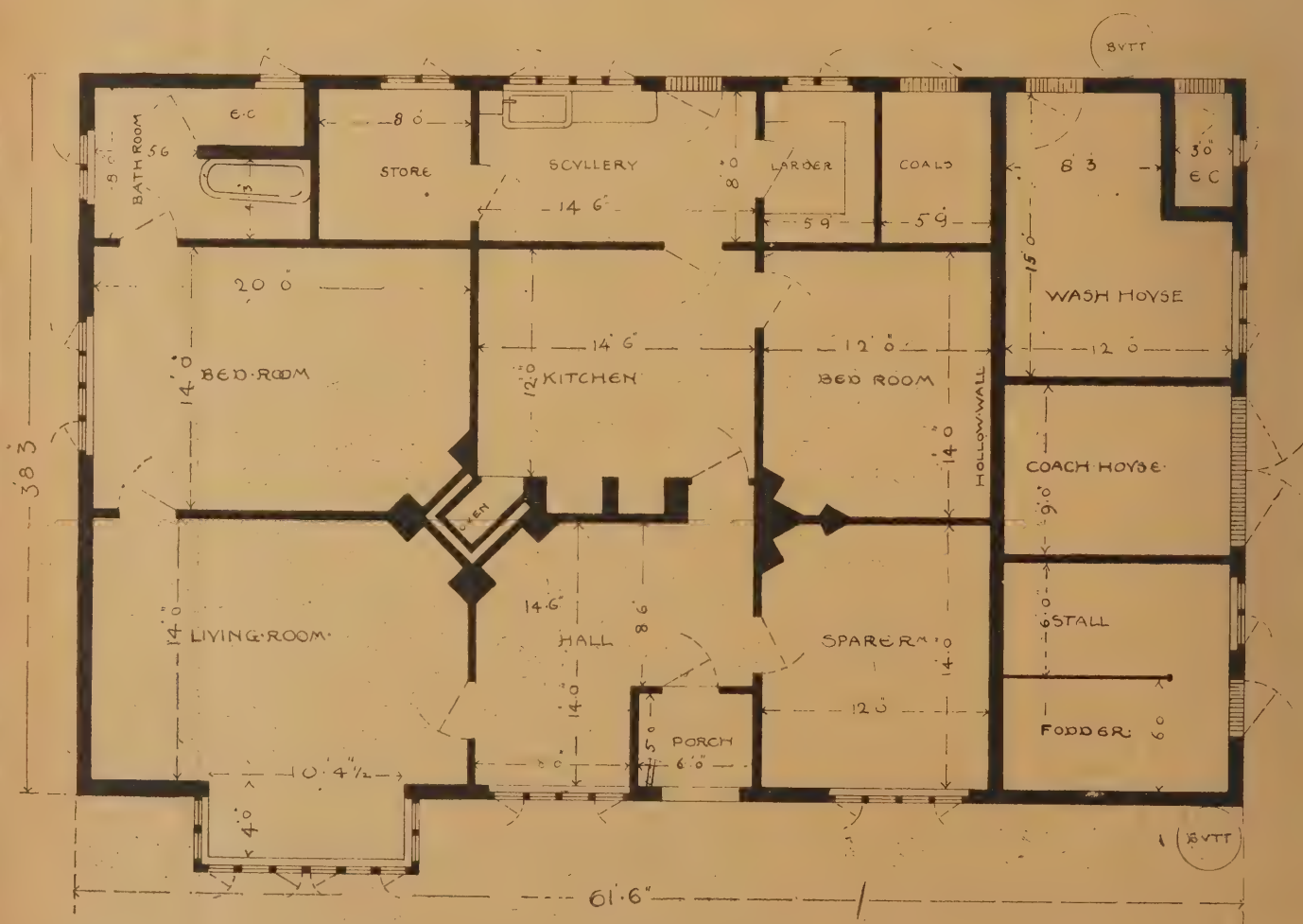


1884  
OF THE  
UNIVERSITY OF ALBERTA



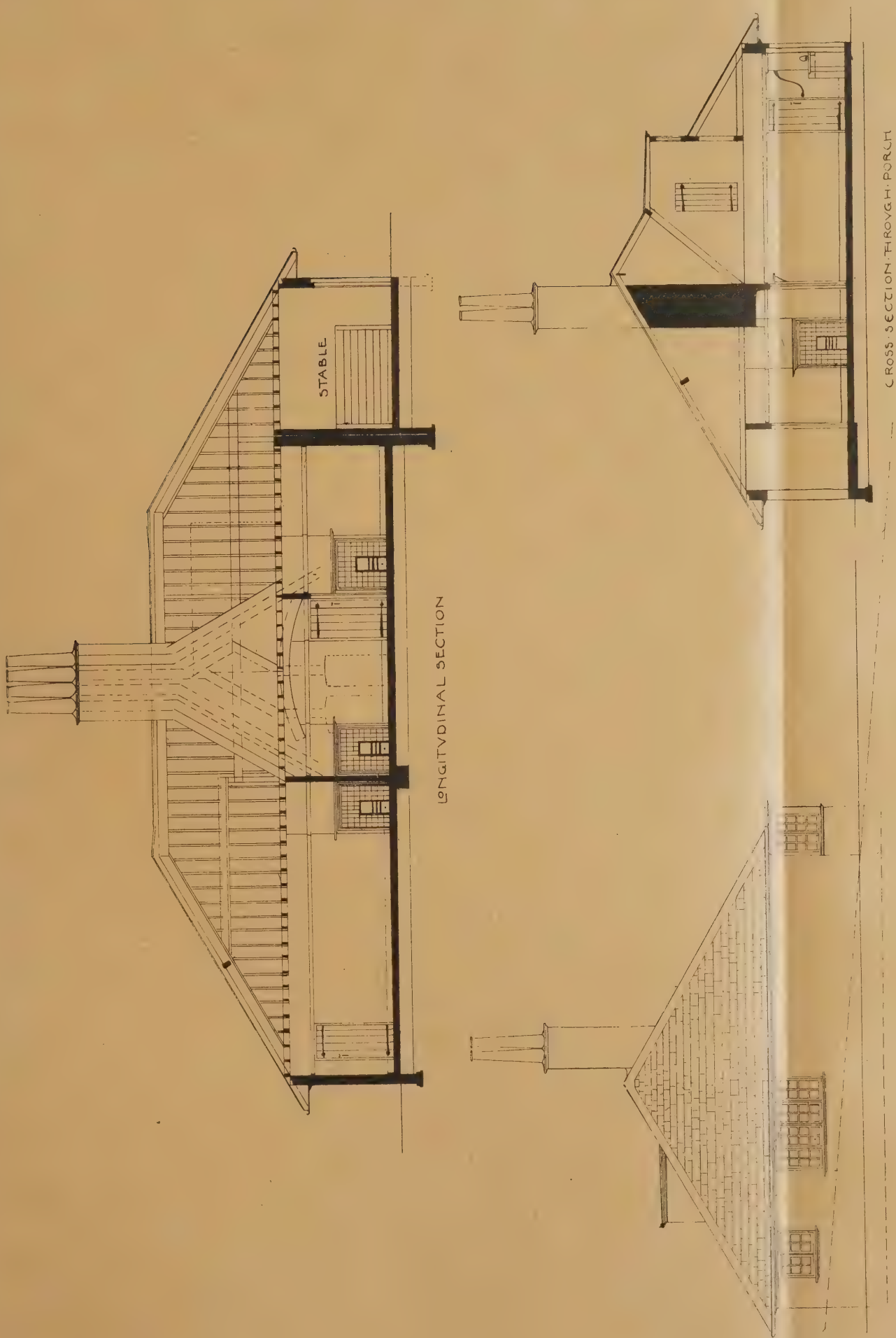


ELEVATION.



PLAN.





HOUSE IN HAMPSHIRE FOR MRS. SCOTT. C. F. A. VOYSEY, ARCHITECT.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## THE EDUCATIONAL TRAINING OF ARCHITECTS.\*

BY LEOPOLD EIDLITZ.

(Continued from page 70.)

MR. JOHN SLATER, before reading the paper, explained that he had been invited to undertake that task by the Vice-President. The paper was characteristically and essentially American. They knew the Americans were strictly utilitarian people, with rather a contempt for tradition and traditional usage; they adopted methods of their own with regard to building, and he was bound to say that with a good deal in the paper he could not personally agree. Mr. Eidlitz was an Architect practising in New York, and was the author of a book, published a short time ago, on the nature and functions of Art. But when an Architect asked people to throw over study of the work of the past as being of very little benefit to the student, he was afraid very few supporters would be found in this country. The main point in Mr. Eidlitz's paper was that form in Architecture was always to be in proper relation to the strains and weights which they had to carry. No doubt a great truth underlaid the paper, and, in the speaker's opinion, the present phase of American Architecture was due to the fact that the huge, lofty buildings in the States had iron supports—encased in stone in order to look like stone piers—which were not strong enough to carry them. He held that the supports of buildings ought to be proportional to the weights they had to carry, or they would derive no pleasure from the aspect of the building. But he was afraid that if they were to adopt as the text book of their Architectural studies or Architectural education the mere mechanical formula of the proportion of weights and strains, they would not clothe

## THE DRY BONES OF BUILDINGS

with any life at all.—The discussion which followed was opened by Mr. H. H. Statham, who, proposed the usual vote of thanks.—The vote of thanks was seconded by Mr. Emerson, the hon. sec., who read the following commentary by Mr. Arthur Cates, that member being absent:—"The educational training of Architects, with which the Institute is concerned, is clearly not one in which 'they shall be taught to know everything,' nor is it one the aim and object of which is to produce the evolution of 'a new style,' whatever that once much-used phrase may mean. The educational training which is now organised aims at fitting the student for the acquisition of the knowledge necessary for the satisfactory practice of his profession in developing his natural artistic and scientific ability, so that he may apply both to the expression of his ideas in design and in the realisation of his conceptions. In the complex conditions of the practice of the day, the Architect must aim at acquiring the power to attain success in designing buildings which shall be convenient and appropriate in arrangement; shall be of stable construction; and shall be of suitable and beautiful design, both as regards masses, form, and detail. The first studies of the aspirant should be devoted to a mastery of Classic and Mediæval work—intelligently studied, with a thorough acquaintance with form and detail—leaving the Renaissance and later developments to a subsequent period when he can bring to bear on their consideration the knowledge acquired in the first years of his studies. In both periods the sedulous cultivation of the Art of accurate and effective delineation, and of sketching detail and ornament from buildings and from memory, thus bringing eye and hand and brain into harmonious and mutual action, is of the highest importance. Concurrently with this, the study of the history of

## THE SEVERAL PERIODS OF ARCHITECTURAL ART

is of the greatest value, not as a mere matter of dates and names, but as giving life and

\* A paper written by Leopold Eidlitz, of New York, and—in his absence—read by Mr. John Slater at the Royal Institute of British Architects.

interest to the subjects studied, connecting them with the actual social life of the people by whom they were evolved, and with the political, social, and religious influences which controlled their design. The Institute has an excellent opportunity to afford encouragement to the study of the means of satisfying new wants, by the use of new materials and new methods of construction, and the more extended application of those materials with the existence of which we are familiar, but of whose capabilities in, perhaps, unexpected directions we have no appreciation. The Soane Medallion and its accompanying travelling studentship is in the free and uncontrolled disposition of the Institute. At present the only qualification of competitors is that they shall be 'British subjects under the age of thirty years,' with the result that there is each year a great amount of misdirected and wasted energy on the part of untrained competitors who have entered on Design before they have mastered the essential principles which should govern it. By altering the conditions to secure that these principles should have been mastered, and even by securing that the competitors should have had some reasonable training, by making Associateship or qualification there for an express condition, the results would certainly be more satisfactory, the cause of the educational training of Architects be greatly advanced, while some new developments of design arising out of the

## APPLICATION OF NEW MATERIALS

might possibly arise. The questions raised by 'The Text-book' suggestion were considered a short time ago from a different standpoint by the Committee of Education of the American Institute of Architects, and Professor W. R. Ware says in relation thereto—"The Committee on Education expressed the hope that if the study of the historic styles was systematized and co-ordinated in the schools, such an effective concentration of intelligent effort might aid in developing a system of Architectural form that should be nationally characteristic, and should be more accurately adjusted to the expression of modern American life than those now in vogue." All reasonable men must agree with the conclusions so well expressed by Professor Ware, and be content to await the development which must follow carefully conducted educational training, kept free from mere academic influences, and this Institute need not look further ahead than to continue steadfastly in the course already adopted, and thus eventually secure that all its members shall have had that thorough and systematic artistic, scientific, and practical training, based on

## A SOUND GENERAL EDUCATION,

which will ensure that the title of Architect and membership of the Institute shall imply that its possessor may reasonably be expected to be a reliable and trustworthy adviser on all Artistic and practical details, and also a well-educated man, standing at least on a level with the average of his clients in knowledge of all ordinary topics of Art and general history, and superior to them in his special and technical knowledge. An Architect will then, so far as personal characteristics may permit, in some degree combine the imagination of the artist, the intellectual clearness and precision of the mathematician, and the experience and readiness of the practical man with the culture and refinement of the educated gentleman."—The debate was continued by Mr. Woodward, who maintained that it was perfectly defensible for an Architect to take advantage of a cast-iron stanchion by encasing it in stone or other material.—The Chairman (Professor G. Aitchison, A.R.A.) said Mr. Eidlitz was the only person he had ever come across who had a due belief in the importance of Art to mankind. For this reason a great charm was added to Mr. Eidlitz's book, but he could not agree with him in all his ideas of Architecture. The theories and practice of Architecture could not be changed in a generation, or anything like it.

## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

March 17th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A CURIOUS anomaly in the law as to the provision of the means of egress from buildings is receiving the attention of the London County Council with a view to its rectification. Whereas theatres and factories fall within the purview of the Council, which is empowered to insist upon adequate facilities for escape being provided, Board schools enjoy exemption, and no one has authority to act in respect to those already built. The matter is to be brought to the notice of the Education Department with a view to powers being granted so that the Council may exercise the same jurisdiction that exists for other buildings.

ADDINGTON Park is to be sold, and the proceeds are to be put to more practical uses for the Primate and the Church. Part of the money will provide the Archbishop with a residence of modest dimensions at Canterbury, the rest will be devoted to Church work. Addington Park is one of those possessions of which thoughtless persons envy the Primate. The views are superb, and the huge mansion, built over a century ago by a London Alderman, and improved by Sydney Smith's "Howley," is a monument of old-fashioned comfort. The cost of maintenance is ruinous. This is but one of the country seats that eat up the revenues of the See to no purpose, and its abolition was urged at the late change of incumbency.

THE annual exhibition of the Water-Colour Society of Ireland opened on the 8th inst. in the Leinster Hall, Dublin. As compared with the display of last year, it is questionable if the present exhibition shows an all-round advance, but last year's drew together an exceptionally fine collection of studies, and a maintenance of the degree of merit then attained would be a sufficiently noteworthy result. A great many of the coast views exhibited this year have undeniable features of merit, and other odds and ends picked up from a variety of sources are wonderfully well executed. But there is, on the other hand, a good deal that is mediocre, and a large proportion of studies lacking in originality of conception.

WE understand that the object of the First Commissioner of Works in hanging the three historical paintings, which were formerly in the Members' old smoking-room at the House of Commons—now the third dining-room—in Committee Room 10 is in order that they may be fully inspected, with a view possibly to their removal to some picture gallery in London or the country. The larger of the three canvases, which is by G. F. Watts, R.A., measures 19ft. 11in. by 12ft. 2½in., and represents Alfred inciting the Britons to resist the Danes. The others are the "Pardon of Bertrand by Richard Cœur de Lion," by Cross, and "The Burial of Harold," from the brush of Mr. Pickersgill. They were all executed about fifty years ago, at the request of the Fine Arts Commission—of which the late



Prince Consort was chairman—for the decoration of the panels of the House. Since 1895 until the present time they have been stowed away, there being no space available in which they could be displayed to advantage.

GESSO work just now is attracting attention at various Art and Crafts exhibitions. Gesso is described by Mr. Mathew Webb, the best authority on the subject, as one of the minor byways of Art and a means of embellishment, touching, on one hand, painting decoratively combined with a treated surface, and, on the other, modelled relief decoratively combined with colour. In the surface work of Egyptian Sarcophagi traces of the use of gesso has been discovered, and it was combined with canvas for the purpose of embalming. From time immemorial it has been used as a priming to cover wood, as can be seen in many carved statuettes at South Kensington, and it was employed to give surface finish before colouring to stone carved effigies, as clearly shown by various effigies in Westminster Abbey and the Temple Church. The dry gesso work of the early Florentines was especially beautiful, and when engraved and gilded delightful effects were produced. Fra Angelico and Lippo di Dalmasio have left some lovely examples of this combination of gesso engraving and gilding. Another application was "brush modelled gesso," which was hardly suitable for design intended to cover any large area. Beautiful specimens of this kind are to be seen on Italian marriage coffers, of which there are many fine examples at South Kensington.

MR. ALEXANDER REID, the senior partner of the firm of A. and W. Reid and Willet, Architects, Elgin, recently died at Elgin, at the age of seventy-six. Deceased was a native of Lomnay, Aberdeenshire. It may be said that his sphere of work extended from the Deveron to the Ness, and even beyond. He had a good business connection with Banffshire, and, indeed, one of his first engagements as an inspector of works was in connection with the building of the Free Church of Banff soon after the Disruption. In Elgin he leaves several memorials of his work, amongst them being the new Academy. He planned most of the principal dwellings in Elgin, and also a considerable number in the county.

FOR some time past the public has been in possession of an offer of great importance to London. The Ecclesiastical Commissioners are the owners, in right of the see of London, of a large estate at Highgate. It was understood that Churchyard Bottom Wood should, if possible, be purchased, and the Commissioners, after consideration, fixed its price at £25,000. Anyone acquainted with Highgate, and aware of the rapidity with which new roads are being laid out and new houses springing up in that neighbourhood, will be of opinion that the sum asked is a moderate one, probably much less than the Commissioners would realize were they to throw the land into the market. It is certain that far higher sums have been paid for other open spaces acquired for the public in recent years—for Parliament Hill and the adjacent fields, for example, or for the Hilly Fields at Brockley. Circumstances have led to some delay in meeting the Commissioners' offer. But within the last six months a vigorous effort to raise the necessary money has been set on foot in the locality. The Urban District Council has voted £10,000 towards the sum required by the Ecclesiastical Commissioners, and has expressed its willingness to accept and take charge of the wood. The example thus wisely set has been emulated by a local committee, which, under the guidance of Mr. Cory Wright, has succeeded in raising between £2000 and £3000 by local subscriptions. There remains some £12,000 to be made up. To secure this sum a joint committee has been formed of the rural open space societies and the local organization, and appeals have been made to the County Councils of London and Middlesex, the Vestry of Islington, and other bodies and persons.

THE third lecture of the course on "Hellenic Architecture," by Mr. W. J. Anderson, A.R.I.B.A., was delivered on Wednesday, the 3rd inst., at the Glasgow School of Art, and aimed at presenting a view of the structural development of the archaic Doric style in Sicily and Magna Græcia. After a survey of the historical displacements which resulted in the settlement of the coasts of Southern Greece and Italy, Crete, and Sicily by Greek tribes under the influence of Dorian manners and religion, the growth of the Greek city was sketched from its citadel Acropolis to the temple-crowned hill of the succeeding period, surrounded by its agora, stoa theatre, gymnasium, &c. Attention was drawn to the evidences of enlightened design in the setting of the buildings, and the skilfully-prepared transition from the natural surroundings to the building itself, and the point was illustrated by views of Agrigento and its range of great temples. The Doric order was traced in its progress from the archaic reliefs of Selinus to the period following the Persian and Carthaginian wars, and photographs, details of restorations, shown of the temples of Paestum, Segesta, and the Heracon at Olympia. Summing up, the lecturer concluded that, although grandly proportioned and highly impressive, the Doric temple model was a work of Architecture only in the second rank, and there was nothing in these buildings quite comparable to the refinement, the freedom, and certainty of drawing which characterised the corresponding phase of Ionian Architecture. In place of this the Dorians supplied a ponderous and logical stone construction, naively expressive of its wooden origin, and forming a noble frame for figure sculpture, without which it was incomplete. The perfection of the following period in the Parthenon and Propylea was due largely to the fact that the model was adopted by the Ionians of Athens, who, apart from sculpture, combined it with Ionic features, and conferred upon it all the graces of drawing and refinements of line and proportion which distinguished the Ionian Art.

STREET decorations in London are seldom satisfactory. Venetian masts, a few flags that have borne the battle and the breeze for years, tawdry festoons of paper roses, and red drapery, with common-place mottoes, pretty nearly exhaust our resources in that direction, and the result is anything but satisfactory as a spectacle, or creditable judged from an artistic standpoint. A genuine effort is to be made to introduce something really worth seeing in connection with the Diamond Jubilee celebrations. Already a representative committee has been organised, and plans suggested by Artists of note are now being prepared with a view to the arrangement of a scheme worthy of the occasion.

THE naval authorities have recommended a scheme for the extension of the naval yard in Hong-Kong. Details of the scheme are not yet available, but a sum of between £250,000 and £300,000 will be spent by the Admiralty with a view to transforming the Hong-Kong establishment into a first-class naval base. The decision arrived at is in favour of a reconstructed naval establishment. To provide a site for this, the foreshore in the City of Victoria will be reclaimed for a distance of 600ft. into the harbour in front of the present military and naval enclosures. Certain objections by the Colonial authorities have been overcome, and a working arrangement arrived at between the naval and military authorities for the exchange of ground, whereby the naval yard will have the whole of the sea-frontage on what is undoubtedly the best site, regarding the matter from the strategical standpoint. The plans are in London, and the staff in Hong-Kong is awaiting orders to make a start with the work. Already a large quantity of valuable machinery has arrived, and it is stored away in readiness for the extension.

THE Bishop of London presided at the Paddington Vestry Hall, over a meeting in support of the movement for building a new Church and separating the parish of St. Simon

from those of St. Jude, Kensal Green, and St. John, Kilburn. According to a statement made, a suitable site, with a donation of £500, has been given by the Ecclesiastical Commissioners, and the Bishop of London's Fund guarantees £1400. The total promised amounts to £3700, leaving about £2000 more to be raised before the Architect's plans can be carried out.

THE highest bridge of any kind in the world is said to be the Leo River Viaduct on the Antofagasta Railway in Bolivia, South America. The place where this highest railway structure has been erected is over the Melo rapids in the Upper Andes, and is between the two sides of a canyon which is situated 10,000ft. from the level of the Pacific. From the surface of the stream to the level of the rails this celebrated bridge is exactly 636½ft. in height, the length of the principal span is 80ft., and the distance between the abutments is 802ft. The gauge of the road is 2ft. 6in., and the trains cross the bridge at a speed of 30 miles an hour.

THE great catalogue of Assyrian tablets preserved in the British Museum is now complete, and will afford students valuable material for the study, not only of the Assyrian language, but also the literature, sacred and profane, of Assyria and Babylonia. The catalogue, which was compiled by Dr. C. Bezold, gives measurements of every tablet and cylinder whether complete or only a mere fragment, and in many cases furnishes extracts in Assyrian of important portions of tablets. There is also a bibliography of the most important Assyriological publications up to date.

THE Rev. Canon Benham delivered the last lecture of the season at the London Institution, on "Cheapside." He began by describing the old Watling Street, which ran from the site of the Cannon Street station straight as an arrow to what is now Newgate Street, and then away on the line of the present London and North-Western Railway. At the top of what we call Cheapside was formerly a large open space, the meeting-place of the folk-mote. Then the lecturer spoke of St. Paul's, and afterwards of St. Martin-le-Grand. Each point was illustrated with limelight views. Cheapside, which meant literally "Market-place," held, it was pointed out, the same relation to the City as the market-places of our country towns hold still to those towns. Having given anecdotes of the Churches in Cheapside, and of the jousts and tournaments which had their place in the open space in front of St. Mary-le-Bow, a space which went back as far as Honey Lane Market, the lecturer turned his attention to the old cross which stood a few yards to the east of the churchyard of St. Peter's, Wood Street. He recalled many historic scenes which had gathered round this cross, and described its destruction by the Puritans on May 2nd, 1643.

At a recent meeting of the Belfast Literary Society, Mr. W. S. Johnson, M.A., gave a lecture on the "History of Architecture." In opening the meeting the chairman said they were often told that there was a great want of sympathy with the beautiful in Art in Great Britain, and more especially in the North of Ireland. He thought that view was rather exaggerated. With regard to poetry, the people of Great Britain had a bright and fertile vein of imagination, and as regarded Architecture, there was nothing more beautiful than some of their great English Cathedrals. Mr. Johnson, after defining Architecture, and indicating its place among the fine Arts, commenced with the Architecture of Greece, and showed York Street, May Street, and Donegall Square Churches as examples of the Doric, the Ionic, and the Corinthian styles, though none of these buildings are faultless. In the last-mentioned there are also Roman arches: then in Townsend Street there is good Romanesque work; also in St. Patrick's, Jordanstown; while in St. Thomas's and Carlisle Memorial are really fine specimens of early Gothic; in Fitzroy and Newtownbreda of geometrical and



decorated Gothic; and in All Souls' of perpendicular English Gothic. Elmwood is an example of a very original treatment of Italian Romanesque, while St. Ann's is almost the only Renaissance Church in Belfast. It is worthy of note that in 1844 this was the only Belfast Church which possessed a spire.

THE Building Trades' Exhibition at the Royal Agricultural Hall, which will extend over six days, opens on the 20th inst. The opening ceremony will take place at noon, and will be performed by the Lord Mayor (accompanied by the Sheriffs of London). The Architectural Association will pay a visit to the exhibition on the afternoon of the opening day, and amongst the other societies which have arranged an official visit are the Association of Medical and County Engineers on the 22nd, and the Builders' Mechanics Association of London on the 24th, whilst on the 23rd the annual meeting of the Institute of Clayworkers will take place, and on the 25th a Conference of House Painters and Decorators will be held. Architects' drawings are on exhibition, and other exhibits will include loans from the South Kensington Museum, the Corporation of London, the City Companies, etc.

A most interesting discovery has been made at Leap Castle. This beautiful old keep is in a state of preservation scarcely to be surpassed by any baronial residence in Ireland, and in extent and historic interest has few equals. The principal discovery was that of the existence of a fine old guard-room at the south-west angle of the hall. Its occupied space was previously regarded as a mass of solid masonry. It is built in the wall of the great tower, these walls being from eight feet to ten feet thick, and leads to a series of dungeons beneath, capable of holding from 500 to 600 people. The dungeons are hewn out of the solid rock on which the castle stands. In another part of the ancient structure, known as the Priests' House, a large number of human bones mixed with those of a dog were found, and some coins of the reign of Edward the Confessor in the first half of the eleventh century. These have a rare numismatic value from their great age and fine condition. Elsewhere coins of Elizabeth and Charles II., etc., were brought to light, but, though of interest, are less scarce than the Confessor's. This priests' house was formerly connected with the great tower by a drawbridge, traces of which can be seen, and the clerics in time of war took refuge in the keep. The house was occupied by O'Banan, Abbot of Roscrea, who died in 1128, and it is assumed that the Confessor's coins now found must have been deposited about that time where they were discovered, and have lain undisturbed for nearly eight centuries.

PROFESSOR BALDWIN BROWN, Edinburgh, lectured in Moffat on Italian painting a few days ago. He said that from the fresco painters of the fifteenth century, the Art of painting had progressed in Italy, until in the seventeenth century it had reached its culminating period. By that time the secret resources of Art in painting had been fully explored. Part of this work was accomplished in Italy, and part in Spain, Flanders, and Holland. The Artists had mastered the human form nude and draped in all its details, learning to draw the figures in all positions with grace, dramatic power, and sympathetic style. The effects of light and shade in all their strength and beauty had also been mastered, and the knowledge gained and impressions of distance depended on certain differences of light and shade. In the matter of colour the Artist had mastered the delicate interpenetration of colour which the fresco painters were unable to use in wall painting. The latter-day painters by the use of sympathetic colours gave a play or view with a more delicate and subtle effect than a fresco, while the process was more elaborate and capable of more variety in manipulation, and all sorts of refinement could be given to the subject. This was worked to perfection by the Venetian school.

Then in the seventeenth century the picture, formerly a wall decoration, acquired beauty and charm of its own, became independent, and the modern picture was perfected.

SPEAKING at the annual prize distribution in connection with the Art and Technical Schools and the Boys' and Girls' Modern Schools, branches of the Leeds Institute of Science, Art, and Literature, Mr. George C. Haité, R.B.A., who presided, said that he had had twenty-five years' experience as an Artist and a Designer. In directing students what to do, people often neglected to give information as to the means by which their advice should be followed. He would rather that Schools of Art had been called Schools of Technique. The most such a school as theirs could do was to give students that technical knowledge which would enable them to realise their own ideas and feelings. It was absurd to imagine that a school could make Artists. To do that was not within any one's power. A school could only produce skilled artisans. If natural talents were to be of the slightest avail, means of expression must be acquired, and that was the mission of the so-called Art school. He wished strongly to impress upon Art students the importance of cultivating the faculty of observation. Few knew to what a slight extent the faculty of observation was developed in the ordinary individual. To seek to understand the secrets of nature through Art was foolish. The mind was the medium through which nature should be studied. Above all things they must be true to themselves. They would be unwise to seek after what was called originality, and which oftentimes was only acquired eccentricity. The hand was subservient to the brain, and if the hand was unskilful, imagination was of little use. Too many people thought Painting alone constituted Art. Art had made herself manifest in Sculpture, Architecture, and in articles of every material. An Artist should recognise and appreciate every phrase of Art. Mr. Haité, in conclusion, gave valuable hints as to the study of Decorative Art, saying that the time was not far distant when articles of everyday use would bear traces of the skill of the Artist.

MUCH has been written about the Parthenon, but the most exhaustive work is that of M. Magne, which has been published under the auspices of the French Ministry of Fine Arts. M. Magne was one of the Architects consulted as to the best means of saving the building from falling, and his book is the fruit of his examination. His verdict is preserve, not restore, for he rightly says any attempt at the latter would be sacrilege. But, apart from his plans, his observations throw new light on the mode of construction, of lighting, and the decorative use of colour. Colour was largely employed to accentuate the portions of the structure which received least light, as in the ceilings, the mouldings of the frieze, and the cornices. The colour, though, was like that of the statues, only enough to temper the whiteness of the marble. Metal also was employed in the form of bracelets, crowns, spears, shields, bits, and harness, but this is evident from the cylindrical holes in some of the Parthenon sculptures in the British Museum.

"If it be in any way possible for the nation to acquire Hertford House," says a Times correspondent, "surely that would be the best and most appropriate permanent abode for the magnificent collection bequeathed by Lady Wallace. It meets the conditions attached to the bequest; it is in a central situation; it is a building worthy of the treasures it contains, and it has been specially laid out for their display. We cannot more gracefully express our gratitude for this splendid gift, or more loyally carry out the evident wishes of the giver, than by permanently connecting the collection with the historic home of those who formed it. As a minor but far from insignificant advantage, it may be noted that the acquisition of Hertford House would obviate many inconveniences and risks which are otherwise too likely to

be encountered before a new home can be found or built for the superb collection."

WITH reference to the question of the long-deferred completion of South Kensington Museum, proposed by Lord Playfair in connection with the Royal Commemoration, we take a passage from an eloquent appeal of M. Charles Yriarte, the Inspector-General of Fine Arts, published *in extenso* in the Times Paris letter a few days ago: "To-day for all of us foreigners South Kensington is a Mecca. England there possesses the entire Art of Europe and the East, their spiritual manifestations under all forms, and Europe has been swept into the stream in imitation of England. Berlin, Budapest, Vienna, Nuremberg, Basle, Madrid, St. Petersburg, Moscow, the large towns of America itself have now their South Kensingtons; but in the original one of England, still unfinished, where the splendour of the start (excessive, as it seems to me) contrasts with the inertia of the last fifteen years, the inconceivable treasures are becoming so much heaped up as to be a veritable obstacle to study. How is it possible to study this extraordinary series of textiles of all times and countries, ranged one upon another, overlapping and hiding one another, without proper perspective and proper light? And the draperies, the embossed Italian and Spanish leathers, the carved wood, the iron work, the *cassoni*, the lacquer, placed at such an elevation that one is obliged to mount steps to study their form and colours. . . . It is not for me to give an opinion on the Architectural part of the work to be accomplished. South Kensington is especially a museum for study, and for study a mere box is sufficient, spacious, well-lighted, with as few projections as possible, of no exaggerated height, easy of access, but, above all, with space and light, and lastly, from due respect for Art, with decent surroundings, a fine entrance, and no unsafe neighbouring buildings. The Architects will be unable to protest. They know that in Architecture the external expression of a requirement fulfilled, a form appropriate to the object aimed at, inevitably gives a monument its character. Ornament is neither in the material employed nor on the wall, where it sometimes distracts attention; it is especially in the Art object itself, and imagination can find ample scope outside. I desire, therefore, for the entire nation the realisation of Lord Playfair's proposal, the completion of the Victoria Museum for the advantage of Art studies, and the development of public taste, and this out of gratitude for the facilities of every kind found by foreigners of all nations in the great English public depôts."

THE movement for the erection of a memorial to Mrs. E. B. Browning in Kelloe Church is about to be accomplished. We understand that Messrs. J. McMillan and Son, Sculptors, of that town, have been instructed by the committee to prepare a marble tablet to be placed in the Church. It had long been a disputed question as to the birthplace and date of birth of the great poetess. The Rev. Canon Burnett discovered in the registers of Kelloe Church that Mrs. Browning was born at Coxhoe Hall on March 6th, 1806. The parentage of the poetess was afterwards discovered by Mr. John Robinson, their marriage having taken place at Gosforth, her mother being of a well-known Newcastle family. It is fitting, therefore, that the first memorial in England to Mrs. Browning should be in her native parish.

FLEET STREET will soon be improved beyond recognition. Already a portion of the southern side near Ludgate Circus has been widened, with beneficial results, and it is now desired to extend the process further westwards. Between Bride Lane and Salisbury Court the width of the thoroughfare is 45ft., and it is proposed to increase this to 60ft. The cost of the widening is estimated at £170,780, and the Improvement Committee of the County Council recommend that body to divide the expenditure equally with the City Commissioners of Sewers.



## Professional Items.

**ABERDEEN.**—Nine competitive plans have been lodged for the new Fire Brigade Station at Aberdeen. Mr. Munce, Belfast, has been appointed adjudicator. Some of the plans show buildings of striking appearance, with extensive accommodation for the engines and firemen. The front elevations generally exhibit a three-storey granite building, surmounted by a tower to be used for drying hose pipes and for drill purposes. On the first floor is the engine-room, entrance to which is obtained by three, and, in some cases, four large folding doors, which can be opened automatically, or by some other convenient arrangement. Within the engine-room is accommodation for two steamers, a hose tender, and a fire-escape. Immediately to the rear of the engine-room and communicating directly with it are the stables, with stalls for six horses. The interior arrangements of both engine-room and stables are of the most modern type. To the right of the engine-room and on the ground-floor is the firemen's watch-house, and still further to the right is the firemaster's office. On the first and second floors there is accommodation for firemen. The average estimated price would be from £9000 to £10,000.

**BEER, EAST DEVON.**—Professor Herkomer has opened a memorial to the late Hamilton McCallum, the well-known artist, who resided in the village for many years. The memorial takes the form of a Portland stone erection, with a bronze relief portrait of the late Artist. Around the structure are seats for the use of the public. The memorial was designed by Mr. Onslow Ford, R.A.

**BRADFORD-ON-AVON.**—A new Technical Institute has been formally opened at Bradford-on-Avon. The building is situate in Junction Road, and will give every facility for carrying out the work of technical education. The total cost is about £3900. The style is a form of English Renaissance.

**BRISTOL.**—The Parish Church of Nempnett has just been re-opened after important improvements, which both increase its size and adds to its appearance architecturally. The scheme completed, removed the chancel altogether with the arch, and has resulted in the erection of a much larger and finer chancel, carried up to the height of the nave, but separated from it by a beautifully-carved rood-screen. Besides this, on the north of the new chancel, has been built a sort of side chapel or vestry. Dundry stone has been used as dressings. The floor of the chancel is laid in patterns formed by pennant and a material of lighter colour, and the barrel roof is of unpolished oak. The alterations, carried out from Mr. Buckle's design by Mr. John Flower, harmonise well with the older parts of the structure. The undertaking has involved an outlay of about £1600.

**COLERNE.**—The Parish Church of Colerne, the original fabric of which dates back to the twelfth century, has recently had a valuable effigy of the late Mr. R. Walmsley, of Lucknam, placed within its precincts. The effigy has been modelled and carved in the finest statuary marble from Carrara by Mr. Henry Hugh Armstead, R.A. The tomb supporting the effigy, better known as "Altar Tomb," is in the style of Early Renaissance. There is a wrought-iron guard which surmounts the marble slab. The whole of the tomb was designed by Mr. C. E. Ponting, F.S.A., Diocesan Surveyor, of Marlborough, and the work executed by Messrs. Harry Hems and Son, of Exeter.

**DARFIELD.**—At a recent meeting of the parishioners of Darfield, the rector, the Rev. A. E. Sorby, explained that Trinity College, Cambridge, had agreed upon the details of the restoration of the chancel of the Parish Church. The plan was considered a good one. A discussion took place upon the

advisability of removing the plaster from the chancel walls, and the nature of the stone likely to be found underneath. The Chairman said that at first, only portions of the plaster would be removed, and if the stone underneath was found to be unsuitable for pointing, that the plaster would be left. In answer to other questions, he said that whatever brasses were now on the chancel floor would be carefully removed and replaced on the marble floor in exactly the same position.

**DEWSBURY.**—The Board of Management of the Dewsbury Technical School has approved of plans submitted by Mr. J. L. Fox, the Architect of the original buildings, for an addition to the accommodation, which has for some time been inadequate. The proposal is to erect a wing of three stories, having a frontage to Carlton Road. The cost is estimated at about £3500, and the Board of Management decided to recommend the execution of the work.

**DONCASTER.**—The great north transept window in the Doncaster Parish Church, which was destroyed by a gas explosion some time ago, has been filled with new stained glass illustrative of the "Te Deum." The six main lights are filled with three tiers of figures representing Cherubim and Seraphim, apostles, prophets, and martyrs, as well as Saints Ambrose and Augustine, the joint authors of the "Te Deum." The figures are surmounted by canopies of broad and simple design. The Mowbray window on the south side has been replaced by three lights, containing figures of three matrons. The whole of the work has been designed and carried out under the direction of the Architects, Messrs. Demain and Brierley, York, by Messrs. Shrigley and Hunt, of Lancaster and London.

**DUMFRIES.**—Dumfries School Board had before it, on the 8th inst., competitive plans by four local Architects for a new elementary school to be erected on a site off George Street, and to take the place of the present Greensands School. The plan of Mr. A. B. Crombie was unanimously adopted. It provides accommodation for 600 pupils, and is estimated to cost £6000. It includes an ornamental campanile, which the Architect suggests might be erected as a memorial to the Queen's diamond jubilee.

**DUNDEE.**—It will be remembered that towards the end of last year, Mr. Alexander, the City Architect of Dundee, was requested to report upon the condition of the foundations of the north and east walls of the Albert Institute Buildings, with a view to discovering whether it would be necessary to under-build them, as had been done with the south and west walls. When an opening was made a few days ago near the north-west corner, the cross-beams on the top of the piles were laid bare and found to be in a rotten and pulpy condition, similar to what had been found at the other parts of the foundations.

**EDINBURGH.**—At a meeting of the Works Committee of the Edinburgh and District Water Trust recently, the principal item was the consideration of the specifications and schedules of measurements for the Talla reservoir. The engineer (Mr. Wilson) was instructed on various matters concerning conditions which are to be inserted in the contract, in order to report to the Trustees. The probable estimate for the reservoir and consequent works is about £150,000. Approval was at the same time given to the plans of the building proposed to be erected for the accommodation of the Trustees on the banks of the Talla. The building is of a substantial appearance. The committee also decided to include in the estimates a sum of £250 for the erection of a hall for the accommodation of the navvies engaged upon the reservoir works.

At a meeting of the Plans and Works Committee of Edinburgh Town Council, Mr. Morham, the City Architect, submitted plans for the new central fire-station to be erected at the south-west corner of the

Cattle Market. These show a range of buildings, three storeys in height, in the Renaissance style of Architecture, with a high tower in the rear. The engine-house occupies the east part of the block, which is on a level with Lauriston. Mr. Morham also submitted plans showing the suggested re-arrangement of the Cattle Market in consequence of the erection of the new fire-station. A plan has likewise been prepared showing how, in the event of the Cattle Market being removed altogether from its present site, the ground might be made available for letting, with an access from Lauriston. It is suggested that tenements of houses might be erected on the north and east sides, leaving the remainder of the space for recreation and drill purposes. The estimated cost of the buildings, exclusive of the site, is £23,500. The Committee instructed Mr. Morham to have the plans exhibited to members of Council.

**EDWINSTOWE.**—The Lord Bishop of Southwell has just re-opened the Parish Church of Edwinstowe. The Church is, like the majority of village churches of the middle ages, a piece-work of late Norman and Early English, having Norman pillars in the north and south aisles and windows, while the arches are of the Early English style. The restoration work, which has been for a period of eleven months in the hands of Messrs. Hy. Green and Sons, Nottingham, comprised the entire re-roofing of the nave, aisles, and chancel—the nave and south aisle being raised a few inches—and the removal from the interior walls of the plaster which disfigured them, and concealed the peculiar beauty of their structure. The roofs are now of a substantial and beautiful type, and the walls betray a rugged beauty which many consider ought never to have been concealed beneath plaster. The work has entailed a cost of about £1800.

**GLASGOW.**—On Saturday afternoon the first Spring visit of the students attending the Architecture and Building Construction Classes of the Technical College took place to the new brickwork at Leedhill, near Paisley. The manager conducted the large party of students, who were first shown the clay-pit, where the nature and characteristics of the clay were explained; then the works were put in operation, and the various processes of mixing, wire-cutting, &c., were seen. Then the drying stoke was visited, and, lastly, the kiln was studied from the point of view of its construction, as well as the burning of the bricks. Professor Gourlay, in proposing a vote of thanks at the close, referred to the keen interest the students had taken in the visit and to the valuable instruction they had received.

**HARPENDEN.**—The new Congregational Chapel just opened has cost about £2600. The nave and side aisles are divided by octagonal stone piers, with low pointed brick and stone arches over. The nave is lighted by pointed arch windows in the clerestory, and the side aisles by small mullioned rectangular windows. There is a recess or apse at the upper end of the building where the organ is placed, and communicating therewith on each side are vestries. The internal walls are faced with red brick and stone dressings, the dado being a pressed brick of a darker tint. The roof is framed with solid-looking principals with curved ribs resting on stone corbels, and is ceiled at the level of the collar beam. The floor is laid with wood blocks except the lobbies and apse, which are tiled. The ventilation is effected by inlet air flues in the side walls, and Boyle's exhaust ventilator in the turret. The heating is by hot water. The exterior is of red brick and stone dressings, with a tile roof, the ventilating turret with copper roof forming a feature over the entrance vestibule. The Architect is Mr. A. E. Ansdcombe, of Harpenden, and the contractor Mr. T. Ringerlee, of Oxford.

**HARROGATE.**—A new school erected by the Pannal School Board at Oatlands Mount, near Harrogate, was opened on the 8th inst. by the Vice-Chairman of the Board. The school,



including site and furnishing, has cost about £6000. The Architect was Mr. Buttery, of Morley. The school is well lighted and ventilated, and is built for the accommodation of between 400 and 500 children.

**INKPEN.**—The ancient Parish Church of St. Michael and All Angels, Inkpen, after being in the hands of the restorers for over twelve months, has just been re-opened. The plans for the restoration were prepared by Mr. Clapton C. Rolfe, Diocesan Architect, of Oxford, and these have been carried out under his supervision by Messrs. George Elms and Son, contractors, of Benham, Newbury. Little more than the bare walls, the west window, and tiles from roof and floors have been left of the actual old Church.

**LIVERPOOL.**—The new Cotton Exchange in Brown's Buildings, Liverpool, has now been further extended by the addition of a café restaurant. A Mosaic floor is a notable feature, while the decorative and colour designs give quite an Oriental appearance to the apartments. The structural alterations were made in the building under the superintendence of Mr. J. F. Doyle, who is also the Architect of the building.

**LOWESTOFT.**—The stone-laying ceremony in connection with the new Y.W.C.A. at Lowestoft took place some days ago. The building is to serve as an Institute and Home. The present premises being found too small, the committee instructed Mr. Alfred Clarke, C.E., Architect, of Lowestoft, to prepare designs for a building which should combine both an institute and a home, part of which is now being carried out. The new building is situated at the corner of Regent and Alexander Roads, and is plainly but substantially constructed of red bricks with string courses and red stone dressings. The roofs will be tiled and there will be a tower at Regent Road corner. The contractors for the works are Messrs. J. and B. Swatman, of Lowestoft.

**MERTHYR.**—The Urban District Council has rejected the report recently presented by the committee appointed to consider the Housing of the Working Classes Act, in which it was recommended that the Council should obtain a loan of £10,500 for the purpose of erecting eighty-four workmen's cottages, at an estimated cost of £125 each.

**MORLEY.**—New premises known as the Aekroyd Street Reading Room, Morley, were opened on Saturday week by the Mayor. The premises, which comprise a committee-room, reading-room, and a large room for social gatherings, have been built by Mr. J. W. Binks.

**MOUNTSORREL.**—The memorial stones of a new chapel and school rooms were laid at Mountsorrel, near Loughborough, on the 10th inst. The new chapel is to take the place of an old building. The site is near the centre of the village, and the line of building has been fixed 30ft. from the roadway. The material for the building is brick, the front being faced with granite stone. Early Gothic is the style of Architecture chosen, and the work will be carried out by Messrs. Scurr and Jowett, of Barrow-on-Soar, from plans by Mr. John Wills, of Derby. The front gable of the chapel will have a circular window with tracery, the gable being flanked with octagonal buttresses that run up and finish with pinnacles and carved finials. Two single light windows to the front are to have cusped heads, but all other windows will be pointed; the glazing throughout being with cathedral rolled glass in lead squares and diamonds. The roof is to be partially open, relieved with arch and panel work. The woodwork for both ceiling and seating of the chapel will be pitch pine. A school room at the rear of the chapel will be 40ft. by 26ft., to accommodate 200 children. There are also to be class rooms, infants' room, and provision for extension by the addition of nine other apartments. The total cost, exclusive of Architect's fee, is stated at £1800.

**PETERHEAD.**—The Street Committee of the Town Council has approved of the following plans:—Proposed alterations by Mr. Thomas Forrest in Maiden Street; two new cottages by Messrs. G. Scott and Sons in Queen Street; of shed, proposed to be erected by the Harbour Trustees in the yard of Messrs. W. and J. Stephen; of alterations by Mr. J. Mason on his property in Queen Street; and an extra exit from the Music Hall.

**SCARBOROUGH.**—Mr. Robson, F.S.A., Architect to the Education Department, who was asked by the Scarborough School Board to judge the plans sent in for the erection of the new Higher Grade School, has made his awards. The first place is taken by Messrs. Hall, Cooper, and Davis, Westborough, Scarborough; the second place by Messrs. Demaine and Brierley, York; and the third by Messrs. Marshall and Dick, Newcastle. Forty sets of plans were submitted. Five sets of plans were sent in by local Architects for the premiums offered—viz., £50 and £25, in connection with the proposed Wesleyan College on the Weaponess Estate, South Cliff. The award has been made, the first premium being awarded to Messrs. Hall, Cooper, and Davis, Westborough, Scarborough, and the second to Messrs. Tugwell and Barry, Westborough, Scarborough.

**SWINDON.**—A chemical laboratory and a secondary day school have been opened at Malmesbury. New technical school buildings are now completed. The cost of their erection and furnishing amount to £12,000. The County Council has contributed £3500, the Science and Art Department £1000, and the Urban District of New Swindon about £7500.

**TROWBRIDGE.**—A grant of £1500 has been made by the County Council in aid of a technical institute for Trowbridge. It is estimated that the cost of building and furnishing the Institute will amount to at least £5000. The local committee have had under consideration the question of a site, but no definite conclusion has yet been arrived at. Negotiations are now being conducted with a view to the acquisition of a site nearly opposite the Town Hall. The present buildings are inadequate, and have been condemned.

**WAKEFIELD.**—A statement presented to the West Riding County Council gives the total estimated cost of the new County Offices at Wakefield, including furniture and fittings, at £108,543. For furniture and fittings the Council will be asked to sanction expenditure amounting to £12,500. The Architects have reported that it will be practicable to open the new offices in November next, although the works will not then be entirely completed.

**WINCHESTER.**—The barracks at Winchester, which were the Rifles' dépôt, are to be rebuilt at a cost of £72,000. The style of the former building, which was copied from that of Versailles, is to be preserved as far as possible, and the adjacent old County Hall is not to be interfered with. The former building was originally built as a palace for Charles II., at a time when he thought of transferring the capital from London to Winchester.

The proposed new offices for the Aberdeen Parish Council are estimated to cost £6000.

The Warwick Board of Guardians has passed a resolution in favour of applying for a loan for £3000 to provide new tramp wards.

The Bournemouth Town Council has decided to abandon the proposal to build a pavilion on the shore end of the pier, and has also instructed their Surveyor to prepare plans for the conversion of the present shelters into a pavilion, at a cost not exceeding £10,000.

The Technical Committee of the West Bromwich Technical Schools has decided to extend the present premises, and to incur an outlay of £1000. The extension is to include the erection of a workshop where students may carry out their own designs in practice.

## Trade and Craft.

### ELECTRIC LIGHTING AT WEST HAM.

The question of electric lighting for West Ham, at a cost of some £20,000, came before the West Ham Council recently. The tender of the Electric Construction Company, Limited, was rejected, and a higher tender was accepted. The company then alleged that they had been previously approached by the representative of one of the members of the Council, and that certain private offers were made by this representative. The company stated that they declined to listen to these overtures. They demanded an investigation. The Council pointed out that the company had not named the persons against whom they brought this serious charge, but ultimately it was arranged that the Council should apply for a Local Government Board inquiry, and the company thereupon undertook to reveal all the facts at this inquiry.—In the House of Commons Mr. Chaplin last week stated that the Local Government Board had no power to order an inquiry into this matter, but the firm might prosecute or communicate with the Public Prosecutor.—Mr. Henry F. Joel (of the firm of Messrs. Henry F. Joel and Co.) has now written to the local press stating that his company also are not satisfied as to the fairness of the West Ham Council in the matter of electric lighting contracts, and stating that in 1893, and again in 1894, Messrs. Joel tendered at £1045 for electrically lighting the public hall and free library at Canning Town, but a higher tender was accepted. There is a strong local feeling that the whole matter should not be allowed to rest in this unsatisfactory state.

### A NEW PAVING STONE.

A new paving stone, said to be of better wearing quality than any of British origin, is attracting notice. It comes from Quenast, in Belgium, and Prof. A. B. W. Kennedy reports the results of compression tests of four small blocks of Aberdeen, Guernsey, Leicester, and Quenast paving stone as very markedly in favour of the last-named. Prof. James Geikie, of Edinburgh, too, gave a report, and thinks that Quenast stone is both harder and tougher than Scottish granites or North Country whinstones, and likely to be more durable for street service.

### EASTBOURNE BUILDING BYE-LAWS.

John Vinall, jun., builder, of Eastbourne, appeared in answer to three summonses taken out at the instance of the Eastbourne Corporation, charging him with having contravened the bye-laws of the Town Council by unlawfully allowing No. 1, North End, Western Road, Eastbourne, to be occupied as a dwelling-house, the same not having been certified as fit for habitation by the Local Authority; by erecting a scullery of a lesser height than 9ft.; and by failing to provide a ventilating shaft and window in the water-closet. The third of these summonses was withdrawn on the payment of costs, the work required to be done having been executed.—William Chapman Field, Building Surveyor to the Eastbourne Town Council, stated that in May last plans were submitted by the defendant for six cottages in Western Road. In these plans the scullery referred to in the summons was shown to be 9ft. in height, the floor being 9in. above the level of the yard. When, however, the houses were completed he found the scullery to have been erected 7ft. 6in. in height, and that the flooring was 4in. below the level of the yard and below the level of the intercepting trap of the drain. He had not certified the houses as fit for human habitation, but nevertheless the defendant had permitted two of them to be occupied. On the application of the defendant the Building Committee had agreed to allow the defect as to the scullery to be remedied by lowering the level of the floor; but on finding that the floor level was already below that of the yard, the Committee withdrew this permission.—It was stated that to remedy the defect as to the scullery it would be necessary to reconstruct the rear portion of the house at a cost of between £50



or £60 in each instance.—The magistrates having viewed the property, adjourned the matter for a fortnight to give the Building Committee an opportunity of meeting and considering any suggestion from the defendant whereby the defects might be overcome.

#### A GUNPOWDER MOTOR.

According to the New York Herald, the latest idea in motor cars is the gunpowder motor. It is to be run by a motor which, with a weight of 8½lb. and a length of 8in., will, when charged with ordinary gunpowder, carry a machine and rider 100 miles. The small cylinder of the motor is 3in. long and 1in. in diameter. At the forward end is the exploding chamber. This is 2in. long, 1½in. high, and 1½in. wide. From the rear end projects the driving rod. Above the cylinder is the powder magazine, 4in. in diameter and 2in. deep. It is from this magazine that the explosive is supplied, by means of a feeder, to the exploding chamber below. As the explosion occurs a gaseous smoke is generated, which acts much the same as steam, in that it operates the piston head of the driving rod within the cylinder, one end of which is connected with the exploding chamber. To avoid any possibility of the explosion of the gases generated by the powder, there is a valve at the top of the exploding chamber, through which the excess of gas is automatically allowed to escape. The speed of the machine to a certain extent regulates the action of the valves in the supply chute. When starting, the powder is exploded first by concussion. The rod is forced down, the valves in the chutes are opened, and a cap within the chamber is exploded, causing the machine to start. Just the reverse operation brings the machinery to a stop. The drawing upward of the rod closes the valve, causing the flow of powder to cease, and as no more gaseous smoke can be generated, the machine comes to a gradual stop.

#### A DIAMOND JUBILEE PANEL.

We understand that Messrs. Stanley Bros., Limited, of Nuneaton, are manufacturing a special panel in commemoration of Her Majesty's record reign. The panel is being made in buff and red terra-cotta and in glazed ware. The design, which bears a representation of Her Majesty and the words "Victoria, sixty years Queen of Great Britain and Ireland," with other suitable lettering, is very neat, and will, Messrs. Stanley think, largely recommend itself for introduction into Jubilee Memorial Buildings, which are being so numerous erected throughout the country. The panel has the recommendation of cheapness. In buff and red it is obtainable for 20s., and in glazed ware for 40s.

#### CLAIM FOR DAMAGE.

The plaintiff in the action of Maynard v. Thompson and Others, which recently came before Mr. Justice Hawkins and a special jury, was a dining-room proprietor, at 27, Holloway Road. The defendants were his landlords and also the owners of the adjoining house, No. 29. The plaintiff's claim was for damage which he alleged had been caused to No. 27 by defendants' negligence in pulling down and rebuilding the house adjoining. The defendants said that they had been guilty of no negligence, and had acted under the orders of the County Council. They counter-claimed for damages for breach of covenant to repair and for £11 2s. for rent and insurance. Messrs. Sabey and Sons, the builders who had actually carried out the work, had been added as third parties.—Mr. James Maynard, the plaintiff, was called, and said that on Sept. 29th, 1884, he took an assignment of a lease of 27, Holloway Road. No. 27 was bounded on the north by No. 29. Both houses were old. In 1894 No. 29 was pulled down. This caused a number of large cracks in the plaintiff's wall. Afterwards a new house was built at No. 29, there being a narrow space left between it and No. 27. Struts were placed between the two houses. Then a large hole made its appearance in plaintiff's wall. Plain-

tiff said he had suffered loss in his business owing to the state into which the premises had fallen, and that finally he had to leave them owing to their unsafe condition.—Counsel's contention was that the house had fallen into disrepair by reason of age and plaintiff's breach of his covenant to repair, and that this was the cause of the business being carried on at a loss.—Evidence was given at considerable length on behalf of the third parties in order to disprove the plaintiff's claim.—In the result the jury found that the plaintiff had suffered no loss in consequence of the premises being pulled down, and that the defendants were entitled to £11 2s. rent and £10 for dilapidations.—On this his Lordship gave judgment for the defendants on the claim and counter-claim.

## Correspondence.

#### LONGTON TECHNICAL SCHOOLS AND FREE LIBRARY.

[To the Editor of THE BUILDERS' JOURNAL.]

SIR,—We have read your article on the above with amazement, and cannot imagine how a professional journal can try to bring discredit upon the Longton Town Council when it is plain to see that everything was done that could be, to make the competition fair and above board. What are the facts?

1st. The conditions were clear and defined. All designs to be sent in under motto.

2nd. The designs were adjudicated upon by an able London Architect, a F.R.I.B.A.

3rd. His report was submitted and approved by the Town Council without the identity of the authors being known.

4th. The Council then decided to confer with the successful Architect and the County Director of Technical Instructions.

This seems all clear and square; then why call the "competition unsatisfactory." No doubt it would have been very satisfactory if the Council had set aside the assessor's report and adopted some other design!

Locally, we may tell you, the competition is considered eminently satisfactory, and we have had the congratulations of a leading Architect, a F.R.I.B.A., who, after viewing the designs, distinctly said we had "won on our merits," and an examination of the designs when on public view plainly proved this.

No doubt every effort will be made locally to oust us from the work, as is indicated in a letter to the local press, evidently the contribution of one interested and disappointed, but we certainly expected fairer treatment from a professional paper, and we think there is something due to the assessor, Mr. Scott.

We cannot attempt to follow your criticism of our designs, as it is so obviously misleading and absurd. We can only say this is not the first technical building we have designed and erected, and we know our subject well, and have no fear of the result. We are also conscious of points in our design which we could improve, but the conditions of the competition prevented an alteration, and we trusted to having an opportunity, if successful, of dealing with them when we are in touch with the Building Committee.

One point we may just refer to. The object of your article is to rob us of the merit of our success, and to attribute it solely to cost. This is entirely wrong. We have not seen the Assessor's report, but we are assured by the Town Clerk that this is not so. On merit alone have our designs been selected, with the additional advantage that they are much nearer the stipulated cost than any others.

We are aware that having carried off both premiums, there has been weeping and wailing and gnashing of teeth, but we trust the BUILDERS' JOURNAL will rise above petty local jealousy and support a Town Council in doing the right thing "in these degenerate days of 'unfair competitions.'"

We are sorry to trouble you, but your article casts such a reflection upon us, the Town Council, and the Assessor, that we felt it necessary to put the plain facts before you.

Yours truly,

WOOD & HUTCHINGS.

## SOCIETY MEETINGS.

**British Archaeological Association.**—At the seventh meeting of the session, held at Sackville Street, Piccadilly, Mr. Compton, vice-president, in the chair, a paper was read by Mr. Thomas Blashill on "Some Certificates as to Recusants in Holderness." The inconvenience and discomforts our forefathers in the early years of the seventeenth century were subjected to when they refused to attend religious worship in the Churches was curiously exemplified in the many original documents exhibited in illustration of the paper, all of which were about the same date, A.D. 1616. These certificates shed considerable light upon the operation of the law in the centre of Holderness, which at that time was by its remoteness and by the absence of good roads more than usually secluded from the outside world.—In the discussion following the paper, the Chairman, Mr. Rayson, Mrs. Collier, Mr. Patrich, and others took part.

**London and Middlesex Archaeological Society.**—The members of the London and Middlesex Archaeological Society met at the London Institution on the 10th inst., under the chairmanship of Dr. Freshfield. The proceedings of the evening were opened by the inspection of the recent finds in Threadneedle Street in the course of excavations for the Central London Railway. In addition to the specimens of ancient ware that were the subject of a lecture a few weeks ago by Mr. Welch, Guildhall librarian, several fine examples of the potter's art, it appears, have been unearthed, and have found a home in the Guildhall Museum. The principal find, and one that is regarded as extremely valuable, is that of a graceful and delicate goblet of Venetian glass. It was unearthed in an old well about 16ft. below the surface. Accompanying it were a little money-box of glazed buff ware and a Delft plaque, the latter being ornately painted in a design of blue, green, orange, and yellow. A somewhat imperfect specimen of the Bellarmine, in glazed stone ware, was also turned up. It has lost the neck, which formerly bore a reproduction of the features of Cardinal Bellarmine, after whom the jug was named. The body of the jug bears an armorial medallion, a shield, and other devices. Another very interesting exhibit was an old beadle's staff head in silver, which had been sent to Mr. E. H. Freshfield from the Birmingham Assay Office, whither it had found its way.

**The Builders' Association.**—The annual dinner of the Dublin Master Builders' Association took place recently. The Right Hon. Alderman Meade presided.—Sir Charles Cameron, in proposing the toast of "The Master Builders' Association," said from what he knew of the Association of Master Builders he could say it was composed of Craftsmen of the highest order. Just as the great profession of Law was divided into the classes of solicitors and barristers, so this great profession of the building Art was divided into the profession of Architects and builders.—Alderman Meade responded. He said that as an association they were face to face with a very serious condition of affairs in the spring of last year, and during that time the work of the association had been well and satisfactorily done. They had drawn up a satisfactory system of working, and the men were now working with a better heart than before the strike, and under such rules as would, in his opinion, make it unlikely that they would hear of a strike again for many a long year. They also hoped to have rules adopted between the builders and Architects, which would probably put an end to those little differences which sometimes culminated in the law courts; and he was sure when that was done there would be a court of appeal between the builders and the Architects that would be able to settle all differences.

**Sheffield Society of Architects and Surveyors.**—The monthly meeting of the Sheffield Society of Architects and Surveyors was held on the 11th inst., the president, Mr. C. Hadfield, F.R.I.B.A., in the chair. A lecture



was given by Mr. J. B. Mitchell-Withers, A.R.I.B.A., on "A Tour in Holland," which we shall have the pleasure of publishing in an early issue.

**Dundee Master Builders' Association.**—The annual dinner of the Dundee Master Builders' Association was held on the 4th inst. Mr. John F. Shaw, the president, occupied the chair. In proposing "The Building Trade," Mr. Paul said the building trades of the city had for some time been very prosperous, and it was a pleasure to think that, for a considerable time to come, there was likely to be as prosperous times for these trades. Within the past fortnight applications had been made to the Town Council for the opening up of four or five new streets in Dundee, which showed there was to be a considerable boom in the building trade for a year or two. The Chairman, in responding, acknowledged that the building trade had been very prosperous during the past year, and said if the labouring classes were not making money just now they ought to be. When he came to Dundee about forty years ago he worked sixty hours per week for 16s., and he was now paying men £1 16s. for fifty-one hours. Provisions

were as cheap now as they were then, but house rents were dearer. About forty years ago they would have got two rooms in Dundee for £5 or £5 10s., but they would now have to pay £8 or £9 for that accommodation. There was no doubt that the high wages paid to the men in the building trade raised the prices of property, but there were many trades in the city in which the wages had not risen in the same proportion. However, he hoped that good trade would continue, for there was nothing more satisfactory to masters and men than that there should be plenty of work.

**South Staffordshire Institute of Iron and Steel Work Managers.**—Mr. F. W. Burstall, M.A., A.M.I.C.E. (Professor of Engineering, Mason College, Birmingham), recently read a paper on "The Mechanical Testing of Iron and Steel" to the members of the South Staffordshire Institute of Iron and Steel Works Managers at Dudley. Mr. W. Yeomans presided. The paper dwelt mainly with the practical side of testing, and stated that the first testing machine was for testing chain cables, and capable of pulling 100 tons. The Admiralty, in 1831, not willing to trust to chainmakers' tests, put down one of their own. This was the parent of all English modern testing machines, and all the older

machines contained all the essential points of modern firms.

**Liverpool Engineering Society.**—At a meeting of the Liverpool Engineering Society, held on the 3rd inst. at the Royal Institution, Mr. S. B. Cottrell, president, in the chair, a paper was read by Mr. William Brodie on "Dock Gates." The lecturer mentioned that the old Liverpool dock was constructed in 1709, but that dock gates might have been constructed much earlier if required, as gates were used for canal locks in Europe as early as the fourteenth century. A novel and very special form of gate was that in use at Messrs. Clover, Clayton, and Co.'s yard, Birkenhead, consisting of an iron frame approximately rectangular, covered with sheet iron, and turning on a horizontal hinge in the bottom of the entrance. The clapping faces of the gates were formed of pitch-pine baulks, with india-rubber sheeting to ensure watertightness, and the gates were opened by being lowered by wire ropes into a horizontal position outside the sill, and below its level. The gates of the Canada 100ft. lock were instanced as a notable example of gate construction, they being the widest ever constructed.

**Institution of Junior Engineers.**—The third annual conversazione of the Institution of Junior Engineers was held on Saturday

## BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.



## HOISTING APPLIANCES

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

## WESTON

AND OTHER

## Pulley Blocks

in Stock, with any length of

## CHAINS.

Chain Maker on Premises for Repairs, &c.

## LONDON HOIST

AND CHAIN CO.

32, Norton Folgate, E.C.

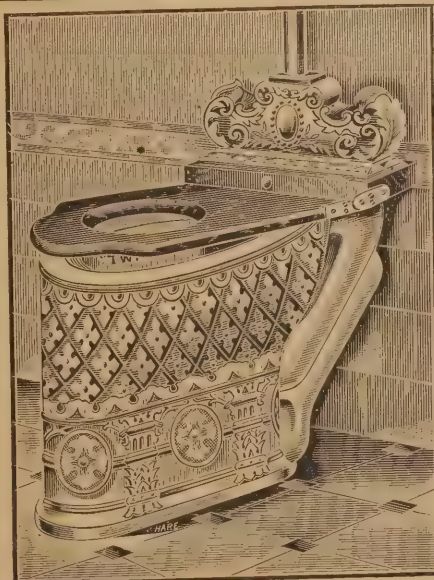
## "ECLIPSE" PATENT GLAZING.

THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.

Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

**MELLOWES & CO.** Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
Telegraphic Address—"SHEFFIELD,"



GUARANTEE sent with each Basin.

Perfect Sanitation, Healthy Houses

OBTAINED BY ADOPTING THE

## "TWYCLIFFE"

Patent Pedestal Syphon W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.

Practically noiseless in action.

Simple in construction, reliable in action.

Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.

No complicated mechanism to get out of order.

Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

**TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.**

## ECONOMY IN BUILDING.



## B. WARD & CO.,

15, Gt. George St., London, S.W.  
And at CARDIFF, etc.

PATENT STABLE PAVING.  
PAVING.

FIREPROOF STAIRCASES.  
ARTIFICIAL STONWORKS.  
FIREPROOF FLOORS.

WOOD BLOCK AND MOSAIC PAVING.

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others



week at the Westminster Palace Hotel. In the great hall there were models of a transverse section of the Blackwall Tunnel, with an excavating shield, also a diagram of longitudinal section; of excavators, gun-carriages, loading gear, electric motor rudder, a South-Western Railway locomotive, and of the screw steamer "Hawarden Castle." Through the courtesy of the Electrophone and the National Telephone Companies, the members and their friends were enabled to hear what was going on at various theatres. Mr. R. W. Paul gave an excellent display of animated photographs, which, it was stated, passed over the screen at the rate of 2000 per minute. Mr. W. J. Tennant took the engineers a journey in fancy, by means of a magic-lantern, through Ireland; and Mr. D. T. Keymer, with larger enterprise, conducted the assembly round the world in twenty minutes.

### CONTRACTS OPEN.

#### COUNTY BOROUGH of MIDDLESBROUGH.

**NEW CEMETERY LODGE.**  
The Cemeteries Committee invite TENDERS for the ERECTION and COMPLETION of an ENTRANCE LODGE at the New Cemetery, Linthorpe.

Plans and specifications may be seen, and quantities obtained, at the Office of Mr. FRANK BAKER, C.E., Borough Engineer, Municipal Buildings, Middlesbrough, on payment of One Guinea, which will be returned on receipt of a bona-fide Tender with the bills of quantities fully priced out and schedule prices duly filled up.

Sealed Tenders are to be delivered at the Town Clerk's Office not later than FIVE p.m. on MONDAY, MARCH 22nd, endorsed "Tender for Cemetery Lodge."

The Corporation do not bind themselves to accept the lowest or any Tender.

By order,  
FRANK BAKER, C.E., F.G.S.,  
Borough Engineer.

Municipal Buildings,  
March 8th, 1897.

#### COUNTY BOROUGH of WEST HAM.

**TO BUILDERS AND CONTRACTORS.**  
The Council hereby invite TENDERS for the ERECTION of SEWAGE PUMPING ENGINE and BOILER HOUSES and ELECTRIC LIGHTING BUILDINGS, at the Abbey Wharf, Stratford, London, E.

Plans may be seen, and specifications, form of Tender, and further particulars obtained, on and after the 24th inst., at the Office of Mr. LEWIS ANGELL, Engineer to the Corporation, Town Hall, Stratford, E., on the deposit of a £5 Bank of England Note, which will be returned on the receipt of a bona-fide Tender.

Tenders, endorsed "Tender for Buildings," to be sent to my Office not later than FOUR o'clock on TUESDAY, APRIL 13th, 1897.

The Council do not bind themselves to accept the lowest or any Tender.

The contractor will be required to enter into a bond, with two sureties, for the due performance of the contract, and no work will be ordered under the contract until such bond has been duly executed.

The contractor whose Tender is accepted, and with whom a contract is entered into, will be required to pay to the whole of his workmen such rate of wages and observe such hours of labour as are recognised by the workmen's trades unions and in force at the time of signing the contract.

In the event of any breach of such agreement the Council will enforce the penalty clause in its entirety.

By order of the Council,  
FRED. E. HILLEARY,  
Town Clerk.

Town Hall,  
West Ham, E.  
March 9th, 1897.

#### EGYPTIAN GOVERNMENT.

**MINISTRY OF PUBLIC WORKS.**  
ADJUDICATION for the CONSTRUCTION of TWO BUILDINGS for the Native Tribunals, the Prison, and the Police Barracks, on the site of the old Mansour Pacha's Palace in Cairo.

TENDERS will be received at the Offices of the "Service Administratif," Ministry of Public Works, Cairo, up to TWELVE noon on the 3rd of MAY next, for the CONSTRUCTION of the above BUILDINGS.

Persons wishing to Tender for this work can consult the specifications and the conditions of the Adjudication on all days, except Fridays and general holidays, from EIGHT a.m. to ONE p.m. at the Offices of the "Service Administratif."

Tenders received at the Ministry later than the date mentioned above, as well as those that are not in conformity with the form prescribed by the specifications, will be rejected.

Each Tender must be accompanied by a provisional

security deposit of £E500\*, which will be kept in the Egyptian Government Treasury until a decision has been arrived at with regard to the Adjudication. These deposits will then be returned to the persons whose Tenders are not accepted, while the party to whom the work is awarded will, on the signature of the contract, increase the above deposit up to the amount of the permanent deposit fixed by the specifications.

The provisional deposit shall be paid either in cash or in Egyptian Bonds, calculated at 10 per cent. below their current price. No interest will be paid on cash deposits, but the depositing party has a right to the coupons due, when the deposit is in Egyptian Bonds.

The Ministry of Public Works reserves to itself the right of not accepting any Tender whatever, and can accept any Tender, though it may not be the lowest made.

\*The sterling pound is worth £E0.975, and the French piece of 20 francs £E0.770.

### TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**ARKLEY.**—For new chancel, St. Peter's Church, Arkley, near Barnet. Mr. J. C. Traylen, Architect, 16, Broad-street, Stamford:—

	Bath Stone.	Stamford Stone.
N. Saunders and Son	£1,675	£1,725
C. Miskin	1,680	1,710
H. Willcock	1,650	1,760
S. F. Halliday	1,600	1,560
Dove Bros.	1,585	1,640
W. Wade, St. Neots*	1,520	1,555

\* Accepted in Stamford Stone.


**BANSTEAD (Surrey).**—For a new farm house in Park-road. Mr. St. Pierre Harris, Architect and Surveyor, 8, Ironmonger-lane, E.C. Quantities by Messrs. Stanger and Son:—

Thomas Knight	£1,670	W. Holt and Sons	£1,575
W. G. Larke and Sons	1,640	Somerford and Son	1,440
R. A. Lowe	1,630	Davis and Leaney	1,425
J. B. Potter	1,594	T. D. Gray (accepted)	1,379

**BEVERLEY.**—For the erection of a Catholic Church a Beverley:—

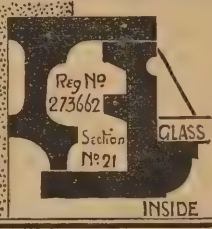
A. Lyons, Norton, Malton	£1,584	5
J. E. Foley, Beverley	1,565	0
R. Potts	1,560	0
G. Pape	1,450	0
J. Constable†	1,338	0

\* Accepted. † Withdrawn.



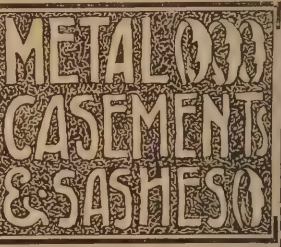
**GEORGE WRAGGE**

DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS



Reg No  
273662  
Section  
No 21  
GLASS  
INSIDE

WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.



**METAL CASES  
& SASHES**

BATHS.  
CISTERNS.  
TANKS.  
STOVES.  
KITCHENERS.  
PORTABLE  
RANGES.  
MARBLE  
MANTELS.

### J. YOUNG & CO., Kenton Works, Kennington Cross, London, S.E.

Kennington Tel. No. 4712 (Hop.) Private Wire to Brixton. Balham Telephone No. 9219, Balham.

BRANCHES: 44, BRIXTON ROAD, AND 9 & 10, BALHAM HILL, LONDON, S.W.

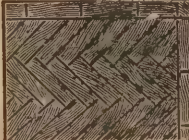
Everything for the Erection and Maintenance of Buildings and Estates can be obtained at our Warehouses. Have you a copy of our useful little Catalogue? If not, apply at once, enclosing Two Penny Stamps for Postage; it's worth the venture.

NOTE THE ADDRESS.

NOTE THE GOOD PRINCIPLE.

OUR TRADE PRINCIPLE: PERFECT WARES, IMMEDIATE DELIVERY, NOMINAL PRICES.

ROOFING FELTS.  
CORRUGATED  
IRON.  
SHEET ZINC.  
LEAD IN SHEETS  
AND COILS.  
PAPERHANGINGS  
WHOLESALE  
AND FOR EXPORT  
OILS & COLOURS.



**WOOD-BLOCK PAVING.**  
(MR. WHITE'S SYSTEM.)  
For Churches, Schools,  
Offices, &c.  
Estimates and full particulars on ap-  
plication to  
**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM  
JOINERY WORKS,  
Clapham Junction, S.W.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
*For Sale or Hire.*

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

Reading Cases may be had on application  
to the Manager. Price 1s. 9d. each.

FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

DO  
YOU  
WANT  
TO BUY  
RIGHT?

"eleven for 77 (Hop)"

# GEO. HYDE & CO.

DO  
YOU WANT  
SPEEDY  
DELIVERY?

**173 & 175, KENNINGTON CROSS,  
LONDON, S.E.**



N ROAD, LONDON, W.C.



LEYTON (Essex).—For the erection of sheds at electric light station, Cathall-road, for the Urban District Council. Mr. Wm. Dawson, C.E., Town Hall Leyton.—

W. Lawrence... £553 0 0 F. J. Coxhead, Ley-  
J. Haydon... 544 0 0 tonstone\*... £435 0 0  
H. R. Rous... 527 17 9 \*Accepted.

LONDON.—For building new school, Ambler-road, for the School Board for London. T. J. Bailey, Architect.—

	Extra amount required for building brickwork in cement.
Perkins and Co. ...	£10,311
T. L. Green ...	18,241
R. A. Yerbury and Son ...	17,937
W. Downs ...	17,862
W. Shumair ...	17,713
W. M. Dabbs ...	17,233
J. and M. Patrick ...	17,250
W. Gregar and Son ...	17,197
T. Boyce ...	17,158
Lathey Brothers ...	17,142
Stimpson and Co. ...	17,103
Kilby and Gayford ...	17,007
Treasure and Son ...	16,932
E. Lawrence and Sons ...	16,549
C. Cox* ...	16,447

\* Recommended for acceptance.

LONDON.—Heating Gipsy-road Schools for the School Board for London. T. J. Bailey, Architect.—

H. C. Price Lea & Co. £92 0	Strode and Co. ... £55 0
J. Defries & Sons, Ltd. 75 10	Vaughan & Brown, Ltd. 53 0
Rosser and Russell ... 63 10	W. Simmons ... 43 14
J. Fraser and Son ... 63 0	Duffield and Co.* ... 40 0

\* Recommended for acceptance.

LONDON.—Accepted for sundry alterations, additions, and decorations to St. Mildred's House. Messrs. Barry and Son, Architects, 1, Victoria-street, Westminster, S.W.—

LONDON.—For the erection of new business premises in Offley-road, Kennington-road, for Messrs. J. A. Sharwood and Co. Mr. H. Phelps Drew, Architect, 33, King-street, Covent Garden, W.C. Quantities by Mr. J. Rookwood, 47, Museum-street, W.C.—

R. H. Galbraith ... £3,870 0	T. T. Chinchin ... £3,477 10
Wilkinson Bros. ... 3,810 0	Edwards & Medway* 3,223 0
F. Minter ... 3,580 0	*Accepted.

MIDSOMER NORTON (Somerset).—For the construction of sewage works, Welton, &c., for the Urban District Council. Mr. Wm. J. Bird, Engineer, Market Hall, Midsomer Norton. Quantities by the Engineer.—

George Jones ... £2,293 6 6	Thomas & Webb, ...
Joseph Bird ... 2,222 17 1	Stapleton, Bris- ...
Wm. A. Calley ... 2,200 5 11	tol* ... £1,093 4 1

\*Accepted.

NEEDHAM MARKET.—For the erection of a house at Needham Market, for Mr. George Cooper. Mr. Henry Geo. Bishop, Architect, Market-place, Stowmarket.—

J. Death and Sons ... £1,850	C. Theobald and Sons £1,610
W. Murray ... 1,645	J. Croft ... 1,600
L. Girling ... 1,635	H. Plummer ... 1,599

NEW BARNET.—For the erection of a villa residence at New Barnet, for Mr. J. Rowley. Mr. J. W. Stevens, Architect.—

Elwood ... £1,250	Wheeler and Peak ... £1,130
Smith ... 1,197	E. Houghton and Son 1,116
Seth Harris ... 1,190	Butcher ... 1,085

ORPINGTON (Kent).—For a new infants' school, and alterations to the existing school buildings at the Chislehurst-road Board Schools. Mr. St. Pierre Harris, Architect and Surveyor, 8, Ironmonger-lane and Orpington. Quantities by Messrs. Stanger and Son.—

General Builders, ...	Holt and Son ... £2,394 0 0
Limited ...	J. Lonsdale ... 2,321 0 0
Chessum and Son ... 2,777 0 0	T. D. Grady ... 2,495 0 0
T. Knight ... 2,726 0 0	Somerford and ...
Davis and Leane ... 2,599 17 6	Son* ... 2,473 0 0

\* Accepted subject to the approval of the Educational Department.

## BRICKS. LIME. CEMENT.

**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

**WOOD BLOCK FLOORING.**  
**MASTIC** for laying above supplied in any quantity.  
W. BRIGGS, Chemical Works, DUNDEE,  
SOLE MAKER OF

"Tenax" Building Rock Composition  
For Wall Cavities.

**PILKINGTON'S**

WORKS:  
CLIFTON JUNCTION,  
NEAR MANCHESTER.  
**TILES.**  
MANUFACTURERS OF HIGH CLASS TILES.  
For Floors, Halls, Hearths, Grates and Furniture.  
EVERY VARIETY OF TILE WORK FOR  
CHURCHES, PUBLIC BUILDINGS AND  
PRIVATE RESIDENCES.

London Show Rooms:  
Lyric Chambers, 45, Whitcomb Street W.C.  
Manchester Show Rooms  
37, Cross Street

OXENHOPE (Yorks).—Accepted for the erection of store premises and seven houses, Station-road. Mr. John Haggas, Architect, North-street, Keighley.—

Masonry.—Jonas and John Crabtree, Crum- mock, Oxenhope	
Joinery.—Heaton Whitaker, Uppertown, Oxenhope	
Slating.—Hill and Nelson, Bradford	£1800
Plastering.—George Edmondson, Lees, near Keighley	
Plumbing.—Frank Raw, Station-road, Oxen- hope	

OXENHOPE (Yorks).—Accepted for the erection of six houses, Goose Green. Mr. John Haggas, Architect, North-street, Keighley.—

Masonry.—Jonas and John Crabtree, Crum- mock, Oxenhope	
Joinery.—William Wright, Station-road, Oxenhope	
Slating.—William Thornton, Bingley	£1200
Plastering.—Jonas Briarley, Cross Roads, Keighley	
Plumbing.—Frank Raw, Station-road, Oxen- hope	

PENARTH.—For the execution of private street improvement works, for the Penarth Urban District Council. Mr. E. I. Evans, C.E., District Council Offices, Penarth.—

Names of Streets.	Barnes, Mackay & Chaplin & Co. Davies, Cardiff.	E. H. Page, Cardiff.	W. B. Shepherd, Cardiff.
Alberta-place ...	165 16	185 8 2	173 13 3
Alberta-road ...	329 0 10	385 0 10	329 5 3
Augusta-road ...	451 13 10	342 15 11	437 8 5
Bridgeman-road ...	582 16 9	639 3 11	531 11 5
Cliff-parade ...	458 1 7	503 18 4	456 16 8
Cliff-road ...	429 13 0	465 19 0	426 13 11
Herbert-terrace ...	49 19 5	48 15 4	47 13 8
John-street ...	12 12 9	12 14 8	11 18 10
Passage ...	895 0 6	965 10 3	876 5 1
Plymouth-road ...	27 19 10	23 15 10	26 10 1
Plassey-street ...	196 2 8	245 4 10	227 8 10
Sully-terrace-lane ...	196 2 8	245 4 10	227 8 10

Totals ...	3,593 2 8	3,937 7 1	3,565 0 7
Less if artificial stone paving is used ...	201 13 0	103 0 10	nil.
Totals ...	3,391 9 0	3,769 6 3	3,463 0 7

\* Accepted by the Council.  
[Surveyor's estimate £3,500.]

RUSHDEN (Northants).—For the erection of two houses, Oakley-road, for Mrs. Southam. Mr. H. H. Packer, Architect, Silver-street, Wellingborough.—

Whittington & Tomlin £339 0	T. Willmott ... £617 10
H. Sparrow ... 635 0	Dickens Bros. ... 610 0
Coates and Son ... 629 0	F. Henson, Finedon* 565 0

\* Accepted.

ST. ALBANS.—For new printing works at St. Albans, for Messrs. Smith and Co., of Hutton-street, London, E.C.—

Smith and Son ... £9,540	W. Sparrow* ... £7,080
E. Dunham ... 8,404	J. and W. Savage ... 7,001
J. T. Bushell ... 8,330	C. Miskin ... 7,130

\* Too late.

SOUTHAMPTON.—Accepted for laying, &c., four and a half miles cast-iron water mains, for the Corporation. Mr. Wm. Matthews, Waterworks Engineer, Municipal Offices, Southampton.—

F. Osman, Southampton	£4,440
-----------------------	--------

SOUTHAMPTON.—For laying a main sewer, Derby-road, for the Corporation. Mr. W. B. G. Bennett, Borough Engineer, Southampton.—

H. Stevens and Co. £3,791 0	W. W. Batten ... £3,087 17
Dyer and Son ... 3,490	F. Osman, Southamp- ... 2,907 0
Saunders and Co. ... 3,210	ton* ...
Roe and Grace ... 3,156 0	*Accepted.

SOUTHEAST-ON-SEA.—For the erection of the superstructure of the "Hotel Victoria," for Mr. J. P. Burdett. Messrs. Thompson and Greenhaigh, Architects, Southend-on-Sea.—

Shelbourne & Co. £18,750 0 0	A. E. Symes ... £17,900 13 1
Thompson and ...	E. West ... 17,343 0 0
Beveridge ... 18,350 0 0	Pattinson & Sons, ...
T. Mitchell ... 18,135 0 0	5, Whitehall* 17,327 0 0
Dupont and Co. 18,070 0 0	*Accepted.

SOUTHEAST-ON-SEA.—For the construction of underground conveniences, High-street, for the Corporation. Mr. Harold Harlock, Borough Surveyor.—

Thomas and Edge £3,127 0 0	A. E. Symes ... £2,795 19 0
Dupont ... 2,800 15 2	

STOWMARKET.—For the erection of ten cottages in Crown-street, Stowmarket, for Mr. Charles Marriott. Mr. Henry Geo. Bishop, Architect, Market-place, Stowmarket.—

W. Murray ... £2,470	H. Plummer ... £2,230
A. Taylor ... 2,315	Chenery and Gillson 1,800

SWANSEA.—For the erection of school buildings, Gendros, for the Cocket School Board. Mr. G. E. T. Lawrence, Bridge House, 181, Queen Victoria-street, London, E.C. Quantities by Messrs. W. H. Barber and Son, Surveyors, 22, Buckingham-street, Adelphi, London, W.C.—

Thos. Watkins & Co. ... £3,241 11 9	Gustavus Bros. ... 2,647 4 0
H. Billings ... 3,168 13 7	Thomas Davies ... 2,623 12 8
Thomas Waters ... 3,073 7 2	J. and T. Weaver ... 2,605 0 0
David Rees ... 3,017 0 0	Elias Morgan ...
D. Jenkins ... 2,943 0 0	Landore, Swan- ...
Lloyd Bros. ... 2,770 10 0	sea* ... 2,504 0 0

\* Accepted.

TRIMLEY (Suffolk).—For the building and drainage of a laundry, for Mr. Sydney L. Harlock. Mr. Matt. Garbutt, Architect, 40, Great James-street, Bedford-row, W.C.—

Fred. Bennett ... £1,020 0	Building. Drains. The Whole. ...
Wm. Wawman ... 879 0	£1,113 0
F. C. Thurman, Walton* 793 11	87 957 0

\* Accepted for the whole.

WALTHAMSTOW.—Accepted for machinery foundations, at and for the extension of the Low Hall, Sewage Works, Walthamstow, for the Urban District Council. Mr. G. W. Holmes, Engineer.—

Walter Lawrence, Waltham Abbey, N.	£2639
------------------------------------	-------

WANSTEAD (Essex).—For making-up Pelham-road a d part of Pulteney-road, for the Urban District Council.—

G. Bell ... £713 0 0	Jesse Jackson ... £244 0 0
Wm. Gibbs and Co. ... 572 4 2	W. Griffiths ... 428 0 0
G. Wilson ... 549 0 0	John Reeves, Wal- ...
Joseph Jackson ... 515 0 0	thamston (ac- ...
W. and C. French ... 496 0 0	cepted) ... £28 0 0
John Jackson ... 490 0 0	

WIMBLEDON.—For additions, &c., to parochial school buildings, Haydon-road, for the Wimbledon Parochial School Committee. Mr. H. G. Quarternain, Architect, Kingston-road, Merton, Surrey.—

Williams ... £1,730	Burges, South Wimble- ...
Bulled ... 1,341	don* ... £1,235
Brown ... 1,310	Boothman ... 1,275
	Davey Bros. ... 1,240

\* Accepted.

## GLOSSARY OF TECHNICAL TERMS

used in Architecture and the Building Trades.  
By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.  
London: E. and F. N. SPON, 125, Strand.

## CIVIL SERVICE TECHNICAL EXAMS.

—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

## ASSISTANT SURVEYORS, R.E. CIVIL

STAFF EXAMINATION ANNOUNCED. For terms of tuition, apply to Mr. G. A. T. MIDDLETON, A.R.I.B.A., 56, Dafforne-road, Upper Tooting, S.W. First place on three occasions.

## R.I.B.A. EXAMS. PREPARATION

personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each. Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## SANITARY INSPECTORS' EXAMINA-

TIONS.—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

# GODWIN'S TILES

## for PAVEMENTS WALLS HEARTHES &c

AS USED BY THE  
Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. — Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, WITHINGTON,**  
Patronised by Royalty. | Established 1848. | Near HEREFORD.



# THE THORNTON-PICKARD

SIMPLEST AND BEST.

## CAMERAS AND SHUTTERS.

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.

Illustrated  
Catalogue Free.

20,000 yards  
FLOOR TILES  
in Stock.  
Quick Supply!  
Best Quality!  
Low Price!



## INDEX OF ILLUSTRATIONS AND CONTENTS.

ILLUSTRATIONS.		PAGE			PAGE
Supplement:—House in Hampshire for Mrs. Scott, C. F. A. Voysey, Architect.			French Feudal Castles	76	Correspondence
Westwood House, Sydenham, John L. Pearson, R.A., Architect...	73		Keystones	77	Society Meetings
			"Greek Sculpture and Greek Legend," by F. S. Granger	78	
			"The Educational Training of Architects," by Leopold Eidlitz...	79	
			Bricks and Mortar	79	
			Professional Items	82	
			Trade and Craft:—Electric Lighting at West Ham —A New Paving Stone—Eastbourne Building Bye-laws—A Gunpowder Motor—A Diamond Jubilee Panel—Claim for Damage	83, 84	
CONTENTS.			SURVEYING AND SANITARY SUPPLEMENTS:—		
Proposed New Buildings for the L.C.C.	73		The Practical Designing of Iron and Steel Roofing, by Alexander Drew		
"Heraldry in English Medieval Architecture," by W. H. St. John Hope	74		Sanitary Science, by Paul Ogden		
Perspective in Every-day Practice, by Wm. N. Cumming, A.R.I.B.A.	75		Chelsea's New Promenade		
			Surveying and Sanitary Notes		

**"THE BUILDERS' JOURNAL" ADVERTISERS.**

**Names and Addresses with the page on which their Announcements Appear.**

Adams & Co. ....	vi	Couzens, G. and F., Cardiff ... ..	—	Hope, Henry, Birmingham ... ..	xi	Robson & Co., Sunderland ... ..	—
Adams, Robert, London ... ..	vi	Cox, Sons, Buckley & Co., London... ..	—	Hyde & Co., G., London ... ..	viii	Rogers, S. E., London ... ..	xi
Adams, T., & Sons, Ltd., Birmingham	xi	Dennis, Henry, Ruabon ... ..	—	Itter, A. W., Peterborough ... ..	—	Safety Tread Syndicate, Ltd. ... ..	xi
Albion Clay Co., Ltd., London ... ..	—	De Ridder, R. P., Liverpool ... ..	—	Jones & Attwood, Stourbridge ... ..	i	St. Pancras Ironwork Co., London..	—
Allday, J. L., Birmingham ... ..	vii	Doulton & Co., Lambeth ... ..	i, ii	Jones, James, Birmingham ... ..	—	Self-Lock Roofing Tile Co., Ltd. ...	—
Anaglypta, Darwen ... ..	—	Easton, Anderson & Goolden, Ltd. ...	iv	Jones and Willis, London ... ..	—	Skidmore, Thos., & Son ... ..	—
Ashmore, Benson, Pease & Co., Ltd.	—	Eastwood & Co., London ... ..	x	Kauri Timber Co., Ltd., London ...	—	Smokeless Fire Co., Ltd., London ...	i
Attwood, J., Stourbridge ... ..	—	Ellis, Partridge & Co., Leicester ...	x	Kaye, Joseph, & Sons, Ltd., London	—	Stanley Bros., Ltd., Nuneaton ...	xi
Ball, H. A. ... ..	—	Elsley, Thomas, London ... ..	—	King, John, Liverpool ... ..	i	Stiff & Sons, London ... ..	iii
Barnett, Edward, Walsall ... ..	—	Emley & Sons, Newcastle-on-Tyne ...	—	Lewis, J., London ... ..	v	Strode & Co., London ... ..	i
Barrows & Co., Ltd., Banbury ... ..	—	Etridge, J. J., Junr., London ... ..	—	London Hoist and Chain Co. ... ..	vii	Szerelmeij & Co., London ... ..	—
Bath Stone Firms, Ltd., Bath ... ..	—	Ewart & Sons, London ... ..	—	London Plate-Glass Insurance Co.,	—	Talbot Co., Leeds ... ..	—
Batchelar, J., & Co., London ... ..	viii	Farmiloe, G., & Sons, London ... ..	—	Ltd. ... ..	—	Thornton-Pickard Mfg. Co. ... ..	x
Bayliss, James & Bayliss ... ..	—	Farrar, B., & Co., London ... ..	—	McNeill, F., & Co., London ... ..	ix	Twyford's, Ltd., Hanley ... ..	vii
Bell, R., & Co., London ... ..	xi	Fawcett, M., & Co., London ... ..	—	Maw & Co., Ltd., Jackfield ... ..	—	Ward, B., & Co., London ... ..	vii
Bennett, John, London ... ..	—	Gibbs Bros., Loughborough ... ..	xi	Measures Bros., Ltd., London ... ..	v	Warings, Ltd., London ... ..	xii
Blackman Ventilating Co., Ltd. ...	xi	Glover, F. A., & Co., London ... ..	—	Medway, M. T., & Co. ... ..	—	Waygood, R., & Co., Ltd., London ...	—
Blundell, Spence & Co., Hull ... ..	—	Godwin, W., & Son, Withington ...	x	Mellowes & Co., Sheffield ... ..	vii	Webb & Co., London ... ..	i
Boote, Ltd., T. & R., Burslem ... ..	—	Gooding, W., London ... ..	—	Minton, Hollins & Co. ... ..	—	Wilkinson, W. B., & Co., Ltd. ...	—
Brady, G., Manchester ... ..	—	Granite Silicon Plaster Co. ... ..	—	N. A. P. Window Co., London ... ..	iii	Williams, G. A. & Son ... ..	iii
Briggs, W., Dundee ... ..	x	Gregory, Thomas, & Co., London ...	viii	Oates & Green, Ltd., Halifax ... ..	vi	Wilson & Co., London ... ..	ix
Burmantofts, Leeds ... ..	—	Grundy, John, Ltd., London ... ..	—	Parker, Robert, & Co., Liverpool ...	—	Woolmans, Wm., & Co., London ...	—
Candy & Co., Ltd., London ... ..	—	Hamilton & Co., London ... ..	—	Patteson, J. & H., Manchester ... ..	i	Wragge, Geo., Manchester ... ..	viii
Carter & Co., Poole, Dorset ... ..	—	Harley and Sugden, Ltd., Halifax ...	xi	Perkins, A. M. & Sons, Ltd., London	—	Wright, G., & Co., Rotherham ...	i
Charteris & Longley, London ... ..	i	Hentschel, C., & Co., London ... ..	i	Pilkington Tile and Pottery Co. ...	x	Young & Marten, Stratford ... ..	i, ii
Claridge's Asphalt Co., Ltd. ... ..	—	Homan & Rodgers, London ... ..	i, vi	Roberts, Adlard & Co. ... ..	—	Young & Co., J., London ... ..	viii

ADCOCK, Mr. W. J., Builder, Dover.

"I have proved your invention easy of application. Both my joiners and apprentices could fix the apparatus without difficulty after having inspected a model."

**CRICKMAY & SONS, Messrs., F.R.I.B.A.,**  
**London, S.W.**

"The Patent Windows supplied for Sir Edward Walters' house at Salisbury gave us every satisfaction. We shall continue to use them."

**JONES, Mr. PETER, Sloane Sq., London.**

"I am glad to be able to bear testimony to the great utility and general usefulness of the N.A.P. Sliding Windows. I am very pleased with them, and should be sorry to be without them."

**LUCAS & AIRD, Messrs., Contractors, London.**

"Cheap, simple, and effective. We are using some 1200 sets of your fittings on these exceptionally tall buildings."

**MORGAN, ISTD & MORGAN, Messrs.,**  
Contractors, Southampton.

"A very clever arrangement, and one which will certainly come into daily use."

PERRY & READ, Messrs., F.R.I.B.A.,  
London.

"It is with pleasure that we are able to inform you of our entire satisfaction with the 'N.A.P. Windows,' and we shall continue to

specify them."

Write for Full Particulars to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.

G. A.  
**WILLIAMS**  
 & SON.

**BLINDS**

WIRE BLINDS  
 Made to Order  
 TO ANY DESIGN

21.  
**QUEEN'S RD.**  
**BAYSWATER**  
**LONDON.**  
 W.

**STIFF & SONS, LAMBETH, S.E.**

MANUFACTURERS OF

**BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS**  
**CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.**

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS,  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

**For Illustrated Price Lists apply to**

**JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.**



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
March 19	Alterations to School, London, E.	St. George's-in-the-East Vestry	E. A. Wilson, Vestry Hall, Cable-street, E.
19	Shops and Dwelling Houses (2), Newquay, Cornwall	W. Jacka	The Proprietor, Newquay.
20	New Church, Cashilard (Ireland)		E. J. Tave, Architect, Strand, Derry.
20	Cottages (3), Gigha (Argyllshire)		H. Douglas, Gigha.
20	Labourer's Cottages, Omagh	Guardians	W. Cathcart, Workhouse, Omagh.
20	Annual Contracts, London	Lewisham Board of Works	Board's Offices, Catford, S.E.
20	Masonic Hall, Belfast	Building Committee	J. H. Gault, 5, Agres-street, Belfast.
20	Various Works for Warehouse, &c., Halifax		A. G. Dalzell, 15, Commercial-street, Halifax.
20	Alterations and Repairs to Inn, King's Lynn	J. and H. Yates	G. Thorpe, Exchange-square, Wisbech.
20	Restoration of Church Roof, Langtoft	Vicar and Churchwardens	J. C. Traylen, Diocesan Surveyor.
20	Various Works for Purifier, House, &c., Leeds	Gas Committee	R. H. Townsley, Municipal Officer, Leeds.
20	New Bank at Potrush (Ireland)	Belfast Banking Co., Limited	V. Craig, 5, Lanbaid-street, Belfast.
20	Chapel and Schoolrooms, Blaencaerau (Wales)	Independent Church	J. Morris, Caern-road, Blaencaerau.
22	Cemetery Registrar's House, Blackpool	Corporation	Registrar's Office, New-road, Blackpool.
22	New Steps, Gateway, &c., Manchester	Corporation	City Surveyor's Office, Town Hall, Manchester.
22	Entrance Lodge at New Cemetery, Middlesborough	Cemeteries' Committee	F. Baker, Borough Engineer, Municipal-buildings, Middlesborough.
22	Converting into Shops, Cardiff		W. H. D. Caple, 1, St. John's-square, Cardiff.
23	Public Elementary School, Portsmouth	School Board	G. C. Vernon-Inkpen, 75, King's-road, Southsea.
24	Cottage, Fire Engine-house, &c., Barnet	Urban District Council	Surveyor, 40, High-street, Barnet.
24	Additions, &c., to Dye Works, Halifax		R. and R. E. Horsfall, 15, George-street, Halifax.
24	Buildings for Sanitary Works, Old Trafford, Manchester	Stretford Urban District Council	J. Bowden, 14, Ridgefield, Manchester.
24	Police Station and Free Library, Upper Wortley	Leeds Corporation	City Engineers, Municipal Buildings, Leeds.
25	Assembly Rooms, Market Hall, &c., Featherstone (Yorks.)	Assembly Rooms and Institute Company	Garside and Keyworth, Architects, Pontefract.
25	Show-rooms, &c., Gloucester	Corporation	R. Read, City Surveyor, Guildhall, Gloucester.
25	Offices and Shops, Castleford	Concert and Lecture Hall Company	R. M. McDowall, Architect, Castleford.
25	Pair of Semi-detached Houses, Ovenden (Yorks.)		M. Hall, 29, Northgate, Halifax.
25	Schools, Reading	School Board	G. W. Webb, Market-place Chambers, Reading.
26	Works at First Presbyterian Church, Strabane (Ireland)	Rev. E. Clarke	R. Stevenson, Main-street, Strabane.
27	Drapery Establishment, Sheffield	J. Walsh	Flackton, Gibbs, and Flackton, 15, St. James's-row, Sheffield.
27	Various Works for Epidemic Hospital, Alford, Aberdeen	District Committee	Duncan and Son, Architects, Tarriff.
27	Church Restoration, Fleet (Lines)		W. M. Fawcett, 1, Silver-street, Cambridge.
31	County School, Newtown (Mon.)	Newton School Governors	H. Teather, Andrews-buildings, Queen-street, Cardiff.
31	Public Baths, Sheffield	Health Committee	C. F. Wike, Town Hall, Sheffield.
31	Widening Bridge, Whitfield (Northumberland)	County Council	County Surveyor's Office, Moot Hall, Newcastle.
April 1	Repairs and Materials (Triennial Contracts)	War Department	Commanding Royal Engineer (in each district).
2	Post Office, West Hartlepool	Commissioners H.M. Works	12, Whitehall-place, S.W.
3	Public School, Pontypridd	School Board	A. O. Evans, Post-Office Chambers, Pontypridd.
3	Roof, &c., for Retort House, Sheffield	United Gas Company	F. W. Stevenson, Company's Engineer.
May 3	Prison and Police Barracks, Cairo	Egyptian Government	Service Administratif Offices, Cairo.
No date.	Bakery and Warehouse, Ilkeston Moor, Leeds	Ilkeston Co-operative Society	Secretary, 12, South-street.
22	House, Shaw-street, Rochdale	T. Firth	N. Mills, Architect, 67, Lord-street, Rochdale.
22	Alterations and Additions, Board Schools, Brandon	School Board	E. Boardman and Son, Queen-street, Norwich.
22	Three Chapels near Walsall		Hickton and Farmer, Architect, Walsall.
22	Hotel, Blyth, Northumberland		Mr. Savage, 12, Grey-street, Newcastle-on-Tyne.
22	Additions to Technical School, Batley		H. B. Buckley, Architect, 8, East Parade, Leeds.
22	Villa, Deighton-lane, Healey, Batley, Yorks		H. B. Buckley, Architect, 8, East Parade, Leeds.
22	Warehouse, Hunslet-road, Leeds		J. E. Leak, Architect, Hunslet.
22	Eight Houses, Arthington-avenue, Hunslet		W. M. Coghill, Architect, Beech Grove, Stourton.
22	Block of Houses, Springfield House Estate, Bradford		Mawson and Hudson, Architect, Exchange, Bradford.
22	Additions to "Robin Hood" Inn, Bradford		J. Jackson, Architect, Barry-street, Bradford.
<b>ENGINEERING—</b>			
March 20	Wrought-iron Girder Bridge, Alnwick	Rural District Council	W. H. Walton, Clerk to the Council, Alnwick.
20	Rebuilding Sea Wall, Goldcliff (Man)	H.M. Commissioners	T. Rees, Corn Exchange Chambers, Newport.
22	Overhanging foot bridge, Arklow (Wicklow)		Secretary to the Grand Jury, Court House, Arklow.
22	Reservoir, &c., Burnley	Corporation	G. H. Hill and Sons, Albert Chambers, Albert-square, Manchester.
22	Turbine Plant and Power Pump, Guildford	Corporation	Engineer, Municipal Offices, Guildford.
22	Steam Crane, Belfast	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
23	Steam Road Roller, Barry, near Cardiff	Urban District Council	
25	Steam Road Roller, Stratford-upon-Avon	Corporation	R. Dixon, Borough Engineer, Stratford-upon-Avon.
25	Two Lancashire Boilers, Wakefield	Guardians	Shepherd and Watney, Albion-street, Leeds.
26	Hot Water Supply Works, Lincoln	Governors of the County Hospital	Surveyor's Office, Lincoln.
29	Cast-iron Pipes and Castings, Cork	Corporation	H. A. Cutler, Municipal Buildings, Cork.
April 2	Sewerage Works, Newburn-on-Tyne	Urban District Council	Engineer, Council Offices, Newburn-on-Tyne.
13	Harbour Work extensions at Ostende	Provincial Administration	Brussels, 17, Rue des Augustins.
<b>IRON AND STEEL—</b>			
March 20	Tube Plates, Lisbon	Stores Department, Lisbon	Chief Engineer, Waterworks Department, Lisbon.
25	Iron Fencing (500yds.), Cardiff	Corporation	Waterworks Engineer, Town Hall, Cardiff.
April 15	Rails (2665 tons), Bucharest	Direction of Roumanian State Railways	Rue de Chateaudun 28, Paris.
<b>PAINTING AND REPAIRS—</b>			
March 25	Painters' Work to Municipal Buildings, Winchester	Corporation	City Surveyors Office, Winchester.
<b>ROADS—</b>			
March 19	Materials, Downham Market (Norfolk)	Rural District Council	T. Reed, Clerk, Downham Market.
19	Stone (5000 tons of Hartshill, &c.), Abingdon	Rural District Council	T. B. Warren, Surveyor to the Council, Abingdon.
19	Whinstone, Flaxton (Yorks.)	Rural District Council	J. Peters, 4, New-street, York.
19	Flagging and Paving, Heaton Norris	Urban District Council	Council Office, Heaton Norris.
19	Road Stone (3120 tons), Warwick	Rural District Council	H. C. Passman, 43, Bedford-street, Leamington.
19	Cartage, Warwick	Rural District Council	H. C. Passman, 43, Bedford-street, Leamington.
20	Road Materials, Hambledon (Guildford)	Rural District Council	G. Lintott, Surveyor, Cranleigh.

## EASTON, ANDERSON &amp; GOOLDEN, LIMITED,

3, WHITEHALL PLACE, LONDON, S.W.

Telegrams—"EGYPTIAN, LONDON."

22, BILLITER STREET, E.C.

Telephone—3695.

## ELECTRIC &amp; HYDRAULIC LIFTS &amp; CRANES,

PUMPS, RAMS,

WATER SUPPLIES, ENGINES AND BOILERS,

ELECTRIC LIGHT AND POWER.



MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD



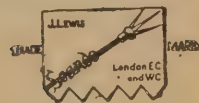
COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>ROADS—continued.</b>			
March 20	Cartage of Stone, Leicester	County Council	J. W. Shaw, Surveyor, Oadby.
" 20	Broken Granite, Limestone, &c., Repton (Derbyshire)	Rural District Council	C. F. Chamberlin, Union Office, Burton-on-Trent.
" 20	Street Works, Stone (Staffs.)	Urban District Council	S. Watson, Westbridge-road, Stone.
" 20	Hauling Materials, Wootton Bassett (Wilts.)	Rural District Council	Mr. Avenell, Surveyor, Parton.
" 20	Carting of Material, Huntingdon	Rural District Council	M. L. Lewin, District Surveyor, Newtown, Huntingdon.
" 20	Materials, 1 Year, to March 31, 1898, Middlesbrough	Rural District Council	W. H. Dixon, Surveyor, Kirby Carlton, Northallerton.
" 20	Making-up Carriage-way, &c., Surbiton	Urban District Council	S. Mather, Victoria-road, Surbiton.
" 20	Street Works, Bury (Lancs.)	Corporation	Borough Engineer, Bank-street, Bury.
" 20	Cartage, Beverley	Corporation	Gas Manager, Beverley.
" 22	Paving, &c., London, S.E.	Bermondsey Vestry	F. Sumner, Town Hall, Spa-road, Bermondsey.
" 22	Street Watering, Carting, &c., Maidenhead	Urban District Council	Borough Surveyor, Town Hall, Maidenhead.
" 23	Road Materials, 1 Year, to March 31, 1898, Heavitree (Devon)	Urban District Council	J. W. W. Mathew, Clerk to the Council, Heavitree.
" 24	Carting Road Material, Pottersbury (Northants.)	Rural District Council	X. A. Endors, Surveyor, Yardley Gobion, Stony Stratford.
" 24	Sewerage, Making up, &c., Snodland (Kent)	Investment Company, Limited	G. W. Cobham, 49, Windmill-street, Gravesend.
" 24	Granite and Slag, Stony Stratford	Rural District Council	X. A. Endors, Surveyor, Yardley Gobion.
" 24	Granite, 1 Year, to March 31, 1898, Wigston Magna (Leics.)	Urban District Council	Surveyor, 32, Bell-street, Wigston Magna.
" 24	Carting Granite, 1 Year, to March 31, 1898, Wigston Magna (Leics.)	Urban District Council	Surveyor, 32, Bell-street, Wigston Magna.
" 24	Making up and Paving Road, Fulham	Vestry	C. Botterill, Town Hall, Walham Green.
" 27	Granite (15,000 tons), Aylesbury	Bucks County Council	R. J. Thomas, County Hall, Aylesbury.
" 27	Carting Road Material, 1 Year, to March 31, 1898, Chester	Cheshire County Council	County Surveyor's Office, Castle, Chester.
" 27	Materials, 1 Year, to March 25, 1898, Colne (Lancs.)	Highways and Sewers Committee	T. H. Hartley, Borough Surveyor, Colne.
" 27	Flints, 1 Year, to March 31, 1898, Warminster	Rural District Council	R. H. Bourne, Crookerton, Warminster.
" 29	Road Material, 1 Year, to March 31, 1897, Macclesfield	Rural District Council	Assistant Clerk, Union Offices, Macclesfield.
" 29	Granite, &c., Beckenham	Urban District Council	J. A. Angell, Council Offices, Beckenham.
" 30	Street Works, Dover	Corporation	Borough Engineer's Office, Town Hall, Dover.
" 30	Tar Paving Footpaths, Southampton	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
April 5	Granite (300 tons), East Dereham	Council	H. G. Himson, Surveyor, Theatre-street, East Dereham.
" 6	Sewering, Levelling, &c., Mansfield (Notts)	Corporation	F. Vallance, Borough Surveyor, Mansfield.
<b>SANITARY—</b>			
March 19	Sewerage Works, Denton (Lancs.)	Urban District Council	G. H. Newton, Council Offices, Market Place, Denton.
" 19	New Sewer, Hull	Guardians	Freeman, Son, and Gaskell, Albert Chambers, 11, Carr-lane, Hull.
" 20	Sewerage Works, Mangettsfield (Gloucestershire)	Rural District Council	W. L. D. Maitre, Bank Chambers, Staple Hill, near Bristol.
" 22	Cast-iron Pipe Sewer, Bury	Sewage Committee	J. Cartwright, Borough Engineer, Bury.
" 22	Labour for Sewering, Whitefield (Lancs.)	Urban District Council	T. Thorpe, Knowsley-street, Whitefield.
" 22	Scavenging, 1 Year, to March 31, 1898, Bridlington	Urban District Council	F. Reed, 15, Hilderthorpe-terrace, Bridlington.
" 23	Sewers, Lewisham	Board of Works	Board of Works Office, Catford, S.E.
" 23	Sewerage Works, Poulton-le-Fylde (Lancs.)	Rural District Council	Hinnell and Murphy, 41, Corporation-street, Manchester.
" 25	Sewers, &c., Hayland Nether (near Barnsley)	Urban District Council	W. Farrington, Surveyor, Hyland.
" 25	Sewerage Works, Sandgate	Urban District Council	A. R. Bowles, Engineer to the Council, Sandgate.
" 25	Sewer (600ft.), Barnstaple	Corporation	J. Bosson, Municipal Buildings, High-street, Barnstaple.
" 27	Pipe Sewers, Gloucester	Rural District Council	J. F. Trew, Council Chambers, Gloucester.
" 29	Drainage and Plumbing Works, Stone, Staffs.	Guardians	J. J. Chapman, Architect, Stone.
" 30	Glazed Stoneware Pipe Sewers	Brick and Tile Company	W. Harmer, 137, London-road, Southborough.
April 1	Main Drainage Works, Sumbury-on-Thames	Urban District Council	J. Anstie, 17, Victoria-street, S.W.
" 2	Main Drainage Works, Ashby-de-la-Zouch	Rural District Council	J. B. Everard, 6, Millstone-lane, Leicester.
July 31	Sanitary Improvement Works, Oporto, Portugal	Corporation	Municipal Town Hall, Oporto.
<b>TIMBER—</b>			
March 22	Sleeper Blocks (30,000 to 35,000), Dundalk	G.N. Railway Company	T. Morrison, Amiens-street, Terminus, Dublin.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
March 17	Plans for Extension of Workhouse, &c., Swansea	£10 10s.	Guardians.
" 20	Designs for Town Hall, Enniskillen (co. Fermanagh, Ireland)	£50, £20, £10	Commissioners.
" 31	Railway Stations, Christiania	Kroner 10,000, 4000, 2000, 1000	Railway Offices, Department of Public Works, Victoria-terrace, No. 6, Christiania.
" 31	Designs for Public Halls and Municipal Offices, Govan		Commissioners of the Burgh.
April 17	Plans and Designs for Assembly Hall, &c., Guernsey	£100, £50	States of Guernsey.
" 21	Competitive Schemes for Water Supply, Long Buckley, Northamptonshire	30 guineas	Rural District Council.
" 30	Designs for Police Station and Court House, Halifax	£50, £25	Corporation.
July 1	Designs for Water Supply, Elne (France)		La Mairie, Elne, Pyrénées Orientales.
No date.	Design for Nurses Home, Wandsworth and Clapham Union.	£52 10s., £21, £10 10s.	Guardians.

TELEGRAMS:  
"WEATHERVANE; LONDON."



**J. LEWIS,** 5 & 6, Great Winchester Street, LONDON, E.C.

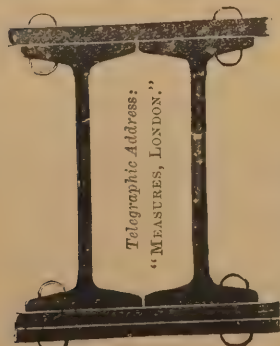
**LIGHTNING CONDUCTORS.**

ELECTRICAL EXHIBITION CRYSTAL PALACE AWARD, 1892.

"LEWIS LINK," The only EFFICIENT COUPLING for Conductors. PATENT No. 16,641.

SEE SECTION Fig. 2.

VILLAS,  
MANSIONS,  
SCHOOLS,  
CHURCHES,  
FACTORIES,  
CHIMNEY  
SHAFTS, &c.



**MEASURES BROTHERS, LTD.**  
**LONDON.**

SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

Have now in their Town Stock 6,500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.  
Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.



Telephone No. 4586.



From 3in. to 20in. deep.



# FOR **SCHOOLS** Etc., **SANITARY APPLIANCES,** **ADAMS & Co.'s** CATALOGUE.

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
 BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

**ROBT. ADAMS, 67, Newington Causeway, London, S.E.**

These marvellous  
Double and Single  
Action, Silent,  
Adjustable, and  
Self Compensating

## SPRING HINGES

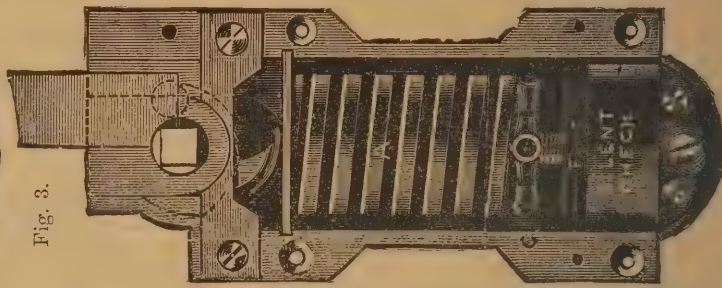
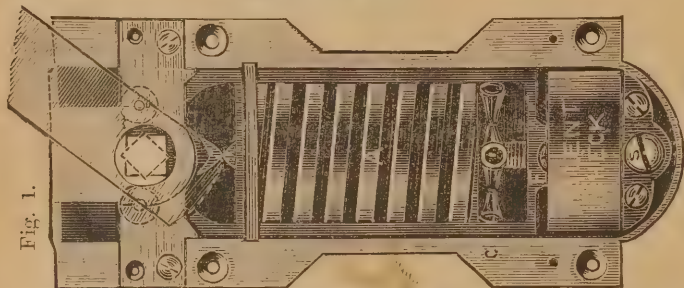
Guaranteed to last  
longer and work better  
than any hitherto  
made.

CAN BE FITTED TO ANY  
DOOR.

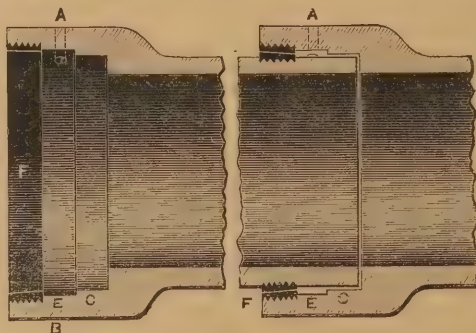
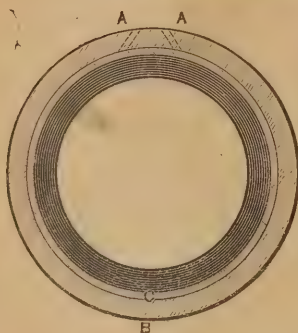
Fig. 1 (Silent).  
A Double-Action  
Spring Hinge  
which opens to and  
closes from the angle  
of 135°.

Fig. 3 is the new  
Single Action Spring.  
It opens to and closes  
from the angle of 180°,  
i.e., "wide back."

THE FIRST  
SPRINGS EVER  
PRODUCED WITH  
THESE GREAT  
ADVANTAGES.



## GREEN'S PATENT TRUINVERT PIPE.



AA—Holes for pouring in cement or composition.  
—Strengthened and Lengthened Socket.

CC—Inner Socket and Rest.  
EE—Chamber for cement or composition.  
FF—Stanford Joint in new position.

This pipe secures TRUE ALIGNMENT OF INVERT, INCREASED STRENGTH IN THE SOCKET, THREE GAS AND WATERTIGHT CONNECTIONS AT EVERY JOINT, and while allowing for a slight settlement when first laid, forms an ABSOLUTELY RIGID JOINT directly the cement sets.

### POINTS.

- 1.—GAS AND WATER-TIGHT JOINTS EASILY MADE UNDER WATER.
- 2.—TRUE ALIGNMENT OF INVERT.
- 3.—SOCKET THE STRONGEST PART OF THE PIPE.
- 4.—NO SPECIAL JUNCTIONS REQUIRED.

OATES & GREEN, Ltd., Halifax.

## HOMAN & RODGERS,

ORIGINAL PATENTEES OF ALL GIRDERS

**ENGINEERS.**

FORMED OF JOISTS AND PLATES

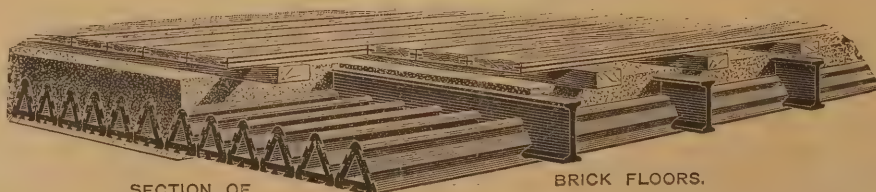
CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS,  
 USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES,

PIERS,



GRANITIC

PAVING STEPS,

ASPHALTE.

LONDON (OFFICES: 17, GRACECHURCH STREET, E.C.  
 WORKS: NINE ELMS LANE, S.W.  
 Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue.

MANCHESTER (OFFICES: 10, MARSDEN STREET.  
 WORKS: WEST GORTON.  
 Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

**FIRECLAY BRICK WORKS, PARKSTONE, DORSET**



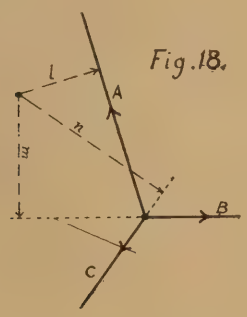
# Surveying and Sanitary SUPPLEMENT.

MARCH 17TH, 1897.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.

BY ALEXANDER DREW.  
(Continued from page xvi.)  
No. III. OF SERIES.

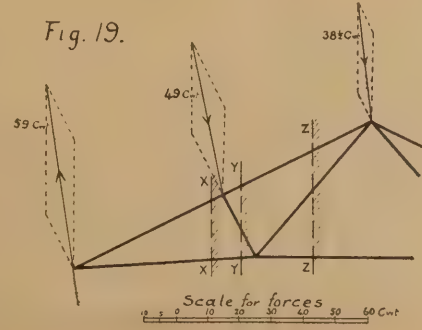
BEFORE proceeding further with the application of this graphic method of drawing Stress Diagrams, it may be well to consider the second method of calculation mentioned, that of the Method of Moments. As previously pointed out (see Figs. 13 and 14), the moment of a force about any point is equal to the value of the force multiplied by its perpendicular distance from that point; also that two or more forces will produce equilibrium about any point in their plane of action if the algebraic sum of their respective moments about that point is equal to zero; again, if the turning-point be taken in the line of action of any force, the moment of that force is equal



to zero. These various facts are made use of in this Method of Moments in determining the stress on the several members of the roof truss, and a reference to Fig. 18 will further explain these facts. Three forces, A, B, and C, are shown as acting at the one point, and they are assumed to be in equilibrium, or balanced. If any point X be chosen in their plane of action, the moment of these three forces about this point will be equal to zero; that is to say,  $A \times l$  added to  $B \times m$  (these two forces tending to turn in one direction round the point X), will be exactly equal to the forces C multiplied by the perpendicular distance n (this latter force having an opposite turning tendency to the others). Now if one of these forces be known, and either of the others required, it is only necessary to choose any point in the line of action of the one of the unknown forces, and take moments about this, to get at the desired value of the other. The known force multiplied by its perpendicular distance from this assumed point gives the value of its moment, and if this be divided by the perpendicular distance of the line of action of the force which it is desired to

determine from this same point, the value of this unknown force will be at once got at, because (as noted with reference to Fig. 14) the two moments must balance, or be equal to one another, about this point.

In Fig. 19, one-half of a similar roof truss to that shown in Figs. 16 and 17 is sketched, and the two sets of external forces (the Dead and the Live Load forces) are marked in position. To simplify matters it is advisable in the first place to combine the several forces acting at the three joints in the rafter. This is shown by the dotted lines, and is gone about in exactly the manner illustrated and described by Fig. 9; two individual forces being taken, and the resultant of this found by means of the parallelogram of forces. In the case of the four forces acting at the shoe, these are at once reduced to two by using the resultant of each of the pair which act in the same straight line, and drawing the parallelogram with these. In this way three single forces are left, one of 59cwt. acting upwards at the shoe, a downward force of 49cwt. at the centre of the rafter, and one of 38½cwt. at the apex; the directions of action of these being as shown. In applying this Method of Moments imaginary section lines are taken, dividing the truss through two, or at most three members. In the case under consideration it is necessary to use three section lines to determine all the stresses on one half of this truss; the lines chosen are X X, Y Y, Z Z. Fig. 20 shows the lower portion of this truss, the part to the left of section line X X is not considered at this stage. Turning for a moment to the complete truss with its full dead and live loads acting on it, it will be readily understood that if it were possible to build up the complete portion of the truss to the right of the line X X in a solid wall of concrete or masonry, this operation, if carefully done without interfering with the external forces acting on the truss, would not alter the stresses on the rafter and tie to the left of this line X X: by an imaginary arrangement of this kind, the small portion left projecting beyond the wall might be considered as a bracketed roof resisting a force of 59cwt. acting upwards in the direction shown; this resistance being due to some unknown stress in the rafter and



the tie. By the Method of Moments, were the stresses known in rafter and tie, the moments of these stresses and that of the force of 59cwt., about any point in the plane of action of these forces, would be equal to zero. Could one of these unknown forces or stresses be got rid of, the other could be readily determined (see

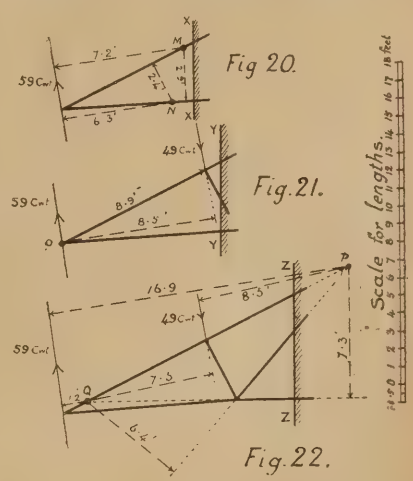


Fig. 14), and, as has been previously pointed out, it is easy to do this by choosing the turning point in the line of action of one of these unknown forces. Thus if the stress in the tie be required, the turning point is taken somewhere in the line of the rafter, say at the point M; the moment of the force of 59cwt. about this point is equal to the value of that force multiplied by its perpendicular distance from M; and to balance this, there is the stress or force exerted by the tie multiplied by its perpendicular distance from this same point. Measuring these distances to scale, it is only necessary to solve the simple sum here noted to get at the required result.

$$\text{Stress in Tie} = \frac{59 \times 7.2}{2.9} = 146.5 \text{ cwt.}$$

In a similar manner the stress or force in the Rafter is got by taking moments about N, thus:

$$\text{Stress in Rafter} = \frac{59 \times 6.3}{2.4} = 154.9 \text{ cwt.}$$

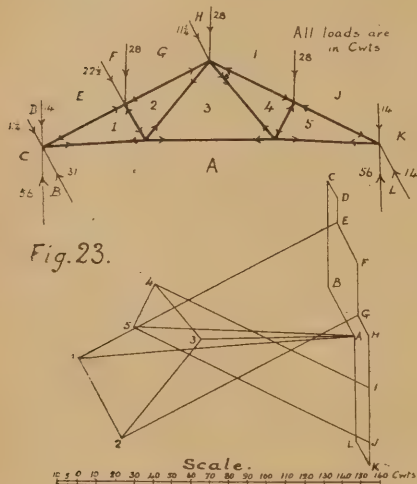
If the stress in the strut is now required, the new section line Y Y has to be taken such that it passes through this member (see Fig. 21). In moving backwards to this new section line, a second external force is introduced into the figure, that of 49cwt. acting downwards. As the stress on the strut is required, the turning point must now be chosen so as to get rid of the moments of the stresses in Rafter and Tie; that is to say, the point must be at the intersection of these two members, at O. In taking this point, which is also in the line of action of the upward forces of 59cwt., we get rid at the same time of the moment of this force, and are



thus left with the single external force of 49cwt. to consider. In the same way as before, the moment of this latter force about the point O, divided by the perpendicular distance of the strut from this same point, gives the stress required thus:

$$\text{Stress in Strut} = \frac{49 \times 8.5}{8.9} = 46.7 \text{ cwt.}$$

The two last members to be considered are the Centre Tie and the Queen Rod, and for these the third section line Z Z must be used (see Fig. 22). Taking the Centre Tie first, the turning point here must be in the line of action of the forces in Rafter and Queen Tie, the point must be at the apex P. There is now the two external forces of 59cwt. upwards, and 49cwt. downwards, to be considered; and for the first time it is necessary to note the direction of the



moments of these, whether they be left-handed or right-handed. The moment of the former force is equal to 59cwt. multiplied by 16.9ft., and that of the latter 49cwt. multiplied by 8.5ft., but their tendency is to turn the framework in opposite directions round the point P; thus the value of the smaller moment must be subtracted from that of the larger, to get at the Resultant Moment; and this value, divided by the perpendicular distance of the Centre Tie from the point P, will give the desired stress, thus—

$$\text{Stress in Centre Tie} = \frac{(59 \times 16.9) - (49 \times 8.5)}{7.3} = 79.5 \text{ cwt.}$$

For the Queen Rod, the turning point must be in line of action of the forces in the other two members cut by the section line, and that point is got by producing the line of the Centre Tie, as shown in dotted lines, till it intersect the rafter at the point Q. Here it will be noticed that the tendency of the two external forces is to turn the framework in the same direction round this new point Q, so that the values of their moments must be added together, and the sum divided by the perpendicular distance of the force in the Queen Tie from the point Q. This perpendicular distance is got by producing the line of the Queen Tie as shown, and is equal to 6.4ft.; the equation thus becomes—

$$\text{Stress in Queen Tie} = \frac{(59 \times 1.2) + (49 \times 7.5)}{6.4} = 68.5 \text{ cwt.}$$

By noting the direction of action of the moments in these several equations just given, the quality of the stress in the member under consideration (whether it be a strut or a tie) may at the same time be determined; but as a little thought and attention will make this clear to any one, it is not necessary to take up time in elaborating this point.

The detailed explanation just given will apply to any type of truss, or condition of loading, the only difficulty that may arise will be in determining the correct section line (which it may be noted does not necessarily require to be a straight line, but may in some cases be curved), or the correct turning point around which to calculate the moments of the several forces. In ordinary circumstances there should be little difficulty in this, if it be borne

in mind that under all ordinary conditions the section line should not cut through more than three members, and that the turning point must be taken at the intersection of the line of action of the forces in two of these members, so as to get rid of their moments, leaving the moment of the third to be equated with that of the known moment due to the external forces.

Returning again to Figs. 16 and 17, where the Graphic Method was illustrated, it is not necessary to draw separate diagrams for the dead and live load; if desired these may be combined, as in Fig. 23. Here the various operations gone through are exactly similar to those already described in connection with the two figures previously noted, so that a detailed description is unnecessary. It will be noticed in this case, that in working round the skeleton diagram to complete the Polygon of External Forces, the different lines being at varying angles with one another, and not all paralleled, as was the case Figs. 16 and 17, the result is now an open Polygon. The lines drawn parallel to the several members of the truss are, as before, drawn from the corresponding points of this Polygon, and in every respect the treatment is exactly what has been previously described.

Should the type of truss be one likely to be made use of at another time, and probably under different conditions of loading, it is advisable to draw the two independent diagrams for the dead and the live loads; and in such a case as this the load assumed in both cases should be equal to one, or unity, so that the various lengths representing the stress on the several members will give multipliers, which can be used for any value of dead or live load; this point will be brought out more clearly further on. Should the truss be of a special type, and not likely to be of service again, it would probably be quicker to draw the combined diagram at once; although such a diagram may appear complicated, it is not so in reality, and with reasonable care should be drawn accurately and quickly.

While considering the question of drawing stress diagrams, it might be well to give a word of warning in connection with Wind Stresses. In the case of some large roofs, one shoe is occasionally set on rollers, to allow for expansion and contraction; but for all ordinary cases, such as are being at present considered, there is no necessity whatever for this arrangement. Circumstances, however, might arise in ordinary practice where the condition is practically identical with that of the truss on rollers; for if a truss be fixed by one shoe to a strong wall, and the other shoe be resting on a high or light column, this latter end is in practically the same condition as if it were free, or supported on rollers. In the cases already considered, it has been assumed that

the supports are two strong walls, or are two pillars; but in the case of a truss with one free end, and situated such that the wind has access to either side, it is absolutely necessary that a double Wind Stress diagram be drawn. This is brought out forcibly by a consideration of Figs. 24 and 25; in the former the wind is assumed as acting on the free end side of the truss, in the latter case on the fixed end side, and the two diagrams accompanying these figures show the variations in stress due to this alteration in direction of wind. The rafter stresses do not vary to any great extent, but the main tie has very different stresses in these two conditions, the variation being roughly from 34cwt. to 58cwt.; the higher value arising under the condition shown in Fig. 25. Perhaps a word of explanation as to how these diagrams, Figs. 24 and 25, have been drawn, may not be amiss. The condition of affairs at the free end necessarily implies that the reaction at that point can only be in a vertical direction. Now let the resultant of the wind pressure acting on the one slope of the roof be taken (which in this case would be a force of 45cwt. acting in the centre, and normal to the slope, of the windward rafter), and let the line of action of this force be produced till it meets a vertical line drawn from the point of the windward shoe (these intersecting points are marked O in the two diagrams), then join the fixed end shoe point and this point O by means of a straight line. This last drawn line will give the direction of action of the reaction at the fixed shoe; if now the wind pressure resultant be assumed as acting at this point O, it may be readily resolved by means of the principle of the parallelogram of forces (previously described) into two other forces acting in the direction of the lines joining the point O with the two shoes; and this being done, it is only necessary to imagine these two forces as moved back to the shoes to get the desired reactions there. This being settled, the two diagrams shown can be drawn without any difficulty.

Time will not allow at present of further examples being taken to illustrate the application of these methods of calculation (this subject may be touched upon further on, when the various type of roof are under consideration), but sufficient has been said to enable anyone to continue the study, and this cannot be better carried out than in some such systematic manner as that of choosing one type of truss, and working out the manner in which the stress on the several members vary as this type is modified, either by altering the rise of the rafters, or by varying the rise of the tie. By so doing many interesting points will arise, and the experience so gained cannot but be extremely useful in the future. I propose treating one simple type of truss in

Fig. 24.

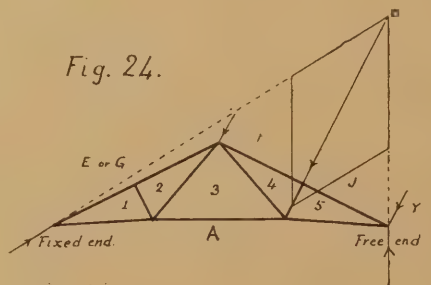
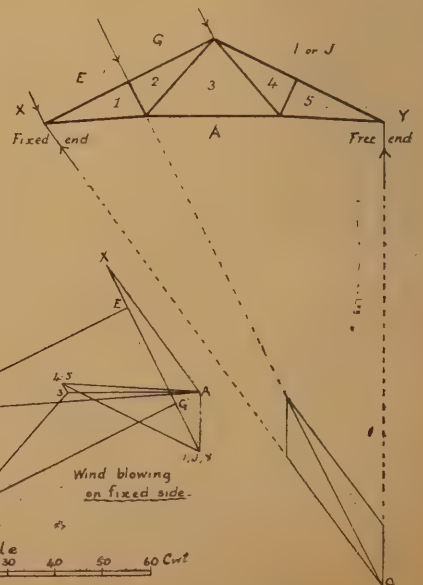


Fig. 25.





this way; but to enable the investigation to be carried out to its full extent, it will be best to defer this treatment till some methods of determining the sections required in the various members to withstand the stress to which they are subjected, have been indicated.

In attempting to determine the necessary section for the several members of a roof truss, the first question which naturally requires to be settled is the maximum stress per square inch which can safely be allowed to come on the material of which the truss is composed, and several points require consideration before an answer to this can be given. If a bar of iron or steel be placed in a testing machine and subjected to a gradually increasing tensile strain, it may be noted that up to a given point, although a slight stretching of the material has taken place, the bar will immediately return to its original condition if the strain be removed; should a particular limit, however, be exceeded, this bar does not altogether recover itself, but receives what is called a permanent set. This takes place when the elastic limit of the material has been exceeded; and for present consideration it may be assumed that this elastic limit varies roughly from about one-half to three-quarters of the breaking strength of the material.

Then, in the same class of material, and often even in the same bar, a considerable variation in both the elastic and breaking strength may be met with. Small defects are also likely to arise in the workmanship which may escape notice; for example, when any considerable amount of welding is made use of, extra precautions are necessary both by way of employing only highly skilled smiths, and more than ordinarily careful inspection, to reduce to a minimum the risk of unsound welds being passed: in many cases it is impossible to detect a bad weld, which may only show its true nature when it gives way; and that being so, no emphasis need be laid on the desirability of keeping as far as possible clear from such doubtful, and possibly dangerous pieces of work. And lastly, there is always the possibility of the structure being subjected to some special condition which was not counted on, and possibly strained a little higher than the calculation indicated.

To allow for all these contingencies, a certain number called the "Factor of Safety" is chosen; the assumed breaking strength of the iron or steel being divided by this number to get at the maximum safe stress allowable. The factor of safety may thus be defined as the number of times the breaking strength exceeds the calculated maximum stress to which the several members may be strained—if the breaking strength be 20 tons per square inch, and the factor of safety be taken as 4, the maximum safe stress will be 5 tons per square inch. Some of the factors of safety used in practice may at first sight appear to be very high, but if it be remembered that on no account must the maximum stress approach the elastic limit (which value may but little exceed one-half of the breaking weight), and that a further allowance to meet the above-noted doubtful points requires to be made, this apparently high value will not long appear to be so. Taking the case assumed above; if instead of noting the breaking weight as 20 tons, the elastic limit of 10 to 12 tons per square inch be substituted, and this value be further reduced as just noted; the previously determined safe stress load of 5 tons per square inch does not by any means leave too wide a margin.

THE annual report of the medical officer of health for Shepley states that the sanitary condition of the district has improved since last he reported upon it. During the year twenty-seven nuisances have been abated, 300 yards of new earthenware pipes have been laid, nine sinks have been disconnected, and ten tapped. During the year the water mains have been extended to the Knowle. As regards an isolation hospital, the Council are willing to join with neighbouring authorities in providing one, when satisfactory arrangements can be made.

## SANITARY SCIENCE.

BY PAUL OGDEN.

### VENTILATION.

IN 1878 the Sanitary Institute of Great Britain offered the medal of the Institute for the best acting ventilator sent in to be tested. Several firms sent in cowls or air-pump ventilators, and the Committee, after testing against plain pipes, reported that it was unable to recommend the granting of the medal to any of those submitted, as the experiments appeared to show that the only use of the cowls tested was to keep out the rain. After such an expression of opinion by such high authorities, are we to disbelieve in all cowls sent round to our offices with wonderful results of recent tests set forth? What are we to do? The specialists ask us to leave it to them, with the assurance that they will guarantee to make everything satisfactory. I do not know of a question in any of the examination papers requiring a candidate to show the means by which he would ventilate certain buildings, but many questions are asked with reference to mechanical and natural ventilation, and on the general heads of the subject. Each person requires at least from 3 to 4 cubic feet of air per minute. Ordinary windows allow about 8 cubic feet of air to pass per minute. Sleeping rooms require 1000 cubic feet of space to each person. Fans are used both for extraction and supply. In Gwilt's chapter on this subject you will find what, to my mind, is the shortest and the best description of matters relating to this subject. He tells us that mechanical means are sometimes necessary to expel or withdraw the air—means such as farmers' bellows, pumps, &c.—but for general purposes it is more convenient, as well as economical, to trust to the natural method of getting rid of the vitiated air; that is by making certain ventilation tubes or openings at the highest points of the rooms towards which the hot air tends to flow, but he says nothing about "back draught!" Ventilation is, as a rule, divided into systems or branches called Plenum and Vacuum. By the first fresh air is

#### FORCED INTO THE INTERIOR

of a building, and the vitiated air is allowed to escape by openings contrived for the purpose. By the second vitiated air is drawn out of the building and fresh air finds an entrance through channels adapted for the purpose. Where several vent tubes are employed they must all be of the same vertical height, or the highest vent will destroy the efficient action of the lower ones, so that there might be a smaller discharge through two tubes than through one only. It must also be remembered that all gases do not rise. Means of ventilation are numerous, and complicated houses are usually ventilated by the admission of fresh air through a tube fixed to the wall upon the inside; upon the outer, lower end is fixed a grid directly communicating with the outer air, and upon the inner end (the top) is fixed a valve with a handle to regulate the admission of the air, which can be cleansed and cooled by a water spray or heated by gas jet. The extraction usual upon the opposite wall to the inlet, is by means of a flue opening at its lower end being carried up to the highest point of the roof or chimney stack. Back flaps are placed over the lower opening about the wall line to prevent the possibility of a back draught. In order to leave the fresh air tube and extract flue undisturbed in their action, the fire is sometimes supplied with fresh air by a separate flue of its own communicating with the outer air. Public buildings are usually supplied with a special apparatus driven by a gas engine. As a rule large chambers are provided in the basement into which, after passing through corridors for filtration, the air is admitted and there mixed to the required temperature, and sent up and by channels through grids in the floor or walls, into the large hall or room. The extraction is by suction, vitiated air being as a rule drawn from the ceilings and from gas jets down flues into the basement, and expelled

as far away as possible from the fresh-air inlet. Water sprays are used for cooling and cleansing the air as it is admitted. Sometimes it passes through screens and over ice as well as through a spray. It is heated, as a rule, by passing over hot-water coils, and sometimes over hot-air stoves. Schools are generally ventilated by extractors fixed upon the ridges high up

#### TO ENSURE A CURRENT OF AIR

all round, connected to the room at the ceiling by a tube of sufficient diameter or capacity to change air as often as required, dependent upon such conditions as number of persons, cubic contents, etc. The extractor is assisted by means of a sunlight which has a perforated corona surrounding an invented enamelled cover—in fact a combustion tube over the gas jets which when heated assist the current up the larger or outer tube, in the centre of which it is fixed. The fresh air is admitted at the windows, or tubes known as Tobin's patent are arranged round the room communicating with the outer air, having grids and regulating valves. Bad as many of the ventilating systems are, they are better than having no ventilating system at all. The plans and sections upon pamphlets showing channels, tubes, and arrows indicating the graceful flow of fresh and vitiated air must not be taken as a true indication of what can be done by the system set forth. In many cases they belong entirely to theory, and probably the opening of a door would alter or reverse the currents. The difference of temperature of the ever-changing atmosphere will ever be a barrier to the production of a perfect system of ventilation. The Institute gives no separate authority upon ventilation, but information may be gained from Gwilt and from the different specialists who have made a study of the matter. But the best information will be found in papers read before the Institute on the special ventilation of certain buildings requiring peculiar treatment.

COL. A. G. DURNFORD, R.E., an inspector of the Local Government Board, held an inquiry at the Public Hall, Frinton, a few days ago, in reference to an application by the Rural District Council for power to borrow a loan of £4500, to construct a system of sewerage for Frinton.

THE City Sewers Commission has resolved, after the close of the current year, to undertake the cleansing of the sewers instead of getting it done by contract. Under the existing arrangement the annual cost is about £3880. The estimate of the engineer is that it can be done for £2800, which will be an economy of over £1000 per annum.

AT a meeting of the Richmond Main Sewerage Board last week, Mr. J. E. Kelsall brought under the notice of the members experiments that had been made in the disposal of sewage by bacteria at Sutton, by Mr. Dibden, the London County Council analyst. So successful had been the experiments made that the district council had decided to dispose of the whole of the sewerage in the same way, and convert the sewerage farm, which comprised twenty-seven acres, into a recreation ground, and the buildings into reading-rooms.

AT Kidwelly the council recently advertised for a competent road surveyor, sanitary inspector, lamplighter, water inspector, building inspector, quay caretaker, and collector at the salary of one guinea per week, and, although the news of the unique position flew far and wide, only one man applied, and he from Neath. Discouraged at this lack of enthusiasm, the corporation re-elected their own official to be road surveyor and building inspector, and now the other offices are open to anybody who is content to look after the sanitation and the lighting and the water and the quay and the collecting in a town of 3000 inhabitants for fifteen shillings a week, free of income-tax.



## CHELSEA'S NEW PROMENADE.

AMONG other things, the London County Council Improvements Bill contains a proposal for dealing with the river at Chelsea, which has aroused the keenest hostility among all faithful Chelseaites, who, in spite of Thames Conservators and County Council, regard one reach of the river as their peculiar possession. This is the proposal which, as the Chelseaites contend, will improve away that beautiful stretch of unembanked Thames which extends from Battersea Bridge to the West London Junction Railway, close to the site of the old Cremorne Gardens. The river describes a wide curve to the north, and at high tide there is no broader expanse of water from Kew to Greenwich. To the right is Lindsey House, and below it, following the curve of the river, the oldest part of Cheyne Walk—

HOUSES FROM TWO TO THREE HUNDRED YEARS old, with long windows and high-pitched red roofs, standing secure within their patch of garden. A little farther is Turner's house, now a little forlorn and dilapidated, then a medley of new and old, ending characteristically in a public-house, which stands on the site of the gates which led into Cremorne Gardens. It is across this curve that the County Council proposes to draw a remorseless chord by prolonging the existing Chelsea Embankment in a straight line from Battersea Bridge to the other end of the bay. The river would then be straightened, the old shore would go, and we should have in its place a modern promenade with any other addition or adornment that the County Council might decide to place there. The Chelsea Embankment is beyond doubt a fine modern improvement of which any city might be proud; but is it necessary, ask the objectors, that in continuing it this unique curve of the river should be ruined? The roadway is no doubt narrow and unsatisfactory, but the roadway can be widened without in any way interfering with the trend of the river. As far as the low-tide mud is concerned, the alleged smell comes not from that but from the north low-level sewer which runs under Cheyne Walk, and which is now taxed beyond its proper capacity by the increase of certain great West London districts. So the Chelsea petitioners against the County Council scheme propose

## AN ALTERNATIVE PLAN

of their own which, as they claim, preserves the view, widens the road, and saves some £50,000. But this is not all. The County Council scheme obviously reclaims a large tract of river, and throws the houses of Cheyne Walk a considerable space back from the shore. What is to be done with this reclaimed land? The inhabitants of Chelsea, and particularly of that end of Cheyne Walk, note with dismay that the Council takes power to lease, sell, and otherwise dispose of any lands acquired by them under the provisions of the Bill for building or such other purposes as the Council think fit. Instead, therefore, of an embankment garden or new open space to compensate for that taken from the river, the Council may erect, or permit to be erected,

## NEW BLOCKS OF FLATS,

houses, or warehouses between Cheyne Walk and the river. The suspicion that the Council will recoup themselves for their outlay by letting this large and valuable site for building purposes is certainly not to be dismissed as groundless. The river is, at all events, an open space, whatever else it may be, and a public authority, even if it deems it necessary to encroach upon the river, should be prepared to give a pledge that the land reclaimed should also be preserved as an open space. It is to be hoped that the Parliamentary Committee to which this Bill will now go will consider very carefully whether it is necessary to destroy this beautiful reach of old river, and whether the alternative scheme of the objectors does not meet all the necessities of the case from the point of view of public convenience while preserving one of the few remaining stretches of the Thames, as our grandfathers knew it.

## Surveying and Sanitary Notes.

THE annual dinner of the Sanitary Inspectors' Association was held at the Holborn Restaurant the other day. Sir John Hutton (the president) occupied the chair. The chairman, in proposing the toast of the evening—"Success to the Sanitary Inspectors' Association"—said the history of the association amply justified its existence. Founded in 1883, and incorporated in 1891, its membership in 1895 stood at 349, and now it was within a few of 700. The past year had been a record one for the establishment of branches. There were throughout England and Wales 1844 authorities who called to their aid the skill of sanitary inspectors, who numbered, roughly, about 2000, and who, by contributing to the nation's health, contributed also to the nation's wealth. He had often thought that in some districts of London a cleansing order rather than a closing order was wanted. Among the questions engaging the attention of the association at the present time were those of superannuation, fixity of tenure, and the examination by a competent authority, on which the association should have representatives, of new sanitary inspectors. Sir Arthur Arnold, replying to the toast of "Local Government," proposed by Dr. J. M. Rhodes, recalled the time when houses in London, rated at upwards of £60 a year, were built over cesspools, and when people of the middle class lived in sanitary misery exceeding that of the savage races of Africa.

THE Local Government Board has refused to sanction, on sanitary grounds, the proposal of the Abney Park Cemetery Company to lay out a new cemetery at Golder's Hill, adjoining Hampstead Heath.

THE City stoneyard, in Paul Street, Finsbury, is about to be abolished. Time was when the yard was of some importance for the storage of paving material, but since the advent of asphalt and wood for paving purposes its value has gradually declined, and the number of men employed in the yard has naturally decreased. In future the stone-paving work will be provided for in the contracts for general paving operations, and a considerable saving will be effected.

MR. H. McLACHLAN, the district surveyor of the western division of the City, has issued a circular to the members of the Commission of Sewers, protesting against the action of that body at its last meeting, when it was resolved to appoint another surveyor in his place. He asks the members to give him a hearing, and to make a full investigation into the action of the Streets Committee.

MR. LOUIS IVES, of Brighton, has been recommended for appointment as Assistant City Surveyor for Wakefield. Mr. Ives was formerly employed by Mr. H. Crutchley, C.E., of Wakefield, with whom he served his articles. He is the son of the late Mr. Nathan Ives, engineer at the Wakefield Prison.

By the Talla Water Scheme Act of 1895, the Edinburgh and District Water Trustees were empowered to construct a service railway between Broughton Station, on the Peebles Branch of the Caledonian Railway, and the projected reservoir in the Talla Valley. The reason for the Trustees proceeding with such a work was, of course, to save the cartage of material. It is estimated that something like 100,000 tons of clay will be required for the puddle trench at the reservoir, and to have driven that by horses for the eight and a half miles between Broughton and the reservoir would have in itself entailed the expenditure of a very large sum of money. The Trust had also to think of the cartage of the pipes, cement, and other material to the upper

reaches of the Tweed Valley; and, in all the circumstances, it was considered that it would be more satisfactory, when so large an undertaking was in hand, to have a railway for the conveyance to it of the necessary building material. The contract was entrusted to Messrs. James Young and Sons. The work has now been practically finished.

THE Works Committee has recommended the Aberdeen Harbour Board that the graving dock should be reconstructed on its present site, in terms of the report of Mr. Nicol, the harbour engineer, who proposed that the dock be increased in length 100ft., and the entrance made 9ft. wider, with 3ft. additional depth of water on the sill, necessitating a new and larger caisson for closing the entrance. The width of the dock between the lowest altars would be increased 11ft., while the working width of floor space would be 18½ft. wider. Provision would be made for dividing the dock into two portions by a central caisson for the accommodation of vessels undergoing extensive and prolonged repairs, and the pump-house, which is inconveniently situated, removed to the other side of the dock. The engineer also proposed that the work should be executed in granite masonry and brickwork, Portland cement concrete being only used in situations where it would not enter into the structural features of the work, and where it would be entirely protected from sea water. The expense of reconstructing the dock was estimated by the engineer as follows:—Entrance works (including caisson chamber), £18,200; main body of dock, £59,300; central caisson berths, £4700; new pump-house, £2620; inclosing wall and office, £780; cofferdam and dolphins, £3750; new iron caisson and folding bridge, £4850; new pumping machinery and sluices, £1850; altering and repairing existing caisson, £650; rebuilding portions of quay and return walls, £7200; strengthening remainder of quay walls, £8470; shifting timber wharf at west end, £600; contingencies (at 5 per cent.), £5630—total cost, £118,600. The Board has decided, however, to ask the opinion of a competent engineer on the whole report, and especially as to whether the present graving dock could be temporarily repaired at not too great a cost, to stand for a few years; whether the present site was the most suitable available; and whether the plans and specifications of the engineer were suitable and best for the site.

MR. WILLIAM SPINKS, lecturer on Sanitary Engineering, Yorkshire College (Victoria University), has been elected President of the Institute of Sanitary Engineers (Incorporated) for the ensuing year. The membership of the Institute now numbers over 460.

At the request of the Glasgow Corporation Statute Labour Committee, a report has been prepared by Mr. Whyte, the Master of Works, regarding the erection of barricades in front of buildings in course of construction or repair. The report stated that under the Glasgow Police Act, 1862, a portion of a road or a street, not exceeding one-fourth, might be enclosed by a hoarding. Dealing with a suggestion that overhead platforms should be substituted, Mr. Whyte said so long as the system of raising building material from the streets by means of cranes is continued, it would not be advisable to do away with a hoarding on the street, but this system ought to be done away with to a large extent. He suggested that, as a general rule, all materials should be raised in the interior of the building, and that the crane be so placed that in the event of any portion of it giving way the jib would not fall on the street. In the event of very heavy material being required to be lifted from a lorry, the work should be done at such time as the street is free of passengers. Mr. Whyte further stated that the time had come to abolish the practice of dressing material in sheds erected on streets. All material should be dressed before being brought to the building. Edinburgh, he pointed out, has to some extent adopted the method he proposes, and what can be done in Edinburgh can be done in Glasgow.





### The Architect as Organiser.

WE have witnessed in commercial affairs the growth and perfection of a system of organisation of skill and labour which permits one man, possibly ignorant of the technical details of his business, to secure to himself the maximum of profit on any particular work with the minimum of trouble. It may well be that the complex state of our civilization has made the old system impossible, and that this present one is but a phase in our industrial development to higher and better things. We notice it more particularly in the business of the general contractor, with which we are necessarily brought into close contact. We see him becoming little more than a financier and agent for the sale of other peoples' manufactures, with no personal interest in, or knowledge of, the details of any particular building in his charge. That this results in cheap buildings seems to be the general opinion, but we think they have a tendency to be both cheap and nasty. We are not now principally concerned with this system in the building trade. We think it has probably reached its zenith, and that in these days, when a desire is growing for a more direct and personal contact between Artist and Craftsman, the general contractor may shortly discover that his occupation is gone. We would, however, rather draw attention to the growth of this system in the Architectural profession, which we believe is fraught with grave evil to the future of Art. It is the custom for many successful practitioners to rely on their assistants for the designing and the real Architectural work, which, though they could not do it themselves, they can yet organise and control in a general sort of way. Such men have no claim to the title of Architect, and it is only allowed them in the Profession as a matter of form. There is, however, another type of man who would wish and who does, endeavour, to give every detail of his work a personal supervision. This man finds that the difficulty of making a living, combined, perhaps, with his own lack of facility, prevents him from spending time in designing personally every detail. So he drifts into the habit of employing special firms for various parts of the work, such as chimney-pieces, wrought-iron work, plaster decoration, mosaic pavements, &c. These firms submit designs of their own, which the Architect is pleased to approve or otherwise, and then they go in as part of his design. In all this the Architect is simply organising the skill and labour of others, and his only value seems to consist in a certain judgment and good taste in the selection. There are, however, many laymen, and lay women, who might do it just as well. There is some reason in the argument that a specialist in any of these branches of handicraft is more likely to be able to produce a practical and characteristic design; but if this is so, it applies, perhaps, with greater force to masonry and joinery. Many Architects, who would never dream of permitting the mason to make his own details, have no hesitation in allowing the iron-worker to do so. Why is this? The one is as integral a part of the design as the other. In all probability the root of this evil, as of nearly all others that afflict the body Architectural,

lies in the absence of a general and living style of Architecture. If such a style existed, it would be natural to let every Craftsman develop his own ideas, within certain limits, as we see in the Mediaeval work; they would always be in harmony with, and subservient to, the main idea. In its absence, as at present, it is most difficult for the Artist to get the Craftsman to understand just what sort of thing he wants, and equally difficult for the Craftsman to turn out characteristic work in the particular style required, as the unfortunate man is expected to work with equal facility in as many styles as he has customers. If the Artist wishes to obtain harmony and style in his building, he must give his personal attention to every detail, and infuse into it his own personality.

decline as the tenants of the first three years leave, driven out by draughts, by ceilings falling, by defective drainage, and such evils as many of us are far too familiar with. The unhappy owners, who have bought these houses from the speculating builder, cannot afford to let them stand empty, and they have to lower the rent (most of which goes in repairs), and accept an inferior class of tenant. The short-sightedness of freeholders, who part with their land and permit it to be dealt with on these lines, is surprising; the more so when it is remembered that most of the available land around Greater London is held by business men awaiting the time when the growth extends outwards to their lands. It is, therefore, all the more welcome to find that this rule occasionally has an exception, and that in the picturesque and



YORK STREET RESIDENTIAL CHAMBERS—FRONT ELEVATION. MESSRS. BALFOUR AND TURNER, ARCHITECTS.

### A Model Estate.

YEAR by year larger circumference embraces London. There are no visible signs of the least decrease of building, and, in fact, all branches of the building trade are so fully occupied that there is a difficulty in getting builders to tender for contracts, their yards being already full of orders. What this means in adding to the increase in the size of London during the present year is obvious. With the improvement in trade the metropolis will increase in size even in a larger ratio than during past years. As a rule the building which is executed in suburban London is of the very worst character, run up by speculators for a rapid return and large profits, to fall into speedy decay and ruin. The smart neighbourhoods

healthy suburb of Finchley a very large estate, known as Grass Farm, is being developed upon very different lines. The distance of Finchley from the City is a matter of only twenty-three minutes from Broad Street, from which station and Moorgate Street a good service of trains exists; and even this will be improved when the new line to Finsbury Park from the City is complete. The owner of this estate, Mr. J. C. Williamson, did well to follow the advice of his Architect. The estate lies in a wooded part of the country between Hendon, Church End, Finchley, and Mill Hill, close to the stations of the two latter parishes. Wide avenues, sixty feet broad, unite these places, crossing the estate in lines of gentle curves through the fine wooded land, straight lines being no part of the designer's scheme. The



north of London is well known for its damp clay soil, but here at the Grass Farm, immediately below the top soil, gravel and sand are to be found to a depth of 30ft. to 40ft. No jerry building is to be allowed, and the houses already going up are of large size, varying from £2000 to £4000 in value. Every house is to be wired for the electric light, which will be shortly installed upon the estate, and supplied to the tenants at a reasonable rate. Another unusual thing in estate development is taking place here. The roads are being made right up to the utmost demands of the local authority, so that the dreadful evil of struggling through mud and puddles in darkness to find your friend's new suburban home will not exist in this neighbourhood. In fact the Architects have done everything to avoid newness, and thereby the freeholder will benefit. Every inducement, even apart from good building, is made to the future residents on Grass Farm. A large club house, with assembly rooms and stage for theatricals, has already been designed, and is expected to be ready for use next Christmas.

### LEANING TOWERS AND CHIMNEYS.

UNDOUBTEDLY the leaning tower of Pisa, in Italy, is the most noted leaning tower in the world, but there are in this country two, if not more, towers which quite equal to, if they do not surpass, in crookedness that famous edifice. The tower of Pisa is a round one, built in circular stages, one above the other, the circumference of each gradually diminishing as the structure ascends. The precise height of the tower is 180ft., and the amount of "lean" it has from the perpendicular is 15ft. However, the "Falling Tower" of Caerphilly Castle, in Wales, is but 77ft. in height, or less than half that of the Italian tower, yet its variation from the perpendicular is no less than 11ft. And of the crowds of people who flock every year to Italy, and go to see the tower at Pisa, how few know that there is in their own country, almost close to them, so to speak, a much greater marvel? Doubtless, the greatest wonder in this or any other country in the shape of leaning towers is the "Crooked Spire of Chesterfield." This is a most striking sight to everyone who sees it for the first time, and one cannot get rid of the idea that it is about to fall. A splendid view of it is obtained from the train as one enters Chesterfield from the north or south. The whole spire of the Church, though a most graceful object in itself, seems to be

#### WARPED AND TWISTED

in every direction from top to bottom. We are told that the spire was not built so in the first instance. But there seems to be no definite information available as to when it became twisted. Hence those best qualified to form a judgment on the matter have decided that the warping or twisting has been gradual. The causes of it also are not at all well understood. Some of the best authorities fancy it is due to the wood which forms the foundation work of the spire having from some cause or other, which they do not profess to explain, become badly warped or twisted. Other people ridicule the idea, and contend that the crookedness is due to the spire having at some time or other been struck by lightning. But if this were so, surely there would be some record of it, however meagre, amongst the town's archives! Yet others contend that the crookedness is only an optical illusion. Whilst these are our noted "falling towers," there are up and down the country many specimens of leaning high chimneys belonging to various works and foundries. The most famous of these, as being probably the most out of the vertical, is that known as Brook Mill, in Lancashire. The chimney itself is about sixty yards in height, and its measured deviation from the perpendicular is some 6ft. 6in. There was some fear expressed a little while ago as to its being quite safe, but, though its look is certainly threatening, it was considered by experts to be perfectly secure, and as it is encircled with iron belts of



Scale: 1" = 10' 0"

YORK STREET RESIDENTIAL CHAMBERS. GROUND PLAN. MESSRS. BALFOUR AND TURNER, ARCHITECTS.

very great strength, its power to resist a gale has been enormously increased. Mr. W. E. Harrison, the steeplejack, of Sheffield, states that there are many chimneys in South Wales and Lancashire which are more or less out of the perpendicular, owing, he thinks, to the number of coal-pits in their vicinity having caused subsidence of the earth, and

#### AFFECTED THEIR FOUNDATIONS.

The same authority also states that there is more than one Church spire in this country which is not quite vertical, though the people in its neighbourhood may not know it, but for obvious reasons it is best not to mention their names. America has its leaning tower. It exists in the city of Syracuse, in the State of New York, and is just now the cause of a fierce strife, because the people declare that it is an imminent source of danger, and liable to fall at any moment. It has, however, like every other leaning tower, been declared to be thoroughly safe. The tower has only become one of the leaning variety at a comparatively recent date. The circumstances that brought it into prominence in this role was a hurricane, or as some call it, a tornado. In any event it was a tremendous wind, the fiercest and the fastest which even the oldest inhabitant of Syracuse ever heard of. Buildings in their entirety were lifted up and smashed into kindling wood, but though the big tower swayed from side to side it did not fall. On the top of this tall tower was, and still is, a water-tank, and this, wonderful to relate, at the time of the storm contained its normal contents—10,000 gallons of water. When the storm was over hardly a gallon had been lost. The tower, however, showed the effect of the terrific blow. Before the storm happened the structure had been as straight as a British grenadier, but after, it was found to have been twisted upon its axis, and bent over so that it leaned in as great a degree as the tower of Pisa.

### SETTING OUT PROBLEMS.

#### No. III.

WE have pleasure in announcing another of the series of Problems it is our intention to give from time to time, as stated in our issue of May 20th last.

#### PROBLEM.

It is required to take a cross-section of the bed of a river, shewing the depth at every 10ft. along a given straight line lying nearly at right angles to the stream. The banks slope gently to the water, which is known to be about 100ft. in breadth, and not more than about 8ft. or 9ft. in maximum depth. Circumstances preclude the erection of temporary staging. A small boat is available for use; but owing to the current it is found impossible to row her along the line of section to take soundings with the requisite accuracy.

To the authors of the first ten correct solutions of this Problem received at the Office, Volume IV. of THE BUILDERS' JOURNAL, bound and gilt-lettered, will be awarded.

Solutions should be addressed to the Editor, and marked "Problem" on the envelope.

THE Secretary of State for Foreign Affairs has received a despatch from H.M. Minister at Brussels stating that tenders are invited for the construction of the new Harbour works at Ostend. Tenders will be opened on April 17th at Bruges at the offices of the Provincial Government, and the plans and estimates of the works may be consulted at the "Musée Commercial" at Brussels. Such further particulars as have been received may be seen at the Commercial Department of the Foreign Office any day between the hours of 11 a.m. and 6 p.m.



## Men Who Build.

No. 49.

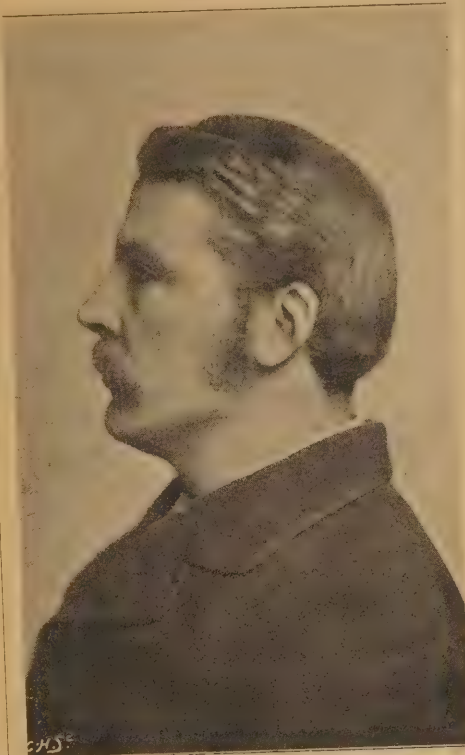
MR. EUSTACE BALFOUR.

**M**R. EUSTACE BALFOUR, who is brother of his distinguished namesake, the present Leader of the House of Commons, and a gentleman of private fortune, was educated at Harrow and Cambridge, where he matriculated at Trinity College, and in due course took his B.A. degree, and ultimately the degree of M.A. Unlike other members of his family, Mr. Balfour had other ambitions than those of a public man, and even during his Cambridge term gave up a considerable part of his time to the study of Art, and had made Architecture his mistress before his degree was conferred. Upon leaving the University he became a pupil in the office of Mr. Basil Champneys, or rather a "student," for the ordinary forms of pupilage were waived, and, after a much shorter term of practical experience than is usually advised to a young Architect, he began to practice on his own account, and set fairly forth on his career as an Architect.

It will be noticed that the designs which are reproduced in these pages are without exception the joint work of Mr. Balfour and his partner. Mr. Balfour's alliance with Mr. Thackeray Turner, whose name is known in Archaeological circles as well as among Architects, began many years ago, and Mr. Balfour attributes all his best work to this period, and does not wish that his work should be dissociated from that of a partner in collaboration with whom his most important and most successful buildings have been designed and executed. As Mr. Balfour is agent to the Grosvenor estate, and Surveyor to the Duke of Westminster's immense building property, it may well be imagined that his association with Mr. Turner is a reality, and not in any way one of those arrangements for mutual convenience which are so common in the Profession, and which are no right partnerships at all.

Before considering in detail any of Messrs. Balfour and Turner's designs, it is of interest to know that whatever effects their work may achieve, these effects owe nothing to the facile pencil of the sketcher, nor to those perspective drawings that are so commonly used to point

errors in proportion or arrangement, and to bolster up the designers, faltering confidence and wavering decision. Never a perspective will Mr. Balfour suffer to be drawn of his designs, and he relies on photographs alone to record for him the detail and arrangement of the buildings he puts up. More than this, he



FROM A PHOTOGRAPH BY F. HOLLYER.

holds that the whole system of making "pretty" drawings is false and misleading, and makes for bad design. It is easy for any clever sketcher—or indeed for anyone who can handle a pen or pencil with a little taste—to make the worst elevation look a passable design, and the knack of clever drawing becomes not a means of illustrating and

judging the effect of a proposed building, but a means of glossing over and forgetting primal defects in the designs. Indeed, Mr. Balfour believes, although he has made sketches himself in his younger days, that unless the Architect can deny himself, when he comes to design, the pleasure of playing about over his elevation with a deft pencil till his eye is pleased and satisfied (as is most commonly now the process of design), and can build in his mind, putting down on paper just such lines as are needed to show the position and proportion of the parts, it were better in the interests of Architecture he had never sketched at all. "Anyone," says Mr. Balfour, "can draw enough for the purposes of designing and raising buildings; drawing has nothing to do with it." He admits at the same time the temptation to make a drawing look "nice," and perhaps it is this fellow human weakness that has brought him to the strangely literal and exact interpretation of his theories, which he follows in practice. "I have not got any drawings: we don't make any in this office," says he, and indeed it is the case. The sheets, when not left in pencil are lined in thinned ink, nothing is shown but what will suffice the foreman for his directing; the elevations are not as a rule coloured or printed, the windows being left unwashed in, and the whole figured over with dimensions, and covered with notes and directions to the trades. As Mr. Balfour says, they are not drawings; they are merely workmen's instructions, set down in as primitive a manner as is consistent with accuracy and clearness. Indeed, the ascetic self-denial of Messrs. Balfour and Turner would hold their office, regarded by the sparks of the Institute with their certificates and awards of merit, much as the gay cavalier regarded the anchorite's cell with its hair-shirt and its beans twice a day.

But if our Architects have devised a process of getting their results which is opposed to the motives and the procedure of the Profession in general, those results must certainly raise their process above all imputation of fad or whim, and show it to be based on some sound and far-reaching truth. Of the truth of the designs illustrated in these pages, there is not space to speak particularly, although we may say that the block of Ladies' Residential Chambers is chiefly of interest for its plans, in showing how the requirements for blocks of small flats with a common kitchen and dining room may be met, and for the



AMPTON HALL, BURY ST. EDMUNDS. MESSRS BALFOUR AND TURNER, ARCHITECTS.





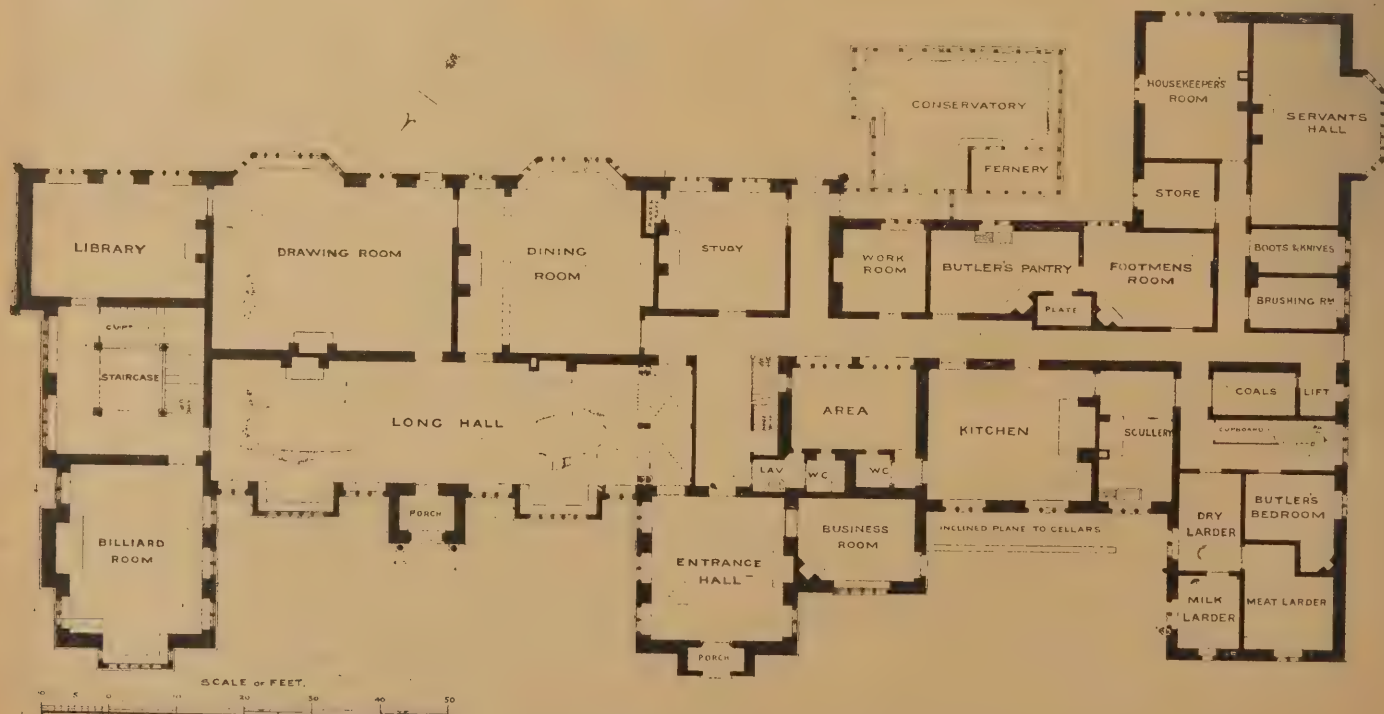
DINING-ROOM, AMPTON HALL.

curious continuous newel post of the staircase, an outcome of our modern needs and fashion of living; and that Ampton Hall was built on the foundations of an old Jacobean house that was completely destroyed by fire. The present house does not reproduce that which it succeeds, although, as will be noticed, the detail owes to the traditions of the Jacobean period. Mr. Beit's house, however, and in especial, the Parish Church of St. Anselm, call for particular attention. The peculiar form of Mr. Beit's house, the distinctive Architecture of which must have attracted the notice of all who have been in that part of Park Lane during the last few months, is due to rather peculiar circumstances. The site now occupied by the house and garden was originally offered for sale in two lots. The northern or uppermost of these was bought by Mr. Beit, and Messrs. Balfour and Turner prepared designs for a house which was actually raised several feet before the owner decided to purchase the adjoining plot, and complete his site as it now may be seen. It is for this reason that the

Architects have been unable to avail themselves of the best aspects afforded by the site in making their plans, for the south wall of the original design overlooked, at a range of but 27ft. any house that ultimately might have been built on the lower half of the site, and though this was fortunate in that it enabled the billiard room and winter garden now seen to be added without inconvenience to the plan, still the indecision of the owner has prevented the building from availing fully of the aspects afforded by the site. It must have puzzled some people unaware of these circumstances, to see the house, as it were, reversed, and turning its back on our scant London sunlight. It may be added that certain requirements of the Grosvenor Estate limited the height of the annexment, and these circumstances should be remembered by those who may see any lack of unity in the parts. Want of homogeneity does, perhaps, mar the design, though certainly in no aggressive features. It may be regretted, in one particular, that the simplicity of the second floor should carry a suggestion

of the Archaic upon it, and jar with the classic origin of the lower portion of the building. One feels almost a personal obligation to the Architects, however, in that they have refrained from polishing the columns about the entrance and forming the pseudo-colonade about the Winter Garden. These are of black Allox granite; but so far from really being black, the grace of the stone lies in its grey-green mottling. It is a very beautiful stone, and the Architects have used it with great success in the front of St. Anselm's Church, which, by the way, is in Davies Street, just off Oxford Street, and only a short walk from Park Lane. Of the interior of this Church we are able, by the special permission of Mr. Balfour, to publish an excellent photograph, but, good though it is, it is hardly necessary to remind our readers that the actual effect of a Church can not be justly presented in a photograph, however interesting and valuable it may be as a memento or a record. St. Anselm's is centrally placed, and the north entrance is kept open morning and afternoon.

Of this Church we may say at once that we consider it not only one of the most interesting of modern Churches, but the best Church raised in London of late years. It is of interest to compare this Parish Church of St. Anselm with Mr. Aston Webb's French Protestant Church in Soho Square, and with the Church of Holy Trinity, built by the late John Sedding, at Sloane Square; both of which have been raised within the last ten years. In all of these we find a right-spirited attempt to build a nineteenth century Church: a Church, that is, which shall be convenient to the needs of our day, shall conform to the sentiments of our day, and shall further express, eulogise, and decorate the needs and sentiments of our day; all just in the same way as a Church should conform to the limitations of the site on which it is raised, and the circumstances under which it came to be built. It is specious and false to complain of our present existence as being prosaic and unbeautiful. The irredeemable qualities of electric light and steam power we hear so much about, confesses only the irredeemable dinginess of the minds of those who see only those prosaic, unbeautiful qualities. It is the duty and the privilege of the Poet and the Artist to accentuate the romantic attributes of these "prosaic" characteristics of our life, and decorate the prosaic necessities of our existence. It is this spirit, and this alone, that has produced all the great Arts and Architectures the world has seen. When, therefore, we see



GROUND PLAN OF AMPTON HALL, NEAR BURY ST. EDMUNDS.



in these Churches of Mr. Webb and Messrs. Balfour and Turner, hot-water radiator recesses carefully designed to play their part in the breaking of the wall surfaces, and to emphasize the proportions of the Church; and attention given to acoustics, ventilation, and light, we may hope that there yet will come a day when twentieth century Art will take no insignificant place in the annals and traditions of Architecture. Possibly in those days a retrogression of Art may come to pass, and the twenty-first century equivalent to the Arts and Crafts Society will work on the same lines as with us now, and applaud a wooden bedstead fashioned in reproduction of a nineteenth century cast-iron hot water radiator. Who can tell?

Messrs. Balfour and Turner's Church is best

Archaic without forcing a comparison with our present fashions; and it certainly shows how much more some such style as this is amenable to the needs of modern Church-goers, than the incompatible mysticism of the Gothic styles.

There is none of the effort in straining traditional Gothic forms to new needs, which mars and destroys the homogeneity of John Seddings' Church. St. Anselm's has a rare homogeneity, and, though not a rich nor a very expensive Church, it is still complete and equipped, without those barren features we are wont to expect in modern Churches; or at least in Churches other than those raised by the Church of Rome. The character of the Church has been represented with great nicety down to the minutest details. It is with a fine

the photograph at the south-east corner of the Church. The panels are of open carved oak fret, representing the conventional vine, with grape clusters and birds, lilies, and the cresting is a continuous design of the same character. The choir is cut off from the body of the Church by a marble plinth, topped with a bronze or gun-metal railing, and there is besides the altar rail, with turned brass balusters before the sanctuary. There is no pulpit proper in the Church, but a reading-desk within the choir, at which the preacher stands. The general vista of the Church owes much to the south chapel, which has been formed by doubling the two westernmost bays of the south aisle. The eastern respond, and the adjoining column of this arcade, are to be seen to the right of the photograph. Everyone



ST. ANSELM'S, DAVIES ST., W. INTERIOR. MESSRS. BALFOUR AND TURNER, ARCHITECTS.

described by the term Romanesque; but the term cannot be judged literally. It is spacious, light, and airy, and has a breadth and magnificence not found in some much larger and more costly Churches. The material is a grey-green Yorkshire stone, and this has been treated to a solution of wax to bring out its colour and variations of tone. The panels are white plaster, and there is a low plinth of opalescent tiles, which have a texture transparency and variety as of marble. The double columns of the arcade are connected by elliptical arches; the transverse arch of the aisles spring from the wall, and the space between them is groined with a quadripartite vault. Semicircular arches cross the nave between the clearstory windows, the ceiling between them being panelled in dark wood. The whole Church is a very happy conception, it catches a distant atmosphere of the severity

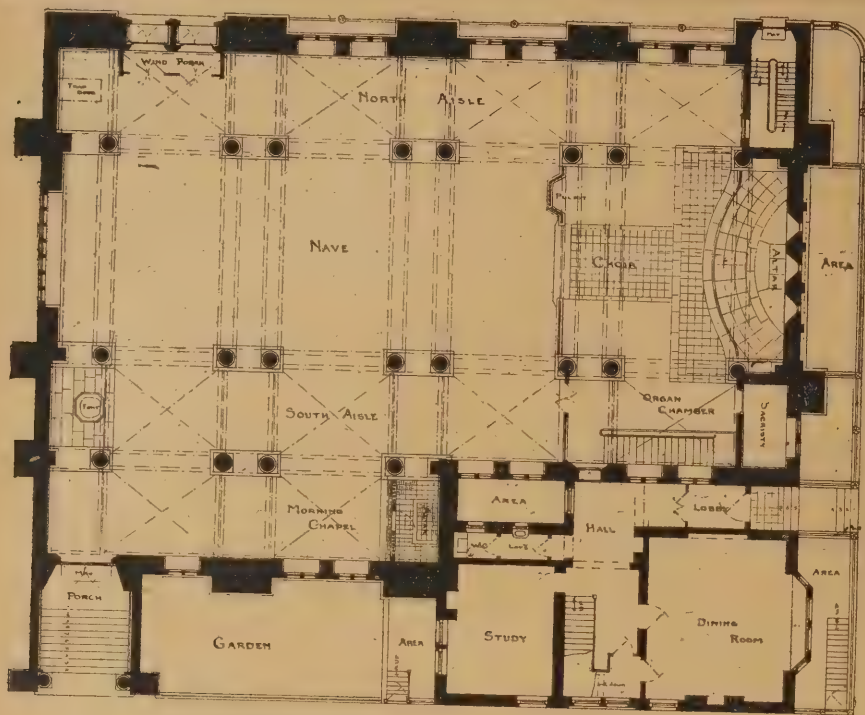
sense of unity in the effect that the oak choir stalls have been left rough from the chisel, and the iron railings adjacent to the south porch, and the iron studding to the oak doors bear upon them, in the same way, the history of their fashioning by the blacksmith. The simple black Alloa granite font, which is a huge cubic block shaped in rattle curves, follows also this feeling. It is not a true octagon, as at first might seem, but rather eight-sided, four of the sides being shorter than the remainder, and the circle of the basin similarly has not been turned true, but has the pleasing form of a circle carefully cut by the eye, a circle, that is, whose characteristic feeling, if accentuated, would resolve it to a square. The pierced screen which cuts off the stairway to the vestry, and the private door to the parsonage, is also a happy departure from the stereotyped Gothic forms. It is shown in

who is at all interested in Churches, or in modern Architecture and its possibilities, should avail themselves of an early visit to St. Anselm's.

THE West Suburban Railway Bill, which proposed to incorporate a company for making a railway from Praed Street, Paddington, to Willesden, of the length of four miles and forty-one chains, and which was to be worked by electricity or cable power, has been withdrawn.

A REFERENCE to determine the price to be paid by the Corporation of Stirling for the Stirling Gas Company's works was opened last week at Edinburgh. The town offered £61,130 for the works, but the gas company demanded £68,320, and it was decided to refer the question of price to Sheriff Lees as sole arbitrator.





PLAN OF ST. ANSELM'S CHURCH, DAVIES STREET, W.

## EIGHTEENTH CENTURY WORK.\*

By J. A. GOTCH.

THE eighteenth century saw the final development of that great movement in Art which begun in the early years of the sixteenth. When mankind had once made up its mind that the masterpieces of Italy were the only examples to be followed, nothing but time and determination were wanted to produce in all the lands of Europe a general sameness of appearance and treatment in every branch of Art. In no Art was copyism so contagious as in Architecture, and in no Art was it so injurious. For Architecture is essentially a constructional Art, a fact which the eighteenth did not realise, and a fact which wants no little reiteration at the present time when there seems to be a tendency to neglect construction for the more attractive accessory Arts, and to desert the stately queen for her more lively handmaids. A constructional Art, to be healthy and natural, must develop from within, and not from without. Architecture in the eighteenth century was the Five Orders and nothing more. An old Roman, called Vitruvius, who had been dead seventeen hundred years, was Dictator, and those of his followers who differed from his precepts, although sometimes excused on account of their success, were admonished to be careful how they risked any deviation from the paths of perfection pointed out by him. Gothic Architecture was despised and regarded as barbarous. It was not that the votaries of the Art preferred a Classic dress to a Gothic: for them the buildings erected in the Middle Ages were not Architecture at all. The "Gothick Order," as they called it, is described by one of them as "the Folly and very Ape of Architecture." Such an attitude of mind is hardly intelligible to us who recognise Gothic Architecture as at once the most logical and

## DARING FORM OF CONSTRUCTION

that man has yet employed. It is hardly less difficult to understand how they can have failed to be impressed with the majestic solemnity of a great Gothic Cathedral; and yet they did fail—even such cultivated men as Evelyn and Addison. The phrase about the "very Ape of Architecture" occurs in a treatise by a lively Frenchman, M. Freart; and, considering the subject, a very entertaining treatise it is. But Evelyn's views were those of a sagacious,

unimpassioned Englishman, and are worth quoting at some length as illustrating the standpoint from which the early eighteenth century looked at the subject. In treating of Architecture, he says:—"It is the Antient Greek and Roman Architecture only which is here Intended, as mostly entirely answering all those Perfections requir'd in a Faultless and Accomplish'd Building; such as for so many Ages were so Renowned and Reputed, by the Universal Suffrages of the Civiliz'd World, and would doubtless have still subsisted had not the Goths, Vandals, and other Barbarous Nations Subverted and Demolish'd them. . . . Introducing in their stead, a certain Fantastical and Licentious manner of Building, which we have since call'd Modern (or Gothic rather) Congestions of Heavy, Dark, Melancholy, and Monkish Piles, without any just Proportion, Use or Beauty, compar'd with the truly Antient: So as when we meet with the greatest Industry, and expensive Carving, full of Fret and lamentable Imagery; sparing neither of Pains nor Cost; a Judicious Spectator is rather Distracted and quite Confounded, than touch'd with that Admiration, which results from the true and just Symmetric, regular Proportion, Union and Disposition; Great and Noble manner, which those August and Glorious Fabrics of the Antients still Produce. It was after the Irruption, and Swarms of those Truculent People from the North . . . when instead of those Beautiful Orders . . . they set up those Slender and Misquise Pillars, or rather bundles of Staves, and other incongruous Props, to support incumbent weights, and ponderous Arched Roofs, without Entablature, and tho' not without great Industry . . . nor altogether Naked of Gaudy Sculpture, trite and busy Carvings; 'tis such as rather Gluts the Eye, than Gratifies and Pleases it with any reasonable Satisfaction: For Proof of this (without Travelling far abroad) I dare report my self to any man of Judgment, and that has the least Taste of Order and Magnificence; If after he has look'd a while upon King Henry the VIIth's Chappel at Westminster; Gaz'd on its Sharp Angles, Jetties, Narrow Lights, lame Statues, Lace and other Cut-work and Crinkle Crinkle; and shall then turn his Eyes on the Banqueting-House built at White-Hall by Inigo Jones after the Antient manner; or on what his Majesties present Surveyor Sir Christopher Wren has lately advanc'd at St. Paul's . . . and compare them judiciously without Partiality and Prejudice; and then Pronounce, which of the two Manners strikes the Understanding as well as the Eye with the more

Majesty, and Solemn Greatness. . . . In this sort have they, and their Followers ever since fill'd, not all Europe alone, but Asia and Africa besides, with Mountains of Stone, vast and Gygantick Buildings indeed; but not Worthy the name of Architecture: Witness

. . . what are yet standing at Westminster, Canterbury, Salisbury, Peterborow, Ely, Wells, Beverley, Lincoln, Gloucester, York, Durham, and most Cathedrals and Minsters." Thus far Evelyn. That Addison had no clearer insight into the nature of Architecture will be seen from the 415th *Spectator*, where he says:—"Let any one reflect on the disposition of mind he finds in himself at his first entrance into the Pantheon at Rome, and how the imagination is filled with something great and amazing; and, at the same time, consider how little, in proportion, he is affected with the inside of a Gothic cathedral, though it be five times larger than the other; which can arise from nothing else but the greatness of the manner in the one and the meanness in the other." The fact is that Architecture to them was, as already said, the Five Orders and nothing more—to some of them less indeed, since they only admitted the claims of two out of the five grudgingly and of necessity. Architecture, in their opinion, dealt almost exclusively with the

## EXTERNAL APPEARANCE,

and they dismiss in few sentences such considerations as the disposition of rooms. Planning to them meant first and foremost the arrangement of their building in regard to its appearance, not in regard to the functions it had to fulfil. Broadly speaking, a well-designed building is as much a product of evolution as natural scenery or the forms of plants and animals. Natural scenery is almost entirely governed by the geological formation of the district. Plants and animals have assumed their various forms chiefly as the result of the necessities of their growth, which, again, are dictated by the functions they have to fulfil. And so it is—or ought to be—with a building. Architecture is not only the art of building finely, it is the art of building finely in order to comply with certain specific conditions. This notion of Architecture was unthought of by the eighteenth century, brilliant though it was; and so the chief aim of its Architects was to dazzle and impress the spectator, not to please and satisfy the in-dweller. Lord Chesterfield told General Wade, for whom the Earl of Burlington had designed an inconvenient though handsome house in Burlington Street, "if he could not live in it to his case, he had better take a house over against it and look at it;" a piece of advice by which many a nobleman might have profited. It has been observed that when people take to writing about Art they have ceased to practice it to perfection. So long as it is, so to speak, spontaneous, its followers need no directions; it carries them along, they do not force it. But when its natural vitality is spent, and its followers are no longer borne unwittingly onwards, then spring up more or less gifted observers, who point out the ancient tracks and show how they may be continued; but unless among them be some who know what kind of force went to the making of the tracts, and can kindle the fire to produce the force, all the most accurate and beautiful drawings of those splendid vestigia will not enable one single one to be repeated. Ever since the beginning of the

## SIXTEENTH CENTURY,

that is, for two hundred years before our period, Europe had been studying the footsteps of the Romans. For more than half that time England had thrown herself into the pursuit, and now the patient efforts of many writers were to be rewarded, and it was to be the aim of every generous patron and every Architect of ability to make our English buildings as much like those of Italy as they could. Architectural design was to a matter of rule and compass. What could be easier? The text-books gave the proportions, not only of the modern buildings of Italy—or rather the proportion of the Orders which adorned

\* A paper read before the members of the Architectural Association on Friday, the 19th inst.



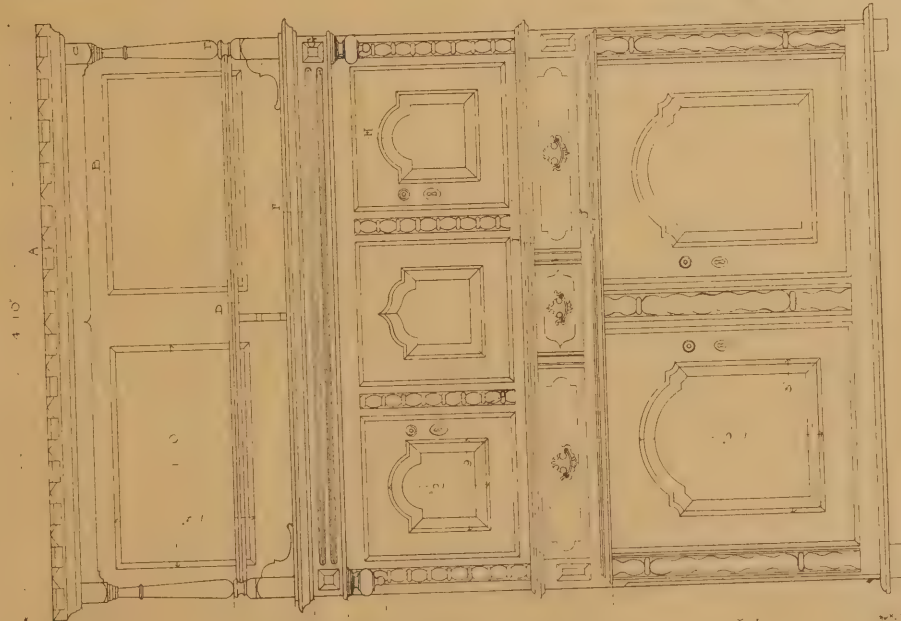
~OLD OAK CABINET~

MEASURED AND DRAWN BY GEO. ALF. JOHNSON.

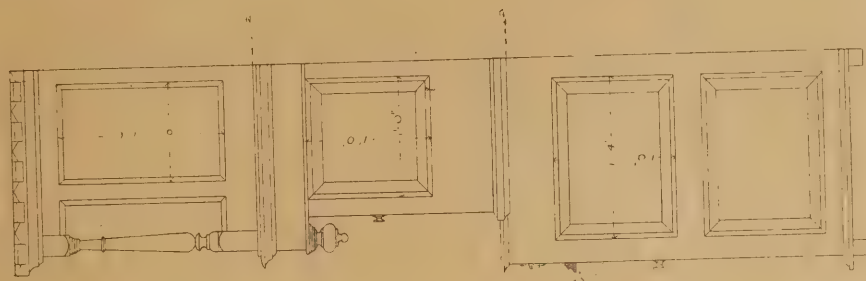
~DATE 1700~

SCALE OF FEET

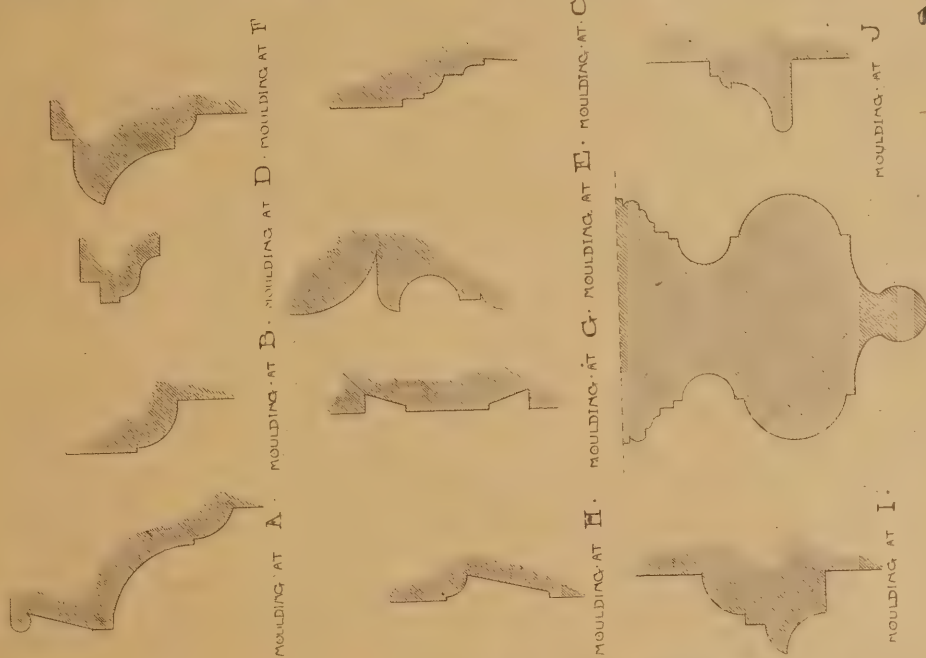
THE CABINET DIVIDED INTO  
THREE PARTS AT Z Z



FRONT ELEVATION



SIDE ELEVATION



FULL SIZE DETAILS

AN OLD OAK CABINET. MEASURED AND DRAWN BY G. A. JOHNSON.

C.H.S.



them—but also of some ancient ones upon which the sacred eye of Vitruvius himself must have rested. Macaulay has observed that during the latter part of the seventeenth century, and the early part of the eighteenth, the heroic couplet was so much in vogue, and was brought to such perfection by constant use, that every poetaster could employ it with as much facility as Pope himself. So it was in Architectural design. The rules were so well known that it required no genius to use them—nobody expected any skill in planning—and so the same dull propriety

#### CHARACTERISED EVERY BUILDING

that was put up. Just as in poetry it is not the polished form of the verses that marks the true poet, but the ideas contained in them; so in Architecture it is not the correct marshalling of columns, and the "nice conduct" of entablatures that must be our criterion, but the manner in which the whole building satisfies and expresses the wants which it is supposed to supply. Judged by this standard, how many of the designs in Campbell's "Vitruvius Britannicus" would come within the category of true Architecture? And yet those volumes contain nearly all the larger houses built in the first half of the eighteenth century. One of his designs Campbell introduces thus: "This design of my invention in the Theatrical style is most humbly dedicated to Tobiah Jenkyn, Esq." The Theatrical style, he tells us, "admits of more gaiety than is proper either for the Temple or the Palatial style," and in that word *theatrical* lies the key to much of the designing of the period. It is all more or less theatrical, done to impress the beholder; just as in the second half of the century the laying out of gardens and grounds was contrived with the aim of producing the effects found in the pictures of Claude Lorraine and other landscape painters, down even to the introduction of

#### ARTIFICIAL RUINS.

In describing the plan of his house in the theatrical style dedicated to Tobiah Jenkyn, Esq., Campbell dwells not on the convenience of arrangement, not on the cheerful aspect of the rooms or any special contrivance for the comfort of the inhabitants, or whatever goes to make a house a home, but on the proportions of his principal apartments. "Here," says he, "is the double and single cube, the hall being 27ft. by 54ft. Here is 18ft. by 27ft., which is the *sesqui altera*, and 21ft. by 27ft., the *sesqui tertia*, and you pass gradually from the larger to the lesser;" all of which may have satisfied the wants and aspirations of Tobiah Jenkyn, Esq., but do not compensate his descendants for the absence of those arrangements which make daily life tolerable. The needs of daily life went but a little way to model the great houses of that time. Architectural grouping, in order to impress the beholder, often led to dividing the mansion into separate blocks, one for the family rooms and State apartments, one for the kitchens and servants, and one for the stables. The kitchen, therefore, would be hundreds of feet off the dining-room, a drawback against which Evelyn warned his readers, "or else," says he, "besides other inconveniences, perhaps some of the Dishes may straggle by the way." Sometimes the servants' quarters were located in two detached blocks hundreds of feet apart, balancing the composition, of which the family rooms formed the centre, and joined to the latter by open colonades. How the service of the house could be carried on with the two halves of the staff separated from each other by a five or ten minutes' walk is not very clear; but, of course, the mansions were not built for the servants, but a little for the family itself, more for its grand guests, and most for the casual spectator who was to admire the lordly pile as he passed by. The servants had to put up with what accommodation they could get. Their hall might be a vaulted underground room lighted only by areas, as at Buckland in Berkshire, and their bedroom windows might look out on to the back of the parapet. The butler might have to sleep in a room without any outside wall and no direct light and air. But in those

days servants were merely servants, and could hardly expect to be exempt from suffering for Architectural effect when their employers were content to suffer as well, though in less degree. And they must have suffered; for, wholly apart from considerations of bad service, the family were often located in a low basement with all the weight of the State apartments over their heads. Their rooms were not contrived to catch the morning sun, or to get a splendid view, or, indeed, for any particular purpose relating especially to them; but they were arranged to fill up the space beneath the great rooms of State, and if they were comfortable, it was more by

#### GOOD LUCK THAN GOOD MANAGEMENT.

The Architects of those days were, in fact, more or less of amateurs, and the kind of Architecture in demand was such as amateurs could supply. Pre-eminent among them—at any rate in social position—was the Earl of Burlington; and when we consider this fact for a moment, can we be surprised at the amount of unreal and theatrical design that was produced? Who could expect an Earl to concern himself with the niceties of household planning? No wonder that General Wade received that advice from Lord Chesterfield to take a house over against his new mansion, and look at it. Yet all through the century Lord Burlington was looked up to as the greatest patron of Art that England had ever produced, and especially of Architecture. Horace Walpole extols his taste and his ability, he "had every quality of a genius and artist, except envy;" yet, withal, he cannot disguise from himself that Ripley, who was an Architect by occupation (or, as they were still called in those days, a surveyor) "in the mechanic part, and in the disposition of apartments and conveniences, was superior to the Earl himself." Pope, of whom Lord Burlington was a patron, satirizes Ripley more than once, but then Ripley did not belong to Pope's faction. Pope himself, in one of his epistles, points out a way in Architecture which no one seems to have followed, not even the nobleman to whom the epistle was addressed. Writing to Lord Burlington, he says:

You show us Rome was glorious, not profuse,  
And pompous buildings once were things of use.

And again:

Something there is more needful than Expense,  
And something previous ev'n to taste—'tis Sense:  
Good sense, which only is the gift of Heav'n,  
And tho' no science, fairly worth the seven.

Towards the end of the epistle he reverts to the same text:

'Tis use alone that sanctifies Expense;  
And splendour borrows all her days from Sense.

It is rather amusing that a sermon founded on such an excellent text should contain so much that is at variance with it. Nor can we help smiling that the Earl's work should be supposed to embody the principles here laid down, when we remember poor General Wade's house, or the villa at Chiswick, beautiful no doubt in grouping and proportion, but of which Lord Hervey said: "The house was too small to inhabit, and too large to hang to one's watch." Walpole, who records this witticism, has some remarks on the house which are worth repeating. It is "a model of taste," he says, "though not without faults, some of which are occasioned by too strict adherence to rules and symmetry. Such are too many correspondent doors in spaces so contracted; chimnies between windows, and, which is worse, windows between chimnies; and vestibules, however beautiful, yet too little secured from the damps of this climate. . . . The ground apartment is rather a diminutive catacomb, than a library in a northern latitude." Then he adds a few sentences which throw some light on one of the motives that actuated the eighteenth century. "The larger court, dignified by picturesque cedars, and the classic scenery of the small court that unites the old and the new house, are more worth seeing than many fragments of ancient grandeur, which our travellers visit under all the dangers attendant on long voyages." There you have it—"the classic

scenery," and the "fragments of ancient grandeur," which were to be rivalled by

#### ENGLISH VILLAS.

It is from the opinions of men who lived in the eighteenth century that we can best gather the motives that underlay their actions, and, therefore, a further quotation from Walpole may be excused:—"It was in this reign" (of George II.) he says, "that Architecture resumed all her rights. Noble publications of Palladio, Jones, and the antique, recalled her to true principles and correct taste; she found men of genius to execute her rules, and patrons to countenance their labours. She found more, and what Rome could not boast, men of the first rank who contributed to embellish their country by buildings of their own design in the purest style of antique composition." We have seen one of these men of the first rank, Lord Burlington, and what he did. Another was Lord Pembroke, and he is worth singling out because, according to Walpole, "No man had a purer taste in building than Earl Henry, of which he gave a few specimens, besides his work at Wilton." Now his work at the house at Wilton is about as dull as anything can be, and far behind the "theatrical bridge" as Walpole calls it, which he threw over his river. This bridge is less objectionable than the other "theatrical" work of the time, inasmuch as it imposes no special inconvenience on any one, but whether a bridge of this kind is in harmony with English scenery is a debatable question.

#### TASTE,

of course, was the great requisite in that age. Lady Teazle endeavoured to acquire it along with other fashionable accomplishments, to her husband's great scorn—what had she, a country-bred girl, to do with elegant expenses and fashion before she married him? "For my part," replies the lady, "I should think you would like to have your wife thought a woman of taste." "Taste!" cried her husband. "Zounds, Madam, you had no taste when you married me." The extravagances of the second quarter of the eighteenth century sprang from an indulgence in taste apart from considerations of propriety, and it was the often-mentioned Lord Burlington who led to them, partly by his own work and partly by his publication of the designs of Inigo Jones and Palladio's antiquities of Rome. But it only wants a comparison of Inigo Jones's work with that of Burlington and his successors, or a comparison of Wren's with theirs, to see how those two men were really Architects, while the others were but amateurs dabbling in what they did not thoroughly understand, and in other details of which they scorned to enter. But while we cannot but feel that in the true essentials of Architecture they were sadly lacking, yet we must concede that they produced striking results. One of these fine palaces, when it was surrounded by its original gardens, must have been remarkably imposing. Take Blenheim, for instance. If we regard it as a home, we must be disappointed; but as the dwelling of a great noble, living in state and surrounded with all its attendant ceremony, receiving other great nobles with their retinues, and housing them in more magnificence than comfort, in these respects it has much to claim our commendation. There is much excuse for it in the fact that it was a gift from the nation to its greatest son; it had to be splendid at all costs—yet it did not meet universal appreciation even in those days, as witness the lines of Swift.

#### GREAT AS THE PROGRESS

in Architecture has been within the last forty years, it has either been imitative or eclectic. We want it to be neither, for imitation Architecture proclaims that we admit the superiority of our predecessors, and eclecticism is but the pillaging of former Architectures and re-arranging the pieces; while what is wanted is either a new creation or a new and superior development, just as man is a superior development of the monkey, or even as the Apollo Belvedere or the Venus of Milo are superior developments of the average man and woman. I have insisted in these lectures on a much more complete and thorough knowledge



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



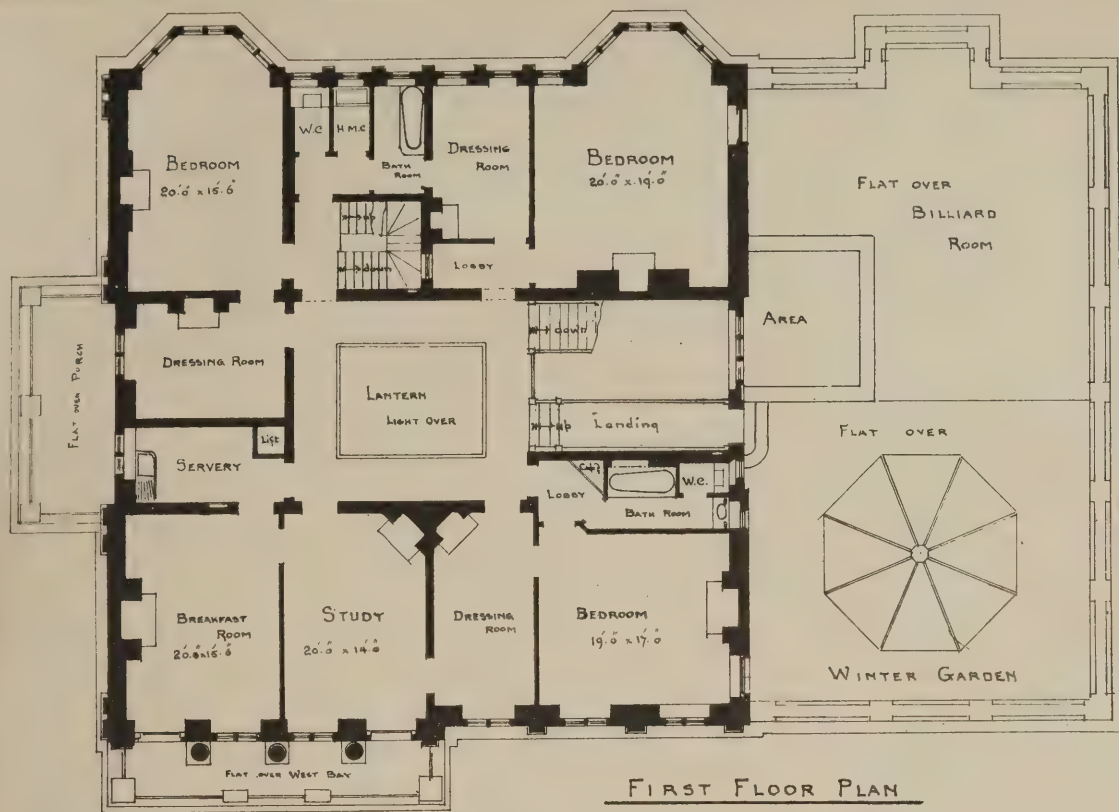


FRONT TO PARK LANE.

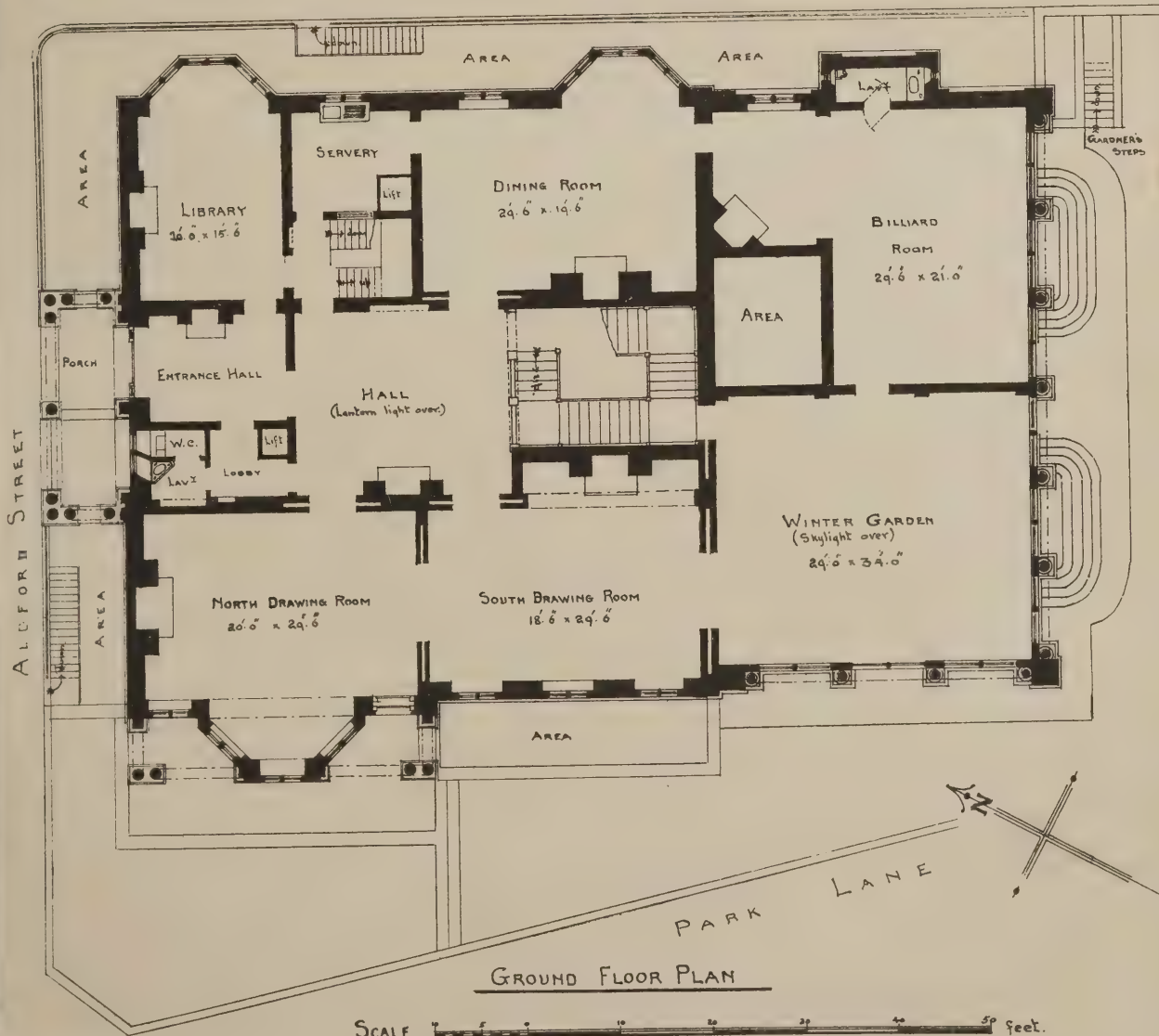


ENTRANCE FRONT.





PARK STREET



SCALE 0 10 20 30 40 50 feet.

INK-PHOTO. SPRAGUE & CO. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.



LIBRARY  
OF THE  
UNIVERSITY OF CHICAGO



of the Art of construction than at present exists among us; because this is the foundation of our constructive Art, and without a solid foundation no permanent monument will stand, but besides this an accurate knowledge of the strains on certain features gives the proper form they, or parts of them, must take; we saw in Byzantine that the abacus of columns had to be deeper and wider to support larger piers and greater weight; that the capital sometimes had to be cubic and only superficially carved to convey the weight to the shaft. The stone rings to connect the lengths of thin shafts together, in Gothic have been turned into ornamental features. Structural knowledge, however, is far from being all that we want. We know we want this knowledge, and we also know that it may be acquired, but we at least equally want, if we do not more greatly want, creative genius, either to create something new and original or to develop that which has gone before, as Nature does, or has done, in all her works. This power, however, on the aesthetic side we know not how to attain: all we know is that it is the offspring of deep emotions, high aspirations, and untrepid resolves in the nation, acting on certain love and

#### SKILL IN THE ARTISTS.

The successful resistance to the Persian invasion caused all the fine arts in Athens to blossom; and if you will consider the circumstances of the Saracen, Gothic, and Renaissance epochs, you will see that the Arts were forced into blossom by important national achievements; and that the Artists of the period only wanted this stimulus to make them achieve their brilliant successes. As individuals, Artists can only contribute in a small degree to such intellectual upheavals. Their business, however, is to be ready for them. We may hope that in a short time every student will have a thorough acquaintance with construction and materials, and will have learned the art of moulding to suit the climate. We also hope that each student will strive to develop the shaping of forms so as to captivate the most refined taste; so that when the flood comes that will again float the barque of Architecture, so long stranded, they may be ready to man her and steer her to new discoveries and new conquests; so that the twentieth century may be one of the most flourishing Architectural epochs the world has yet seen. In that epoch I feel sure that those who were Royal Academy students will not be

#### THE LEAST CONSPICUOUS.

But when these grandiose ideas were applied to the houses of ordinary noblemen, much as they may have been cherished at the time, those noblemen's descendants find it hard to live in their palaces, and hard to maintain them. There is not time enough on the present occasion to dwell much on the gardens that surrounded these great houses, but they were an acknowledged part of the general design, and now that they have in most cases disappeared, the vast houses lacking their support seem more wanting in common sense than they otherwise would. Among the illustrations in Campbell's "Vitruvius Britannicus," which may be considered as the epitome of the period under discussion, there are not a few showing the lay-outs round the great houses, which were founded partly on Dutch and partly on French examples. It was, however, probably Versailles that set the example to our English nobility, though nothing was done here on so vast a scale. The Duke of Montagu, who was Ambassador at the French Court for a number of years at the end of the seventeenth century, occupied the first few years of the eighteenth, after his return, in erecting his seat at Boughton, in Northamptonshire, after the pattern, and as his dimensions would allow, after the very model of Versailles. It must be admitted that Boughton House is a very plain copy or rather reminiscence of Versailles; at the same time, its garden and wildernesses were of unusual magnificence and size, and adorned with numerous statues and a considerable extent of canals and ornamental water, enlivened by jets d'eau quite in the manner of Versailles as

recorded in prints. The house itself, although of a rather plain and sombre cast, is interesting as an

#### ALMOST UNALTERED EXAMPLE

of an eighteenth century mansion, simply though richly furnished. Its floors are polished, its walls panelled in large panels surrounded by a bold bolection moulding, the doors are lofty and set in thick walls, the chimney-pieces are simple and massive, and surround wide and deeply recessed open fireplaces. The ceilings are (many of them) by that rather dull painter, Verrio; still, they impart a large amount of character to the place. Here and there is a panelled room, or a fine chimney-piece of a hundred years before, showing that the house was not erected entirely new by the ducal ambassador. The walls are hung with ancient portraits and pictures, and the floors are full of ancient furniture. Through the heavy sashes one looks out on to the undulating park, and the long and lofty rows of trees which form part of the celebrated avenues. There are attics innumerable scattered in every direction, and approached by staircases where the handrail is mitred round the plain square newels, and twisted balusters join it to the swelling string. Through these attics you may go, and down a different staircase, to find yourself in a room that you thought was a furlong off on the other side of the house. Altogether an interesting place, and one that gives a good idea of the haphazard arrangement of a large eighteenth century house. At any rate, Boughton House was a home which could be inhabited all the year round—even the state rooms; which is more than can be said of many of its contemporaries. Nevertheless, with all their drawbacks these palaces were stately. The plans look gorgeous on paper, and so do the sections showing the internal decoration. The effect of the places themselves is, perhaps, rather depressing on the ordinary person, the grandeur is a little too obvious—there is no such feeling of homeliness as in the many-panelled rooms of the early seventeenth century; but when all is said, the fact remains that the Architects of the later time had a very definite aim in what they did, and they achieved it. When we leave the mansions of the nobility, and come down to the houses of the squire or the well-to-do merchant, we find ourselves in a much pleasanter atmosphere. They have a

#### QUIET DIGNITY

about them which is decidedly restful and attractive, especially those of the first quarter of the century. In later times the portico idea became too prevalent, which consisted in affixing to the front of an otherwise plain house some variation of the columned front of an ancient temple. But the earlier houses with wide corniced eaves, simple horizontal strings dividing the rows of sash windows, and combining with the quoins that emphasise the angles; these will no doubt long continue to form the model for houses of similar use and capacity. It is just a question whether this is quite the type that suits the present age; for our wants seem to grow always more complex, and to require a more elastic style than one depending for its effect on strict symmetry and unbroken horizontal lines. If we cannot take a wholly sympathetic view of the purely Architectural work of the eighteenth century—at any rate, in its more notable examples—neither can we forget that we are indebted to it for much that is suggestive in the work that embellished the Architecture, especially in wood and iron. The ironwork of that period has

#### NEVER BEEN EQUALLED

in England, and it lends an air of distinction not only to great houses like Drayton, in Northamptonshire, but to little suburban villas at Hampstead. The joiner's work of the time is full of suggestions. The sash-windows alone were enough to revolutionise Architectural treatment, and the far-reaching effects of a mitred moulding are impossible to follow. Through all the changes of two centuries these two facts have remained with us—sash windows

and mitred mouldings—and there seems no immediate prospect of their being superseded. The work of the plasterer was not so admirable as that of the joiner. He had become too expert, and was able to perform prodigies of modelling and high relief, which finally undid him, and he and his Art perished together. If we are to seek inspiration from the work of the eighteenth century, we shall find it in two directions. First, in the grand schemes of house and garden combined, and in the general grandeur of treatment bestowed upon the great houses of the time. Not that we are to copy either blindly; but it is very desirable to realise how much the house and its surroundings depend upon each other; and equally desirable to learn how a grandeur of manner may be acquired. Secondly, in the sober and simple houses, where the plainness of the general appearance is sometimes unexpectedly broken by the quaint treatment of a door or a chimney, and where the joiner's work is full of homely lessons. It is often from the vernacular Architecture of the country that we can get the most useful hints; whereas it is the palatial Architecture that gives its stamp to the period, and goes to furnish the text-books. The one is for show first, and use second; the other is for use first, and show second. The palatial Architecture of the eighteenth century was surely given to us more as a warning than as an example; but it is worthy of attention, just as all phases of Architecture are which have acquired any hold on public affection, and we are not likely, in view of our present methods of study, to fall into that attitude of mind towards any style which Evelyn exhibited towards Gothic. If we bear in mind that Architecture must develop from within, and not from without, we shall never again become the slaves of a foreign and a dead hand, as our forefathers were in the eighteenth century, but we shall go forward, as we are, indeed, at the present time going forward, on different paths, perhaps, and at different rates of speed—sometimes not without sharp divergence of opinion as to the propriety of particular steps—but always towards the same goal—the ennobling of our *Alma Mater*, the Mother-Art of the world.

A NEW Church is proposed at West Bromwich, for the building of which £7000 is required.

It has been decided to open a subscription list for the erection of a home for trained nurses at Westminster.

The building trade at Llanelly just now is in a very depressed state, scores of the men being out of employment, while others are only working part time. For the present all building operations appear to be suspended, and there are no signs of any important contracts being given out in the near future.

The Society of Antiquaries, on the motion of the Rev. G. W. Minns, seconded by Sir Samuel Montagu, Bart., M.P., has passed a resolution urging upon the local authorities of Southampton the importance of preserving ancient landmarks of historic interest, while the scheme for the removal of certain dilapidated buildings to ensure the sanitary welfare of the Borough is in progress.

SEVERAL experimental runs have been made in the streets of London with a motor car which is fitted with the Wellington Ignition Tubes. The result has so far been to show that these tubes, which are composed of a combination of earthenware and asbestos, in preference to wrought iron, may turn out valuable auxiliaries in propelling horseless vehicles. They have already been adapted with success to various forms of gas-engines.

THE primary steps towards the erection of a fort on the eastern extremity of Bere Island are in progress. Material has arrived for fencing round the works, and a number of men have been employed repairing the approach from the landing place. The area of the present operations will include an old Martello tower, commonly called No. 1, which will be demolished to be superseded by earthwork fortifications of the present time. About three years will be occupied in the erection of the fort.



## THE SERVICE OF ART.\*

By RICHARD SEAVER, M.A.

ARE there not many amongst us who regard the phrase "The Service of Art" as in itself a contradiction? What possible service, they ask, can Art render? It may supply amusement, a mode of passing time for the well-to-do classes and the dilettante, but for any of the really practical purposes of life it can and does render no service: it is useless. So they repeat the words which have not after nineteen centuries lost their querulous, captious note, "To what purpose is this waste?" What answer can "The Service of Art" make to objection such as this? Observe that oft-repeated phrase, "The really practical purposes of life." The kernel of the matter lies here. Utility, it is said, ought to be always the end of expenditure. Is there, then, only one utility in relation to the welfare of man? Must all expenditure increase their material happiness? Are we never doing man good, except when we are providing for his outward wants or enabling him to get on in the world? Remember Ruskin's indignant outburst against this utilitarian spirit: "Hewers of wood and drawers of water! who think that it is to give them wood to hew and water to draw that the forests cover the mountains like the shadow of God, and the great rivers move like His eternity." The beauty of nature which Art seeks to reveal

## IS NOT AN ACCIDENTAL THING,

nor mere appendage added as an afterthought, as the decorations of modern Architecture too frequently and palpably are. Beauty is wrought into her very warp and woof. Nature has a spiritual as well as a material side. She exists not only for the natural uses of the body, but also for the sustenance of the soul. This higher ministry explains all the beauty and wonder of the world which would otherwise be superfluous and extravagant. As the servant of merely household wants she might have been clothed with homely russet garments girded for toil, but as the priestess of heaven, appealing to the higher faculties of man, she is clothed like Aaron with temple vestments, and Solomon in all his glory is not arrayed like her. What need is there, then, for the service of Art if Nature herself chant her own song, unfold daily her splendid pageantry, her inimitable pathos? Why not cultivate the imagination by bringing it face to face with Nature rather than in second-hand contact with man's copy of Nature? Why send men to picture galleries, even to a National Academy of Art, when for themselves they may listen to "the still small voice of the level twilight behind purple hills," or watch "the scarlet arch of dawn over the dark troublous-edged sea"? Just because all men have not eyes to see nor ears to hear. The true painter is seer and revealer,

## INTERPRETING NATURE

to us. He is no mere copyist nor reproducer. In a very real sense he sees "that light which never was on sea or land, the inspiration and the poet's dream." So it is in portraiture also. Oh, the wearisome inane of those conventional, faultless, complacently correct likenesses in presentation portraits! The man's clothes are there—generally his Sunday best—his gold watch chain is also in conspicuous evidence, and his smile or frown, and attitude unmistakable of the "sitter." But too often the man is not there. He lurks out of sight behind all that specious show. Indeed, he may himself be ignorant as to where he is really to be found. The genuine Artist knows. He has sought out the soul behind the flesh, the depth of the mystery of its peculiar and separating attributes, and if he be true to his craft, like the portrait painters of olden time, he neglects the mask and paints the man. No wonder that sometimes men start back in horror at this disclosure of their inner selves, as one did in an upper room when the as yet unrealised workings of his own soul were laid bare to him, "Master, is it I?" "This power," says Ruskin, "to see and to feel which dis-

tinguishes the true Artist is instinctive; it cannot be manufactured. You may train it or destroy it; but make it or acquire it—never." When we cultivate the

## REALISM IN ART

let it be the realism of humanity at its highest, not at its lowest point. To paint the foulness of the brute is to be false to realism, for man in this stage is unnatural, unreal, less than man. The mind sees only that which it brings with it—the power to see. Some find it hard to believe that a useful thing can be a beautiful thing, the underlying idea being that the more you increase the beauty of the necessary things of life the more you lessen the utility, whereas Art began in the decoration of articles of daily use. "Put fine furniture if you like in my drawing-room, but I am a plain man, and like useful things in my parlour." This is to stifle and degrade Art, separating it from life. The savage lovingly carves the paddle of his canoe, which he puts to daily use. The splendid Gothic arch grew from the glorified household roof. As William Morris says, "The web, the cup, and the knife should look as lovely as the green field, the river bank, or the mountain flint."

## RUSKIN LONG AGO

pointed out that we don't as a nation seem likely to be able to rival some of the Continental people in Artistic work. The reasons are external and local as well as internal and constitutional. We have not the swift vivacity of mind or the freedom from oppressive anxieties, or the circumstances either of natural scenery or of daily life, causing pleasurable excitement, which seem essential to excellence in decorative design. On the Continent, again, in Italy and France and Germany, powers of fancy, stimulated by precision of manual dexterity, have descended uninterruptedly from generation to generation, with the natural result of producing almost a new species of the Art genus, with whose instinctive gifts we have no chance of contending. So, as Ruskin bids us, we must first learn to make honest English wares and afterwards to decorate them as it may please the approving graces. Also in the highest field of ideal Art, according to the same authority, we shall never be successful, owing to that characteristic Saxon delight in the forms of the burlesque which are connected in some degree with the foulness of evil. Much, however, we can do that others cannot. In the fields of portraiture witness our Reynolds and Gainsborough; in animal painting witness Landseer; and in landscape, where Turner is supreme. Surely if this be so, of all national duties the education of the Artist should be most incumbent upon the State. Yet of nothing has our country at least been more neglectful. The Artist has for the most part been left to grow. How different in what we complacently style the days of pagan Greece! The real value, says Emerson, of the *Iliad* or Raphael's Transfiguration is as signs of power, billows or ripples they are of the sea of tendency, tokens of the everlasting effort to produce which even in its worst state the tone betrays. Art has not yet come to its maturity if it do not put itself abreast with the most potent influences of the world, if it is not practical and moral, if it do not stand in connection with the conscience, if it do not make the poor and uncultivated feel that it addresses them with voice of lofty cheer.

## DEBASED ART

makes the same effort which a sensual prosperity makes: to detach the beautiful from the useful; to do the work as unavoidable, and, hating it, pass on to enjoyment. As soon as beauty is sought, not as God's sacrament and from love, but for pleasure, it degrades the seeker. High beauty is no longer attainable by such; only an effeminate, prudent, sickly thing, which is not beauty, for the hand can never execute anything higher than the character can inspire. Beauty will not come at the call of a Legislature, nor repeat in England its history in Italy or Greece. It will come, as always, unannounced, and spring up between the feet of brave and earnest men. There should be no distinction between the

fine and the useful Arts. If life were nobly spent, it would no longer be possible to distinguish the one from the other. In Nature all is beautiful and all is useful. It is in vain that we look for genius to reiterate its miracles in the old Arts; it is its instinct to find beauty and holiness in new and necessary facts, in the field and roadside, in the shop and the mill. If this be not so in our modern Art, then its service has become disservice, and Art stands in the imagination as somewhat contrary to Nature, and struck with death from the first. "The Service of Art," then, is a true service of humanity. The great Artist touches universal chords; his pictures pierce directly to the simple and the true.

## KEYSTONES.

The Leamington Court of Governors of the Warneford Hospital has decided to adopt a scheme for extending the hospital. This will cost £10,000.

MR. DANIEL WATNEY, the president, has given a donation of £450 to the Surveyors' Institution for the purpose of founding a Forestry Scholarship.

An order, authorising the expenditure of £110,000 in erecting and equipping a new asylum at Gransha for the Londonderry district, has just been issued.

The tender of a Liverpool firm has been accepted for the alteration and enlargement of the second court at the Dale Street Police Buildings, at a cost of nearly £2000.

The new police-station, law courts, and mining school, erected by the Warwickshire County Council at Nuneaton, at a cost of nearly £10,000, were opened on the 5th inst.

OPERATIONS have been begun in connection with the taking down of the pedestals of the Coats statues at the Cross, Paisley. The stones will be taken to Edinburgh to be re-touched.

It is understood that support to the extent of £4000 has been promised towards the cost, which is estimated at £12,000, of erecting Unionist Club Buildings in Union-terrace, Aberdeen.

A CURIOUS discovery has resulted from Canon Wilberforce having no use for the cellar beneath his residence in Dean's Yard. Its new owner asked an Architect to inspect it with a view to its conversion to other uses, and his investigations resulted in bringing to light a fine Gothic apartment capable of holding thirty people. It will in future be used as a dining-room.

At the junction of the Langley-road with Great Bath-road, opposite the Jesuits' College, now unoccupied, and at the entrance to Slough from London, stood a large ornamental fountain of bronze and marble. Some thieves have succeeded in removing this from its base and carrying it off. The fountain, which was of elegant design, stood about 14ft. high, weighed several hundred-weight, and was very valuable. It is supposed to have been stolen for its bronze and marble.

THE new Chapel of the Female Convict Prison at Aylesbury was recently consecrated by the Bishop of Reading. Her Majesty's Commissioners of Prisons have provided a spacious and well-lighted building, the walls being distempered in cream tone, with dado of dark red-brown, and the pulpit and reading desk of unpolished oak. The Duchess of Bedford gave the altar hangings, dossal and frontal in rich cardinal damask, as well as a golden cross and vases.

THE annual exhibition at Sheffield of the prize drawings of the Royal Institute of British Architects was opened on the 9th inst. The collection comprises the premiated drawings selected for exhibition in the provinces during the coming months under the auspices of the allied societies. The collection is further augmented by 25 sheets of studies submitted by candidates for admission to the Institute examinations of 1896, including seven sheets by H. L. Anderson for the intermediate examination, and five sheets respectively by Messrs. A. G. Boyd and G. W. Fraser and eight by C. S. F. Palmer for the final examination.

\* A lecture delivered before the members of the Belfast Art Society.



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
March 24th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

In viewing the last collection of the works of Du Maurier at the Gallery of the Fine Art Society in New Bond Street, one cannot help being struck with the surprising industry, besides the power and versatility, of the Artist. This we believe is the third exhibition of his drawings held at these rooms, and comprises the principal work of the last six years of his life. There are considerably over two hundred drawings on the walls, over and above those for which no hanging space could be found, and nearly every one of these is worth prolonged study. Probably no Artist made so steady an advance in his Art as Du Maurier. If you compare even the least successful of his drawings with his early contributions to Punch, the fact will be evident. The delicacy of the drawing, the beauty of design, and the refinement of satire have become intensified of recent years, and there is but little doubt that some of his best work was done but a few weeks before his death. As an example of elaborate and beautiful pen-work may be mentioned one that does not in any way belong to the humorous group, namely the delicately-wrought drawing "Nocturne." A peculiar phase of the Artist's humour—when he seemed to absolutely revel in a weird of imagination—may be seen in the fourteen pictures entitled "Illustrations to a Dream," and then we find something in an altogether different line in his drawings for "Esmond." In the various episodes connected with "Things one would rather have expressed differently," "Speeches to be lived down if possible," and "Things one would rather have left unsaid," do we meet many old friends whom we are glad to encounter once more. In "Casuistic Ingenuity" we have a charming and juvenile adaption of "The Fox and the Crow" scene in "Trilby"; and what truth there is in "Chivalry in the London Streets," where all the men are charging into an omnibus on a rainy day to the exclusion of the ladies. "Trials of a Painter's Wife," "Dancing Men," "A Daughter of Heth," "A Home Truth," "The Height of Impropriety," and "L'Invitation à la Valse," are among the many delightful comedies of society to be found in this collection.

MANY inadequate reasons have from time to time been put forward by Ecclesiastical authorities for defacing, under the name of restoration, the buildings committed to their charge, but if we may trust a correspondent who writes from Bath, we have met with none so audacious as that which appears to be prompting certain officials of that town to press for the restoration of its picturesque old Abbey. With true want of Artistic enlightenment, the citizens of Bath have, we are told, for some time past been engaged in spoiling the view of the Abbey. New municipal buildings have been erected on its north side, and an extension of the Pump Room has been built much closer to the west front than was either needful or desirable, while at the east end of the Church the corporation is busily

engaged in putting new stucco fronts to a row of shops. The Abbey, therefore, looks down all around on brand new surroundings, and the local feeling seems to be that the west front of the Abbey must undergo restoration in order to be brought into "harmony" with these. There is not even the excuse of structural unsoundness put forward; it is simply a desire to encumber the fine old front with modern masonry. As nothing, fortunately, has yet been done, there may be time to stay the hand of the spoiler. But the most outrageous feature of this threatened act of vandalism is that it is gravely put forward as a proposal for commemorating the Queen's long reign!

In the March "Cornhill," Giovanni Costa, who was for nearly half a century in friendly and artistic intercourse with the late P.R.A., tells what Leighton did for George Mason, "the glory of English Art." Mason was living almost in misery, hidden from the world and burdened with children. Leighton went to him in his solitude (1863), took him with him, and showed him the beauties of the "Black Country," making in a little sketch-book drawings of schemes for future pictures. "It was as if he reopened his eyes and inspired him with new life. At the same time, and with the greatest delicacy, he supplied him with money in advance on the pictures he commissioned from him for himself and for his friends." On Leighton's return to London from his visit he secured mention of Mason in the Press, and spoke much of him in the Artistic world and to Artists. He also prepared his house in London, and from that time he never abandoned him, always helping him, giving him courage, advice, and money. Mason died in 1873, leaving a widow and several children without any resources. Leighton arranged the sale of all the pictures, studies, and effects of his friend, and from the proceeds of this sale he obtained for them an annual income at that time of £600. "That which he did for Mason," it is added, "he did for many other Artists."

CONSIDERABLE interest has been taken in a block of wood which has found its way into one of the corridors of the House. It is a portion of a beam taken from the crypt of Canterbury Cathedral, which is undergoing restoration at the hands of the new Dean. The relic is of pale snuff brown, but really resembles a piece of fine sponge or a block of honeycomb. The wood has been eaten into by myriads of worms, whose tiny cells are in themselves singularly beautiful from their minuteness and integrity. Two of these insects were secured alive, and are now under a glass case, in the room of one of the officials of the House. The beam is said to be fourteen hundred years old. It is called oak, but more probably it is a piece of cedar. Any way its Archaeological value is considerable.

"CONTESTS for Art Scholarships are by no means so equitable as they ought to be," says a correspondent. "In the conditions required by competitors for the County Council Scholarships there are certain conditions wisely designed to ensure to those for whom these scholarships are provided so that they shall not be handicapped by entry of those who are well-to-do or unscrupulous. One condition is that no scholar shall compete whose parents' earnings or income from any source shall exceed £400 per annum, and another rule is that the sketches put in shall all be the scholars' own work and design, and have been designed and executed within a given period (about one month) of the date of examination. There are about 400 or more entered for the examinations for 20 scholarships coming on in about a fortnight at the London County Council. I am in a position to know that some of these competitors have parents whose incomes exceed the limits; and that designs and work of others executed many months ago will complete. As a needy father of a hard-working and poor competitor, I ask whether any and what steps are taken by the management of these competitions to ensure adequate investigation of the entry papers sent in, and

rigid exaction of the conditions framed by that management for the conduct of the examination for these scholarships."

THE locomotive "Invicta," one of the earliest in the history of railways, and the first engine of that pioneer Kentish line, the "Canterbury and Whitstable Railway," is to be permanently placed on exhibition at the Charing Cross Station of the South Eastern Railway. It will be brought up from the Ashford works, where it has been for many years past, and will be as interesting an exhibit as are the "Puffing Billy" on Newcastle High Level Bridge and the "Locomotion" on its pedestal at Darlington station. The "Canterbury and Whitstable Railway" was opened May 3, 1830, and the "Invicta," therefore, has long since passed its Jubilee. It was exhibited at the Railway Jubilee at Darlington in 1875, and at the George Stephenson Centenary in 1881. It is announced also that the Great Western directors have presented the first Great Western engine, the "North Star," to the South Kensington Museum. It was delivered to the Great Western Railway in 1837, and ran successfully for many years, but has long been stored away in a corner of the engine-sheds at Swindon. It will probably be shortly transferred to the museum, where it will be in company with many another curiosity of early railway times.

THE great city of Ambir, once the capital of Rajputana and founded in the first century of the Christian era, was so magnificently built that none of its palaces or public buildings have yet fallen into ruin or decay. The Royal palace is 100ft. above the level of the lake, but the stone buttresses which support the sides of the green hill upon which it stands descend perpendicularly into the water and look like a continuation of the castle walls, which are built exactly over them, thus making the frontage appear more than 200ft. high. The principal gateway of the palace, known as the "soëvé" gate, is acknowledged to be one of the most beautiful works of Art in India. It is difficult to convey any idea of this marvellous construction of precious marbles and of gildings, of mosaics and of delicate painting. The marble frameworks of the windows which ornament this gate are the finest in all India. They are carved out of single slabs of marble, and are most delicately finished. On passing through this gateway one finds a courtyard surrounded by palaces, each rich in mosaics and sculptures. In some of these palaces the walls are covered from the ceiling to the floor with inlaid work of polished stone, agates, turquoises, and pieces of looking-glass arranged in groups of flowers and Arabesques, and the effect produced by a ray of sunshine in these apartments is indescribable. In others the floors are of sandal and other precious wood.

A CORRESPONDENT, writing with reference to the sinking of Maitland Park, says that having resided in Maitland Park, Haverstock Hill, for some years, he has had an opportunity of observing a continuous sinking going on throughout the park—notably in Maitland Park Villas. "Two houses close to one of the park entrances and next to a chapel have recently been condemned by the local authorities and pulled down. Others, sooner or later, can hardly fail to share the same fate. There does not seem to be a single dwelling in the park which is free from the disturbing influence. The house I have occupied had not been long replastered and repapered when large rents in the walls and ceilings reappeared. My next-door neighbour, when I mentioned the circumstance to him, said, 'As your house sinks it pulls mine with it.' I had not been long in the place before the gradual subsidence was found to force apart the joints of the drainage pipes underground, the result being that the back kitchen and back yard had to be dug up for the repair of the pipes. As this sinking has been in progress for years it is feared to be only a question of time when a catastrophe will compel the County Council to demolish those houses, especially those which are of the 'jerry-built' order, in the villas and the road."



THE memorial chancel and organ chamber of the Parish Church of Dundonald, Ireland, were consecrated a few days ago. During the building operations a most interesting "Archæological find" was made, which confirms the traditions as to the early Ecclesiastical importance of the site. In taking down the stonework of the old box chancel, which was built in the early decades of the present century, some of the stones which had been used therein as mere building material in the construction of the chancel arch were found to be the floriated portions of an Anglo-Norman tombstone, of uniform shape, similar to those whose vestiges yet remain at Grey Abbey and Movilla. In proximity to this relic there was also found the cusped head of a fifteenth century Church window. These vestiges have been happily rescued from oblivion, and are *en evidence* in the new structure. Parish records tell us it was rebuilt in 1771 and again reconstructed in the year 1866. It was probably at this latter date that the existing cast-iron roof principles of the nave were inserted, and other corresponding instances of the want of taste in Ecclesiastical detail which obtained in the early part of the century. The gradual improvement of the Church within the last year, the clearing away of the dowdy enclosures or pews, the new chancel and sanctuary, with the exquisite stone pulpit and memorial windows, have all effected a complete transformation. The sanctuary has been paved with special mosaics, the walls have been panelled in pitch pine and walnut, the panelling over the holy table being in Ebners' mosaics. The chancel and choir has been extended one bay into the nave, and a chancel arch has been built springing from corbel clusters, and with three orders of mouldings. A new cut stone entrance doorway to the tower has been built, and is richly moulded with label and carved corbels and Gothic panelled door. The entire works have been carried out by Mr. Joseph Smyth, builder, of Duncairn Gardens, from the plans and designs of Messrs. J. J. Phillips and Son, Architects, Belfast.

MR. JOHN D. ENYS, Penryn, who recently gave a lecture on "The Ancient Churches of Cornwall," said that a large number of Churches were built in the perpendicular style, which came in after the great plague of 1349, the majority of the present Cornish Churches dating from after the year 1350. The typical Cornish Church had three aisles. One of the most curious Churches in Cornwall was Crantock, having a nave but no aisle. The chancel, however, had two aisles. Crantock had a collegiate established prior to the reign of the Conqueror, and this remained until the time of Henry VIII. Usually in Cornish Churches there were no chancel arches to be found, the chancel being formed by a rude screen. On the top arcade of the nave there were, as a rule, no windows, except at St. Germans and Fowey, but the Norman remains, the fonts, are most interesting, and not a single scrap of Norman work in the country was granite. The Normans did not use chisels, but their carving was done with the axe. Some of the old Norman fonts showed traces of old Saxon design. The font at Feock was one of the purest old Norman fonts known in Cornwall. The one at Perranzabuloe had a curious look, as those who made it imitated some former design. Lostwithiel had a font which bore some very rude carving. One of the oldest towers in the county might be seen at Kea, whilst Gwithian, Breage, Lelant, St. Ives, Redruth, and Camborne had towers which existed for several centuries. Of monuments of great antiquity there were few in Cornwall, but there were several stoneheads. Of painted glass little remained except at the Church at St. Neot.

THE widening of Fleet Street is to be continued, and the total cost will amount to something like a million sterling. The improvement, however, will be worth even that high figure, for it is one of the busiest and narrowest of City streets. No doubt the setting back of the south or river side of the road will be followed by improvements in the Architecture

of the new buildings and the shabby little shops. It is a matter for satisfaction that there is now an obvious desire on the part of the authorities to pay more attention to the widening and improvement of some of the busy thoroughfares which at present, as far as their breadth is concerned, are mere lanes, ever blocked with traffic, and almost daily the scene of more or less serious accidents.

In a lecture just delivered before the Liverpool Teachers' Guild of University College, on "Old Architecture in Liverpool," Professor F. M. Simpson, M.A., dealt chiefly with eighteenth century Architecture. Rows of houses were built on what were then outskirts, but are now in the middle of the town. Such houses are found in Great George Square, Hanover and Duke Streets, Islington, St. Anne Street, and St. Paul's Square. Round the Cathedral the best old houses are seen, though many of them have been knocked down to make room for modern warehouses. The lecturer described the appearance of these eighteenth century houses, which, externally, are plain, even severe. The one rich spot which attracts the eye is the doorway, and, although the principle is the same in all, the variety in design, slight as it is, is positively amazing. In front of the house were generally cast-iron railings and ornamental lamp standards, often masterpieces of the smith's craft. But, throughout all, the feeling left upon the mind is very impressive, on account of the good proportions of their different parts. This effect is produced by the size and shape of the windows. They were buildings suited to the people who lived in them, and to the times in which they lived—simple but stately, plain but refined. Professor Simpson then showed a series of slides, first of the Strozzi and Antinori Palaces in Florence, as examples of good proportion and discreet use of ornament. Photographs of well-known old houses were also shown, to illustrate the beauty of the eighteenth century doorways, steps, gables, and iron railings.

EXCAVATIONS have been resumed on the site in Bailgate, Lincoln, where broken columns of the Roman period have from time to time been unearthed. The base of a triple column was recently revealed, from which it appears that the nineteen pillars of the basilica or hall of justice were composed of thirteen single and five double columns, and one triple. The triple column unearthed is of like character with the others. Two of the pillars stand north and south, like the other twin columns, and the third has a western aspect. The double column first brought to light was at the time of its discovery thought to be a unique feature, and was regarded as an afterthought of the builder, introduced to remedy some failure in the architrave of the portico. When other double columns were found, however, they were regarded as a local Architectural feature, introduced with the view of giving an air of strength and solidity to the corners of the building. This theory, which was held by the late Precentor Venables, is strongly supported by this latest discovery of a triple column.

THE great building scheme of the London County Council in Shoreditch is making rapid advance, and with the occupancy of the next two blocks, now ready for tenants, somewhere about 2500 people will have been housed of the 4700 originally planned for. Altogether this "Boundary Street" scheme will comprise twenty-three blocks. Of these fourteen are now finished, and of the other nine four are actually in hand and plans have been passed for the remaining five. The laying out and planting of the great circular mound which forms the centre of the estate is now proceeding. This raised garden is to be crowned by a handsome bandstand, around which there will be a broad promenade. Half way between this and the road level another walk encircles the garden, the slopes above and below being laid with turf and planted with shrubs. To anyone who knew the great maze of ruinous

and pestilential slums formerly occupying this site, the transformation is a very striking one.

THE ultimate destination of the three famous canvases which are now hanging in the room set apart for the Standing Committee on Trade is to be one of the public galleries, either in London or in the provinces. These pictures, which are by G. F. Watts, Cross, and Pickersgill, have been stowed away since 1895, and it is a remarkable fact that during the régime of the last Government, Lord Rosebery was instrumental in unearthing from Downing Street the five beautiful pieces of tapestry which are a conspicuous feature at the Foreign Office, where they have attracted widespread attention.

THE collection of military and naval relics in the museum of the United Service Institution has received a notable addition. In five large cases there are now exhibited by the officers of the Royal Engineers a varied collection of relics of General Gordon. The objects illustrate his career from the time that he was a cadet at the Royal Military Academy down to the closing scene of his life in the Soudan. In one of the cases is a series of drawings in pencil and in water-colour made by Gordon when he was at the Royal Academy. One is marked "Near Sorrento, R.M. Academy, Oct. 24th, 1850," and another, called "Old Sarum," dated in the following year, shows an earnest effort at Turner-esque effect in the sky. Later examples give unmistakable evidence of a decided gift for landscape painting. Among the drawings is one which illustrates the well-known interest which Gordon took in Old Testament topography. Another extremely interesting map is that which he made and used during the campaign of the "Ever Victorious Army" in China.

MR. JOHN TWEED, sculptor, is now hard at work upon a series of huge panels, a commission given him by Mr. Cecil Rhodes, for the commemoration of the stand and death of Major Wilson and his little force who were annihilated in the vicinity of the Shangani river. Amidst the rocky monoliths and mighty boulders of Zimbabwe a vault is to be carved in the breast of the almost impregnable ironstone; and there together, as they fell, will the bones of the dead men lie. In the sides of a huge boulder, hollowed to receive them, will be inlaid the four bronze panels upon which Mr. Tweed is now engaged, each 14ft. in length and 7ft. in height, bearing in bold relief the faithful likeness and life-size representation of the thirty-six men, effectively grouped, and garbed in the uniform they had worn with so much credit.

At Guy's Hospital, the new and extensive laboratories, to be opened by the Prince of Wales in May, will shortly be out of the contractor's hands. All the latest improvements have been introduced in the new building, which contains a spacious lecture theatre to accommodate six hundred students. The old laboratories are to be pulled down, leaving a wide open space upon which the windows of the wards on that side of the hospital will look out. An outlay of £13,000 has been expended in the additions, and a further sum of £35,000 will, it is estimated, be required before the plans of additional laboratories now approved by the hospital authorities can be carried out in their entirety. But as such buildings are erected solely on the students' fees, it is likely, excluding the possibility of a handsome gift, to be some considerable time before the work is put in hand.

At Margate there is a remarkable relic of the past about which very little apparently is known. It is an underground cavern, or grotto, whose walls are lined with shells. This grotto is described by Mr. J. Malcolm Fraser. Speaking of his visit of inspection, Mr. Fraser says: "We pass through a rough hewn passage, some 100ft. long, which suddenly emerges into the so-called grotto. Gas has been laid throughout the whole route, and as burner



after burner is lighted, the beauty and elegance of one of the most fantastic relics of the Pagan period reveal themselves. A large central column, supporting the arched roof, discloses a marvel of Architectural design, eclipsing even the Alhambraian mosaic work. Innumerable panels—perfectly proportioned—line the walls, the columns, and the arches of the cave—each panel beautifully finished—each most perfect in design—all different. Roses with buds, flowers, stems, and leaves may all be seen exquisitely worked in shells of different forms and colours. Vines, with small white grapes intermingled with large black muscatels, swords and shields, fishes and birds, all tastefully arranged and carried out. The shells used in the decoration of this wonderful cavern are those which may ordinarily be found on the beach of any of our British watering places. The cement in which they have been fixed, moreover, is exactly similar to the celebrated Roman cement of Dover Castle. Now, Dover Castle was originally a Roman fortress, and has gradually arisen from Anglo-Saxon and Norman work. The Paphos, or light tower, for instance, is entirely of Early Roman Architecture, so that it is safe to say that the grotto is very nearly 2000 years old."

At the recent sale in Paris of the Japanese and Chinese collections of the Brothers Goncourt, small Chinese vases realised from 2000fr. to 2500fr., while a delicate little cup in eggshell porcelain with minute paintings fetched 1600fr. The aggregate amount was 46,700fr., a large sum considering the smallness of the objects. The general result, however, is likely to fall short of expectations, for it is now estimated that the entire collections and house put together will not exceed 1,200,000fr. This, after expenses have been deducted, will give, if there are ten Academicians, about 3000fr. each in lieu of the 6000fr. calculated by the testator. But this sum is larger than that given by the French Academy.

A DEEPLY-ROOTED Artistic belief is sadly shaken by a case in the Greenwich County Court before the Deputy-Judge. It is part and parcel of our Art to believe that in fine mosaic work, Italians are far superior to our own workmen, and are therefore to be employed in preference. This is no longer so. The foreigners may be good enough for mending holes in asphalt pavements, but for laying down mosaics they are no use, as their employer in Greenwich found to his cost. Messrs. Carter, builders, sued Mr. Fearon, of Folkestone, for £22, the amount of a bill incurred for Artistic work of the kind mentioned; while, on the other hand, Mr. Fearon counter-claimed £7 9s. 11d. as the estimated cost of putting right what the Italian Artists employed by the plaintiffs spoiled. It was stated that these wily descendants of Michael Angelo undertook work of which they knew little or nothing, on the off-chance that the inartistic eyes of Englishmen would fail to find out the defects. They, however, carried their audacity too far when in a mosaic they left a hole worthy of the asphalt in Holborn. Several Italians were called as witnesses, and protested that the work they performed was worthy to rank among the immortal productions of Venice and Rome. They believed so because on one occasion Mr. Fearon, of whose vituperation they were now the object, stood them a drink. True, there was a hole in the mosaics, but that could easily be filled up.—The Judge held that the work had been improperly done by the foreigners, and therefore gave judgment for the defendant. He also allowed Mr. Fearon 16s. 9d. on the counter-claim, to enable him to fill up the hiatus left by the Italians.

An article recently appearing in the "Pall Mall Gazette" on the technical education in Sheffield, stated that the Technical School, admirable as it is in plan and equipment, numbers only about 700 students all told. The quality of the instruction given, indeed, would seem to be in inverse ratio to the quantity who are to receive it. With the steel industry first and the rest nowhere the organisers of the

school, which had its origin in Firth College and dates from 1886, had an easy task in comparison with other cities where no trade has such exclusive possession. They have been able unhesitatingly to concentrate nearly all their resources on the teaching of subjects which enter into the making of steel and of articles in that metal. You consequently find that the rather ugly buildings in St. George's Square consist, apart from lecture-rooms, of laboratories, workshops, and foundries in which the students blend the theory with the practice of metallurgy and engineering. The practical aspect of the training is severely maintained. The day students, for instance, are required to work in twelve-hour shifts for the two or three weeks in each term during which the furnaces are at work, having a labourer's assistance only for the roughest work. If any addition to the plant is required—a new engine or boiler, for instance—it is made by the students themselves, under the direction of the school professors. So much steel is produced in the course of a year, that its disposal is a matter of some difficulty. It was proposed that the school should supply the Corporation with steel, but this proposal offended the contractors, and was consequently not adopted.

THE Aberdeen Diocesan Association recently paid a visit to the east and west Parish Churches, or more properly the St. Nicholas Church of Aberdeen, under the guidance of Rev. Dr. Cooper. Dr. Cooper explained how Drum's aisle formed the centre of the ancient Church of St. Nicholas, the first mention of which occurred in the twelfth century. The Church, with its choir of six bays and nave of eight bays, occupied a larger area than the present east and west Churches do, being one of the longest Churches in the country. The various points of interest in Collinson's aisle were pointed out, after which the visitors entered the west Church, built in 1751, from designs by James Gibb. The tapestries in the west Church, the Liddel memorial brass, and the stone effigies claimed and received full attention from the party, who, leaving by the west door, went round the north side of the building to St. Mary's Chapel, or the lower Church of St. Nicholas, which, owing to the slope of the ground, was built to support the St. Nicholas Church proper. Only two other similar lower Churches exist in Scotland, namely, at Glasgow and Roslin. The lower Church of St. Nicholas was used last century as a prison for witches, and an iron staple can still be seen in one of the pillars to which these unhappy victims of ignorance were chained. Not of the least interest in the chapel are the carved panels of the seats, which, though now varnished, were originally picked out in various colours. Dr. Cooper hopes when his scheme for the restoration of the chapel is completed, to have the panels again painted, presenting the unique appearance that they must once have had.

THE last of the series of fortnightly Art lectures for the season, given in the Glasgow Corporation Galleries, was delivered by Mr. D. Y. Cameron, whose subject was "Three Great Etchers—Rembrandt, Meryon, and Whistler." Mr. Cameron said it was now generally admitted that the three great masters of etching were Rembrandt, Meryon, and Whistler. The former gave the first great impulse to the art of etching in the seventeenth century, and the two latter have done similar service in the great revival of forty and fifty years ago. Rembrandt was the most versatile of all workers on copper. His needle dealt with every conceivable subject from grave to gay. He seemed equally at his ease in themes so widely various as a little sunny landscape or the gloom and tragedy of the Cross. Meryon's was a hard life of bitter disappointment and discouragement, and his work reflects in almost every line that strong and independent, if morbid, spirit which was the outcome of the fierce strife he waged against adversity during his whole life of forty-seven years till his warfare ended in the madhouse of Charenton. In technical and imaginative qualities his etchings of Old Paris

must remain the greatest works of their kind of the nineteenth century. Whistler for versatility is a second Rembrandt, though of a far lighter and gayer mood. His plates are remarkable for great delicacy and daintiness of touch, and the wharves and shipping of the Thames, no less than the canals and palaces of Venice, have found in him their greatest exponent. In conclusion, Mr. Cameron said the three great masters unite in their own work almost all the qualities of the other master etchers, and to know their work well is to know practically the whole art of etching so far as it has already gone.

A REPORT drawn up by the engineer, Mr. David James Ross, on the works executed by the Commissioners of Sewers during 1896, states that the total length of sewers constructed was 351ft., of which 101ft. were upon the lines of old sewers. A number of street improvements were carried out, and, as showing the importance of widening Cheapside, on the south side of the General Post Office, West, fronting Newgate Street, it is stated that on June 19th, 1896, 16,650 vehicles passed this point between 8 a.m. and 8 p.m., the width available being only 27ft. 7in. from kerb to kerb. With regard to subways it is stated that beneath the City streets, and under the control of the Commission, there exist at the present time about 2360 yards, or nearly one and a half miles, of subways. The lengths of gas, water, and hydraulic mains, and telegraphic, telephone, pneumatic tubes, and electric lighting conduits laid in these subways amount to a total of seven and a half miles. Access under proper supervision is given to the officers and workmen of the various companies, 4717 workmen and others being admitted during the year for various purposes. The usefulness of these subways is evidenced by the fact that in the streets beneath which they have been constructed no openings have been made for access to pipes, &c., except those for taking pipes into the ends of the subways, since they were constructed. The quantity of water used for washing the streets and courts was about 24,169,642 gallons. The quantity of refuse removed amounted to 73,284 loads, which is at the rate of 1409 per week, or about 235 per day during six days of the week.

At a conference of the Clergy and Artists' Association, which has as its object the improvement of Art in Churches, a paper on "The Obligation of the Artist to Ecclesiastical Tradition" was read by the Rev. Albert Baillie, who remarked that the true history of the divorce of Art from religion seemed to lie in the fact that the Church through her history gradually developed the subjective side of religion at the expense of the objective, and gradually diverted Art from its true function to serve in making an appeal to human emotions. In doing so she degraded and made it theatrical, and, consequently, material. Our most sumptuous modern Churches seemed to him as subjective—as little conscious of the true spirit of worship—as the barest of the last century Churches. It was not, then, to the tradition of the Church that they must look to guide Art, but to the spirit of true worship. He thought there was a tendency in modern Architecture to substitute a luxurious sumptuousness for the reverent beauty of antiquity. In Holy Trinity Church, Sloane Street, they saw an example of that enervating and luxurious beauty which appealed to the senses and not to the spirit. It was said by many that religious Art had nowadays no exponents, but he thought they could hardly blame Artists if they had failed to devote themselves to religious Art when the Church had given them no encouragement.—Mr. A. H. Skipworth (Consulting Architect to the Association) also read a paper, dealing with other aspects of the same subject.—A discussion followed, in the course of which the Bishop of Stepney said he longed for the time when it would be as much the work of genius to beautify Churches internally as it was now that of Architects to ornament them externally.



At the fourth annual dinner of the International Society of Wood Engravers held at the Holborn Restaurant, Mr. Seymour Lucas, in proposing "Prosperity to the Society," claimed that although they would have little difficulty in finding a better chairman than he was, he doubted very much whether they could find a man with a greater admiration for their beautiful Art. He had collected old wood cuts for many years, and it was one of his great recreations, when fatigued with painting, to take out one of his albums and con with delight the work of one of the old masters of their craft. For some years past he had heard that the Art of wood engraving was about to be annihilated, that the various modern inventions and process blocks had killed it, and that there was nothing left for them but to take to photography or the workhouse. He could not believe this dismal story. The beautiful and historic Art of wood engraving which had been in existence over 400 years, and numbered among its professors such names as Hans Holbein, Albert Dürer, and Burgkmair, was not to be wiped out by any invention. It must be patent to any thinking people that they could not get a machine to do what the hand could when directed by an Artist. They might just as well prefer the production of a barrel-organ to the sound creation of a master pianist. He was old enough to remember the great scare that arose when photography was yet young, and Artists everywhere said that it would utterly ruin and destroy miniature painting. Well, it had been a long time about it. They would only have to go to the Royal Academy Exhibition to find still some very beautiful specimens of that branch of Art. Photography had not killed the Art of miniature painting, neither would it kill theirs. While they did their work lovingly and with intelligence, they need fear no process or invention. Their public was a limited one, it was true; people of Artistic culture must necessarily be so limited, but it was the cultured few that led the masses, and true Art would live in spite of all invention. He could not conclude without mentioning how much both painters and they, their interpreters, owed to those who were at the head of their great illustrated newspapers, particularly those present, by whom they need never fear being overlooked. Mr. Wimperis proposed "Art and Literature," which was responded to by Mr. Marcus Stone, R.A.

On the western shore of Angel Island, in the harbour of San Francisco, about halfway between the steamer landing and the fog bell signal, is a most interesting natural curiosity. It is a tunnel that goes directly through an enormous cliff. When viewed from a short distance the tunnel appears to be only a small hole, but close examination reveals the fact that it is quite ten feet high and at least thirty feet long. At high tide it has a foot of water in it, and, were it not for the rocks close to the entrance, could be entered with a boat. When the tide is out the tunnel can be traversed from end to end on foot. As the centre of the tunnel is a little higher than the ends, it drains perfectly, so that it is dry except for a few puddles. The interior walls present a curious appearance. They are of volcanic rock, and look as if they were thrown into their present shape when mixed with some softer substance. This has been washed away, leaving the hole through the cliff. The rock formation is exceedingly hard, and in many places has a spongy appearance. It is almost black in colour, and very rough and jagged. For its full length the tunnel is about the same size, and is so straight it is hard to believe that it is not the work of human hands.

MR. T. H. THOMAS, of Cardiff, has designed a new medal for the Newport National Eisteddfod. In the centre is a head of King Arthur, helmeted as Pendragon, and with a wreath of oak leaves. On the band around are the twelve seats of the Round Table and Gorsedd in relief. In the depressed band is the "nod cyfrin" and decoration, composed of

the leek of Cymru, disposed as the ancient Celtic ornament of ribbon. Outside is a wide band, with an inscription in old Cymric lettering, "Eisteddfod Genedlaethol Freiniol, Casnewydd-ar-Wysg, 1897," in relief. On the bands crossing the borders are small panels, containing the motto of the chair of Caerlleon-ar-Wysg, "Nid da lle gellir gwell." The reverse is intended to be plain, except for a panel to contain the name of the receiver, engraved. The medal is thus formed so as to be used as a brooch for the Gorsedd robe by the recipient, a pin being attached at the back. The medal has been adopted by the executive committee.

MR. WILLIAM NIVEN, a member of the American Museum of Natural History, delivered a lecture the other day in New York, to the members of the American Geographical Society, upon his recent discovery of the prehistoric city of Omitlan, in Mexico, where he has been making excavations. This city lies about forty miles north-west of Chilpancingo, the capital of the State of Guerrero, and covers about twenty square miles of a wild mountainous region. Mr. Niven first learned of the existence of Omitlan from legends of the Mexican Indians. He secured the aid of the American Museum of Natural History and financial aid from a friend, and went to the locality of the half-buried city well equipped for Archaeological explorations. He was rewarded beyond expectations for his journey by discoveries of great importance which, when classified and arranged, he declares, will doubtless throw considerable new light on the history of pre-historic Mexico. Temples and houses, altars and idols were found in a partly ruined condition. Human bones were found in a compact layer twenty feet long and half a foot thick. The skulls were intact as they lay on the ground, but crumbled at the slightest touch. Among some of the most interesting relics discovered was a quantity of personal ornaments of beautiful workmanship. Beads, ornaments for the ears, masks, rings, amulets, jade, and mother-of-pearl were among some of the curios which the explorer's spade brought to light.

THE Society for the Preservation of Pictorial Records of Ancient Works of Art, which has from time to time presented a number of most interesting water-colour drawings to the Birmingham Corporation Art Gallery, has just forwarded, through Mr. S. C. Cockerell, two more drawings, which are now hung in the Long Gallery. The drawings are by T. M. Rooke, of the Royal Water-colour Society, and are faithful and beautiful renderings of the two subjects selected. The larger one of the two is a fine drawing of the west doorway of the Collegiate Church of St. Ours, at Loches, in Touraine. This little town is one of the most picturesque places to be found in the Loire district, and the Church of St. Ours is a very interesting monument of Gothic Architecture, standing quite alone in its singularity. It was begun by Geoffrey, Count of Anjou, in 962. To the west of the belfry tower is a low, square, vaulted porch, or narthex, of early Romanesque work, added in the twelfth century, out of which opens the very large and perfect Romanesque doorway, which Mr. Rooke has so faithfully reproduced. It is rich in mouldings and sculptural figures, and the general design is intended to represent the Divine Power seated, enthroned, and adorned above the arch of a strange world, the portal of the Holy Place. The second and smaller drawing is a copy of one of the stained-glass windows from the Cathedral of Notre Dame, Chartres. This Church, one of the most magnificent in Europe, has for one of its most striking features a perfect treasure of painted glass, not to be equalled in France. More than 160 windows are completely filled with it. Those of the nave and choir illustrate subjects from the Bible and legends of the saints; in their lower compartments are shown representations of the various trades of the city, the shoemakers, basket-makers, and so on, showing that various guilds and corporations were the donors.

## Professional Items.

ABERDEEN.—The Plans Committee of the Town Council has passed the plans of the following buildings:—Additions at No. 33, Albyn Place, for Mr. George Allan, per Messrs. Brown and Watt, Architects; four dwelling-houses on the west side of Marquis Road (Woodside), for Mr. James Green, per Messrs. Walker and Duncan, Architects; rebuilding of business premises on the west side of King Street, for Mr. E. M. Middleton, per Mr. Victor Mitchell, Architect; stable at No. 23, Short Loanings, for Mr. Alexander Thain, per Messrs. Brown and Watt, Architects; dwelling-house on the north side of Rubislaw Den South, for Mr. Alexander Cay, Forest Road, per Messrs. Brown and Watt, Architects; dwelling-house on the east side of Great Northern Road, for Mr. Nicholas Riley, per Mr. Duncan Hodge, Architect; dwelling-house and shop on the west side of Skene Square, for Mr. James Green, per Mr. William Ruxton, Architect; four dwelling-houses on the west side of Forest Avenue, for Mr. J. B. Davidson, per Messrs. Walker and Ross, builders. The Committee approved also of the plan of the proposed Episcopal Church on the north side of Victoria Road, Torry, per Messrs. Kinross and Tarbolton, Architects, Edinburgh.

ASHINGTON.—An important addition has just been made to the Church of the Holy Sepulchre at Ashington, in the shape of a north aisle, which has been completed at a cost of between £800 and £900. The original design, prepared by Mr. W. S. Hicks, of Newcastle, provides for a nave with north and south aisles, separated therefrom by two arcades of five pointed arches resting on octagonal piers with moulded bases and caps; chancel, porch, and tower. The estimated cost of the nave, chancel, and aisle now erected amounts to about £2500. The plans will be carried out in its entirety as the necessary funds are raised.

BRISTOL.—The Corporation of Wells are inviting tenders for the supply and erection of the plant required for the complete equipment of an electric light station with underground conductors. At Taunton, which has had electric lighting for some years, a scheme has now been suggested for providing an electric tramway from the railway station through the town as far as Silver Street. It is intended to apply in due course for the necessary statutory powers, and it is stated that should the initial line prove successful, extensions in various directions will be carried out.

The restoration and partial rebuilding of the Cotham Wesleyan Church in Redland Road, after destruction by fire, is now being commenced, so that the work may be completed and the Church reopened next October. The following tenders from the local firms have recently been received, viz.:—W. Cowlin and Son, £7245; C. A. Hayes, £6850; R. Wilkins and Sons, £6690; Stephens, Bastow, and Co., Limited, £6555; and G. Humphreys, £6426. Messrs. Stephens, Bastow and Co., Limited, having undertaken to complete the work in a much shorter period than either of the other competing firms, the trustees have placed the work in their hands. The enlargements will principally consist of the addition of an organ and choir chambers and a large church parlour, with an ante-room adjoining, all designed in complete harmony with the other new and the original portions of the buildings. The Architects appointed by the trustees are Mr. Robert Curwen, of London, and Mr. Herbert J. Jones, of Bristol.

EDINBURGH.—The Lord Provost's Committee of the Edinburgh Town Council has resolved to remit to a sub-committee to instruct the preparation of working plans for the corner blocks of buildings in North Bridge Street, and failing satisfactory offers being received from outside parties to undertake the work, estimates for the work being obtained meantime.



GLASGOW.—On Saturday afternoon the second spring visit of the Architecture and Building Construction Classes of the Technical College was paid to Mr. R. W. Forsyth's new warehouse in Renfield Street, by permission of Messrs. Barnet, Son and Campbell, Architects, to whom, including Mr. Douglas, the Clerk of the works, Professor Gourlay, suitably proposed a very hearty vote of thanks on behalf of the very large number of students present.

LEEDS.—Plans for the erection of the proposed Empire Theatre, two new arcades, and three or four blocks of new shops in Briggate, have been completed. The plans have been prepared by Mr. Frank Matcham, and when the projects are carried out, the appearance of a good part of the east side of Briggate will be materially improved. The plans show the area of ground to be covered by the new Empire Theatre as 1350 square yards, with a frontage of 28ft. to Briggate, two frontages of 8ft. and 12ft. 6in. to Fleet Street, another of 18ft. to Wood Street, and one of 8ft. to the rear arcade. The elevation to Briggate will be of Flemish design.

LIVERPOOL.—The public has now been permitted access to the jetty at the extreme end of the Prince's Stage, Liverpool. The jetty has been two years in course of construction, and is one of the most ingenious and substantial structures in the world for the landing of cattle. The jetty is approached by a capacious bridge leading from the Prince's Stage. The length of the whole landing-stage, inclusive of the Prince's and George's, is 2463ft., and the new jetty gives a further length of 400ft., the total length thus being 2863ft., or 223ft. over half a mile. The jetty is a permanent pile structure, and is connected with the main stage by a movable bridge.

NEWQUAY.—There is about to be erected at Newquay a large hotel, to be called the Headland Hotel, which will occupy a commanding site to the north-west of the Atlantic Hotel, and on the ocean side of the coastguard's lookout. A sketch and plans of the building show a building in the Renaissance style of Architecture. The entrance is on the south-eastern side, and from this a vestibule runs the whole width of the building, 120ft. From the left of the vestibule a staircase leads to the three floors above, while on the other side of the vestibule is a passenger lift. Against the south wall there is a large conservatory, approached by a corridor branching from the main vestibule, which is largely intended as a winter garden. The interior of the building will be light and cheerful by two large skylights above open areas on either side of the vestibule. The sanitary arrangements are designed on the most approved lines. Mr. S. Trevel is the Architect.

WALWORTH, S.E.—The vicar and churchwardens of St. Paul, Lorrinore Square, Walworth, have accepted the sketch-plans of Philip A. Robson, subject to some slight modifications, for new infants', girls', and manual training schools. The estimated cost is about £3250, and the building will accommodate 200 infants, 150 girls, and 86 in the cookery and carpentry centres; total, 436.

WHITWELL.—The Duke of Portland has laid the memorial stone of new voluntary schools which are at present in course of erection. The estimated cost of the new buildings is £4000. The schools are intended to accommodate 600 scholars. Gothic is the style of Architecture adopted, and the schools will be erected in red brick with Mansfield stone dressings, while the roofs will be covered with red tiles of the French pattern. Mr. Joseph Smith, of Hartshead, Sheffield, is the Architect, and Mr. J. Collingham, of Langwith, the contractor. The schools will be known as St. Lawrence's Public Elementary Schools.

A FREE Museum and Art Gallery is proposed at Plymouth in commemoration of the Record Reign.

## Trade and Craft.

### AN ARCHITECT AND HIS SPECIFICATIONS.

At the Ripon County Court, Mr. George Mallinson, of Harrogate, Architect and Surveyor, sued Mr. Abel Trees, of Ripon, contractor, for £30 5s. for quantities prepared in connection with a contract for work done at the almshouses of the Hospital of St. Mary Magdalene at Ripon. It was stated that in March, 1890, Architects were invited to compete for the erection of the St. Mary's almshouses at Ripon, and the plaintiff, among others, sent in plans, which were eventually accepted. At that time he was paid £55, which was 5 per cent. on the amount of the contract (£1100), and he was instructed to prepare quantities, which was accordingly done. Subsequently the plans of Mr. Scott, of London, were accepted, and when the plaintiff applied to defendant for payment of the account his solicitors (Messrs. Whitham and Hebden) repudiated the claim.—Mr. Middleton (for the plaintiff) said the contention was that as defendant had used plaintiff's specifications he was liable to pay for them.—The plaintiff stated that he had seen the specifications in defendant's hands.—Mr. Gowland, on behalf of the defendant, denied the allegation, and contended that he was not liable.—His Honour held that the defendant had used the specifications, and as the plaintiff had prepared them he was entitled to payment.—A verdict was given for the plaintiff, with costs.

### "JARRAHDALE" JARRAH.

The *Arabella* has arrived from Western Australia with 127 loads of "Jarrahdale" Jarrah aboard, to the order of McLean Bros. and Rigg, Limited, 1, Fenchurch-avenue, London.

### GREEN V. SYMONS.—IMPORTANT DECISION.

This was an appeal from the judgment of Mr. Justice Lawrence. The action was brought to recover damages for breach of warranty by the defendant in the letting of a house at Earlswood to the plaintiff. By an agreement in writing the plaintiff took the house from the defendant for three years, at a rent of £50 a year. The plaintiff's case was that the defendant verbally warranted that the house was dry and that the drains were perfect, and he was thereby induced to enter into the agreement. The plaintiff alleged that after he entered into possession he found that the house was not dry, and that the drains were not perfect, in consequence of which he and his family were compelled to give up residing there. There was no warranty in the written agreement. At the trial the following questions were put to the jury—(1) Was there a warranty? Answer.—Only a verbal warranty. (2) Was the house damp, and were the drains defective? Answer.—House damp, but the drains not defective. The jury assessed the damages at £50. The defendant applied for judgment on the ground that evidence of a verbal warranty was not admissible. The learned Judge, on further consideration, entered judgment for the plaintiff for £50. The defendant appealed, and further contended that there was no evidence of a warranty, but only of an innocent representation, and that to support an action for damages there must be a fraudulent misrepresentation.—The Court allowed the appeal, and the Master of the Rolls said that the Judge ought to have directed a verdict for the defendant. In his opinion, what the defendant said to the plaintiff as to the house being dry was a mere innocent representation which did not give rise to any cause of action. The plaintiff also relied upon a conversation that took place between his wife and the defendant when the plaintiff had signed the agreement and had given it to his wife to exchange for the counterpart signed by the defendant. There was no evidence, however, that the plaintiff's wife had any authority to do more than to hand over the agreement in exchange for the counterpart. There was no evidence, therefore, of a warranty, and judgment must be entered for the defendant, with costs here and below.

### ABERDEEN MASONS AND THE APPRENTICE QUESTION.

At a meeting of the monumental branch of the Aberdeen United Operative Masons and Granite Cutters' Union, a letter was read from the employers to the effect that they could not see their way to accede to the request of the men to have one apprentice to every two journeymen on an average per year, instead of an equal number of both classes as at present. After considerable discussion the matter was remitted to a committee to confer with the employers to see if some amicable arrangement could be arrived at. A communication, dated February 9th last, was submitted from the Cape Town masons, appealing to the members of the Aberdeen trade not to leave the city at present, as a strike was pending at the Cape. The letter stated that a meeting of the Cape Town stonecutters had been held on February 5th, at which it was unanimously decided to demand the increase of their pay from 11s. to 12s. per day, a working week of 48 hours, and better workshops, failing which concessions they would strike on February 22nd. The object in writing to Aberdeen is that Cape Town masters have signified their intention of sending to Aberdeen and other towns in the old country for operatives to take the place of the strikers.

### EXTENSIVE RAILWAY WORKS.

In the last six months the North British Railway Co. spent not less than £95,910 on the works at its Waverley Station at Edinburgh, and on the widening of the lines thereto. In the future, a further sum of £887,840 is to be spent on those costly works, the greatest that the North British Railway has in hand at present. There is, however, good progress being made alike with lines, station works, and hotels.

### A NEW TYNE BRIDGE.

A new steel bridge is to take the place of the Redheugh Bridge, which, for more than a quarter of a century, has connected Newcastle with Gateshead, spanning the River Tyne a quarter of a mile to the westward of the High Level Bridge. The outline is of American type, but the details are strictly in accordance with the best English practice. The bridge will be carried upon cylinder foundations, sunk to a depth of 50ft. below low water; and as far as possible the work will be carried on without erecting staging in the river. The preliminary preparations for the building of the bridge have already commenced. The lines are being marked out, and, at Glasgow, the contractors are busy with the preparation of the material. The actual work of construction will begin in a few weeks.

THE large and well-known Hotel Adler, at Grindelwald, has been destroyed by fire.

At Broadheath a Wesleyan school-chapel is to be erected at a cost of £2600. Sufficient land has already been secured.

It is stated that the Dean and Chapter of Peterborough have purchased an ancient farmhouse which is built of the same stone as the Cathedral, and which will be pulled down to use as required.

THE Princess Henry of Battenberg has promised to lay the foundation stone of a new block of buildings in connection with the Royal National Hospital for Consumption at Ventnor. The cost will be £2000.

THE council of St. Paul's Church, Wolverhampton, has decided to expend £600 in the renovation of the building and the repairing of the organ. The choir stalls are to be raised, part of the galleries cut away, and improvements made in the west-end porch.

MR. J. HOCH has recently completed the memorial clock for the Church of Molène, where lie many of those who perished in the "Drummond Castle" disaster. The competition for the manufacture of the clock was organised by Messrs. Donald Currie, and Mr. Hoch's design was selected. It will be placed in the tower of the little Church in the lonely island near Ushant.



## Surveying and Sanitary Notes.

MAJOR-GENERAL CROZIER, R.E., one of the Inspectors from the Local Government Board, has held an enquiry at Halifax relative to an application from the Corporation for sanction to borrow £32,000 for sewage purposes, also for sanction to borrow a sum of £25,000 for waterworks purposes, and for £364 for the provision of entrance-doors to the new markets.

THE Western Australian Government has just decided to spend a sum of £6,500,000 on carrying out various public improvements in the colony, and in connection with the scheme they have sent Mr. C. Y. O'Connor, their chief engineer, to England, with instructions to obtain expert advice in connection with the construction of extensive waterworks at Coolgardie, on which a sum of £2,500,000 is to be spent. Of this amount £1,500,000 will be spent on pipes, pumps, and other machinery, all of which will be purchased in this country, and it is anticipated that the tenders will be issued in a few weeks' time. Mr. O'Connor has also been instructed to obtain advice on the general management of railway workshops, the Government of Western Australia having decided to spend £200,000 on railway workshops. At Fremantle £100,000 is to be spent on dredging, and at Perth £200,000 will be expended in the direction of providing a dock at Fremantle, 600ft. long, 80ft. broad, and 33ft. deep. The machinery, &c., for these improvements will be bought in England.

THE Ashby Urban District Council having applied to the Local Government Board for sanction to borrow £15,117 for works of sewerage and sewage disposal, Colonel Ord Hasted, R.E., an inspector of the Local Government Board, held an inquiry, at which there was no opposition.

COLONEL JOHN ORD HASTED, R.E., Inspector of the Local Government Board, has held an inquiry at the Leeds Town Hall relative to the proposals of the Leeds Corporation to provide dwellings to accommodate a portion of the tenants who will be displaced by the carrying out of their scheme dealing with the York Street insanitary area. It was explained that the Local Government Board had sanctioned a scheme under a part of the Housing of the Working Classes Act, 1890, by which the Corporation proposed to deal with the property located in what was familiarly known as the York Street insanitary area. By the terms of the order the Corporation was required to provide housing accommodation for 2000 persons. The Corporation was proposing to deal with the area, which comprised a little over 16 acres, in four sections. Before, however, it could demolish any of the property it was required to provide houses sufficient to accommodate 500 persons. The question was, where should these dwellings be erected? After lengthy consideration of the matter it had been decided, with the Local Government Board's sanction, to erect two blocks of tenement dwellings within the area itself, and to provide for about 250 more of the displaced tenants by the erection of fifty small through houses upon the Ivy House Estate. This land adjoined the East-End Park, and was about a mile away from the area. Evidence was called in support of the Corporation's proposals.

THE final choice of the Gas Committee of the Huddersfield Corporation, from five selected candidates, for the post of gas engineer has fallen upon Mr. Edward A. Harman, resident engineer and superintendent of the gasworks at Swan Village, West Bromwich, belonging to the Birmingham Corporation. Mr. Harman tied with Mr. Alexander Allen, manager of the Neepsend Works of the Sheffield United Gaslight Company, each of them receiving ten votes. The Chairman of the committee (Ald. B. Stocks) gave his casting vote in favour of Mr. Harman. The salary attached to the post is £400 a year.

## SOCIETY MEETINGS.

**The Edinburgh Architectural Association.**—The Edinburgh Architectural Association recently visited the Parish Church and Calder House, Mid-Calder, under the leadership of Mr. A. Hunter Crawford. The Church at Mid-Calder is of early foundation, probably twelfth century; and the present building, which is of the sixteenth century, with modern additions, is curiously interesting from the fact that it was partly built under a bond between the Rev. Peter Sandilands, who, as an old man in 1541, wanted to ensure the completion of his work, and Sir James Sandilands, his nephew, who was to be paid 1600 marks in consideration of his executing the works all minutely detailed in the bond. Attention having been drawn to the Architectural features and the armorial devices, the party, after a thorough examination of the building, proceeded to Calder House. After Mr. Crawford had given an historical description of the house, which partly dates from the thirteenth century, and contains many very valuable paintings, the members were shown through the house by Lord Torphichen, who drew attention to various features of interest, and especially to the paintings in the drawing-room, formerly the large hall. St. Cuthbert's, East Calder, was also visited. This ruin is of twelfth century date, and the south wall and two gables are still partly standing.

**Devon and Exeter Architectural Society.**—Mr. Edgar M. Leest, the hon. secretary for Plymouth, Devonport, and Stonehouse Branch of the Devon and Exeter Architectural Society, lectured before the members on "Old Rochester" at the Plymouth School of Art, Princess Square, last Thursday evening. Rochester itself, its Cathedral, its quaint buildings, were Architecturally dealt with, and a lecture of much merit was further enhanced, particularly to those not versed in quantities and measurements by lantern views.

WE are requested to notify that on March 25th Mr. H. O. Cresswell will remove his offices from 30, Craven Street, Strand, W.C., to 17, Buckingham Street, Adelphi, W.C.

WE have received from Mr. B. T. Batsford, of High Holborn, a copy of a book on "Plastering," plain and decorative, which appears to be a very exhaustive treatise on the Art and Craft of plastering and modelling. Our review upon this work will appear very shortly.

A CERTAIN M. Maigrot has discovered an old Roman well in his garden at Grand. He has already found in it sixty-two coins of the reigns of Agrippa, Nero, Trajan, Adrian, Antonius, Marcus Aurelius, Diocletian, Domitian, and Constantine, all in perfect preservation.

THE principle of the tubular boiler has been discovered in the ruins of Pompeii, where a number of domestic bronze boilers have been found with tubes inside, as in our most elaborate marine boilers. The tubes are made of bronze foil, bent and brazed or soldered. Some of them are elegant in form. They are illustrated in the proceedings of the American Society of Mechanical Engineers.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**ANDOVER (Hants).**—For alterations, &c., to town hall, for the Town Council. Mr. Alfred Purkess, Borough Surveyor, Town Hall, Andover.  
Annet and Son... £245 0  
Frank Beale... 215 0  
Hy. Cook... 197 0

**ASHTON-UNDER-LYNE.**—For the erection of the Waterloo and Taunton Liberal Club. J. H. Burton, Architect, 2, Guide-lane, Hooley Hill.  
Tenders for all Trades except Plumbing and Glazing.

J. W. Williamson, Ashton-under-Lyne... £953 15  
Thos. Dean, do... 946 0  
Edwin Marshall, do... 936 10  
C. Keswick, do... 917 15  
Gittone Bownes, do... 915 0  
E. Kirby, do... 893 10  
John Robinson, do... 885 15  
Jabez Gibson and Son, Dukinfield (accepted)... 870 0  
Plumbing and Glazing.  
G. H. Coop, Ashton-under-Lyne... £48 10  
G. Burrows and Co., do... 48 0  
Alfred Heald, do... 47 10  
Peter Willis, do... 45 0  
H. C. Hobson, do... (accepted) 40 18

**BANGOR (Wales).**—For additions, &c., to Nos. 322, 324, 326, and 328, High-street, for Mr. J. E. Roberts, J.P. Mr. R. Glynn Davies, Architect, 220, High-street, Bangor.  
Evan Williams... £1,000 0  
Jones and Williams... 593 0  
Wm. Parry, jun., 880 0  
R. and J. Williams... 853 0

**BRISTOL.**—For restoring, partially rebuilding, and making alterations and additions to Cotham Wesleyan Church, Redland-road, Bristol. Messrs. Robert Curwen, London, and Herbert J. Jones, Bristol, Architects.  
Time (Weeks).  
Cowlin and Sons... 36  
C. A. Hayes... 52  
Wilkins and Sons... 52  
Stephens, Bastow and Co., Ltd.\* 39  
G. Humphreys... 48

**BRISTOL.**—For alterations and additions to 18, Old Market-street, for Mr. R. Bromhead. Mr. Walter Andrew, Architect, Parkstone.  
J. Perkins... £496  
W. Cowlin and Son... 483  
Hughes and Weeks... 465  
Wm. Church... 447

**BRANKSOME (Dorset).**—Accepted for erection of three shops on the Upper Bourne Estate, Branksome, for Mr. A. T. Frampton. Mr. Walter Andrew, Architect, Parkstone.  
H. W. Lovell... £1,500

**BRYNMAWR (Breconshire).**—For the erection of a parish church. Messrs. Nicholson and Hartree, Architects, Hereford.  
For nave. For whole church.  
H. Smith... £2,871 12 6  
J. Morgan... 2,238 16 0  
J. Jenkins... 2,753 0 0  
Thomas and Sons... 3,290 0 0  
J. Jenkins, Brynmawr... 2,238 0 0

**BURGESS HILL (Sussex).**—For the execution of sewerage works, Ferndale-road, for the Urban District Council. W. H. Holman & Co. £230 0 William Oram, Herbert A. Chambers 213 12 Burgess Hill\*... £199 15

**BURNLEY.**—Accepted for the erection of a hospital for infectious diseases, Ribblesdale, Burnley, for the Burnley Joint Hospital Board. Mr. F. S. Bulton Architect, Blamley-street, Burnley. Quantities by Architect.  
Masonry, Bricklaying, &c.—A. Robinson, jun., Nelson... £7,219 0 0  
Carpentry and Joinery—G. Smith and Sons, Burnley... 1,790 0 0  
Slating—W. Stanworth, Burnley... 504 17 2  
Plumbing and Glazing—Watterson, Har-... 914 15 4  
Plastering—Rawlinson & Sons, Burnley... 389 4 7  
Painting—H. Walker, Bingley... 104 17 6

**CARDIFF.**—For the erection of a residence and stables, Fairwater, for Mr. Sidney Robinson, Cardiff. Mr. E. T. Jones, Architect, Caledonian-chambers, St. Mary-street, Cardiff. Quantities by the Architect.  
Williams and Thomas... £4,825 0  
E. R. Evans Bros... 4,800  
C. and F. Couzens... 4,557  
Joseph Thomas... 4,505  
D. Davies... 4,505  
Jones and Madden... 4,350  
E. R. Ridgeway... 4,335  
Cox and Bardo... 4,341

**CARDIFF.**—For the erection of two houses and shops, Cardiff-road, Cadroxton, for Mr. Wm. Scott. Messrs. Gethin and Wallis, Architects, Windsor-chambers, Westgate-street, Cardiff. Quantities by Architects.  
C. Griffiths... £1,238 4 0  
Powell & Mansfield... 1,398 0 0  
Jones & Madden... 1,391 5 0  
Evans and Owen... 1,378 7 11

**CHELMSFORD.**—Accepted for the erection of a laboratory, &c., at the County Offices, Duke-street, for the Essex County Council. Mr. H. Stock, County Surveyor, 9, Denman-street, London Bridge.  
Francis Thoday and Co., 104, Hills-road, Cambridge... £637 14

**COVENTRY.**—For erecting new offices for Mr. Thos. Smith, Coventry. Mr. E. J. Purnell, jun., Architect, Bank Chambers, Coventry.  
C. Garlick... £1,164  
C. H. Barber (accepted) £1,124

**COLCHESTER.**—For the erection of a warehouse in Priory-street. Mr. W. C. Street, Architect, 7, Victoria-street, Westminster, S.W. Quantities by Mr. Max Clarke, 4, Queen-square, W.C.  
G. Dobson and Son... £1,679  
H. Everett and Son... 1,568  
C. Mullany, Lower Glanmire-road, Cork... £1,050

**CROYDON.**—For erecting and completing a group of schools, for boys, girls, and infants, including cookery and laundry rooms, playsheds, water-closets, and offices, boundary walls, asphalted, &c., in Devine-place, South Croydon, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Katherine-street, Croydon. Quantities by Mr. Mansfield Price, Sutton, Surrey.  
W. Smith and Sons... £2,750  
J. Smith and Sons... 8,650  
S. Fare... 8,456  
W. Holt and Sons... 8,400

**CROYDON.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**DEVONPORT.**—For alterations to shop front, No. 106, Fore-street, for Messrs. S. B. Gould and Sons. Mr. H. G. Luff, Architect, 64, Chapel-street, Devonport.  
Oliver, W. J... £238 0  
Healy, J. and Son... 230 10

**EBBW VALE (Mon.).**—For the erection of school buildings at Ebbw Vale, for the Aberystwith School Board. Mr. Geo. Rosser, Architect, Victoria-buildings, Abercarn. Quantities by Mr. R. L. Roberts, Holly House, Newbridge.  
Williams and... £1,897  
E. Mainwaring... 1,875  
D. Thomas... 1,747 15  
J. Jenkins... 1,569 0

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212

**GLoucester.**—For alterations and additions to the Board schools, Sydenham-road, Croydon, including new cookery and laundry rooms, emergency staircase, new water-closets, and offices and playsheds, for the Croydon School Board. Mr. Robert Ridge, Architect, 12, Catherine-street, Croydon.  
J. and C. Bower... £1,844  
W. Akers and Co... 1,292  
W. Holt and Co... 1,275  
J. Smith and Son... 1,212



**ELGIN (N.B.).**—For the erection of a warehouse, Longmorn Distillery, for the Longmorn Glenlivet Distillery Company. Mr. C. C. Doig, Architect, Elgin:—  
*Building.*—George Reid, Elgin ... £185 0 0  
*Carpentry.*—Thos. Mackenzie, New Elgin ... 250 0 0  
*Slating.*—George Ogilvie, Elgin ... 224 0 0  
*Plumbing.*—Wm. Lyon and Sons, Elgin ... 42 11 0  
*Painting.*—William Fordyce, Elgin ... 3 18 9  
*Ironwork.*—P. W. MacLennan Cluther, Glasgow ... 39 0 0

**ELGIN (N.B.).**—For the erection of a warehouse, Mortlach Distillery, Dufftown, for Messrs. George Cowie and Son. Mr. C. C. Doig, Architect, Elgin:—  
*Building.*—J. Mackenzie ... £467 0 0  
*Carpentry.*—Morrison and MacCombie ... 1,142 0 0  
*Slating.*—J. Wilson ... 500 0 0  
*Plumbing.*—Ross Bros. ... 116 17 6  
*[All of Dufftown.]*

**HARRIS, N.B.**—For the erection of two piers, West Loch Tarbet and Scalpay, for the Inverness County Council. Mr. G. Woulfe Brennan, C.E., Oban. Quantities by the Engineer:—

*West Loch Tarbet Pier.*  
 T. Macdonald ... £1,780 17 5 Wm. Morrison, H. R. Blackburn ... 1,567 0 0 Stormway (re- Wm. Bain ... 1,500 0 0 commended) £1,340 16 7 John Adam & Co. ... 1,450 0 0

*Scalpay Pier.*  
 John Adam & Co. £1,850 0 0 Wm. Morrison, T. Macdonald ... 1,500 4 11 Stormway (re- H. R. Blackburn ... 1,398 0 0 commended) £1,145 8 0

**HEREFORD.**—For the erection of a hall and other buildings, St. Peter's Parish. Messrs. Nicholson and Tree, Architects, Hereford:—

E. W. Wilks ... £1,347 J. Davies ... £1,176 W. P. Lewis and Co. ... 1,241 Beaven and Hodges ... 1,173  
*[All of Hereford.]*

**KINGSBURY.**—Accepted for fences, gates, and retaining wall, Fairfields, Kingsbury, Middlesex. Mr. George Hornblower, Architect, London:—

Thomas Turner, Ltd. ... £208 8

**KINGSWEAR.**—For alterations and additions to "Dart Bank" for Lieut. G. F. Whitmore, R.N. Mr. W. Taprell Allen, Architect, of London and Kingswear. Quantities by Mr. Vincent Cattermole Brown, Paignton:—

R. T. Pillar ... £800 Jn. E. Short, Kingswear\* £645 E. P. Bovey ... 690 W. G. Row ... 610 E. Pike ... 678 R. C. Pillar ... 603  
 \*Accepted.

**LESMAHAGOW (N.B.).**—For additions, &c., to parish church. Mr. A. N. Paterson, Architect, 136, Wellington-street, Glasgow:—

*Masonry.*  
 Guthrie and Co. £833 0 0 Dunlop and Co. £739 8 10 Jas. Robertson & Son ... 784 6 6 Clarkson and Sons, Lesmahagow\* ... 629 9 2  
*Joining.*  
 Anderson & Henderson ... £1,461 0 0 J. N. Morrison ... £1,214 0 0 Baxter and Son ... 1,410 0 0 Burns and Co. ... 1,150 0 0 Allen and Baxter ... 1,393 3 4 Son ... 1,131 0 0 Guthrie ... 1,380 0 0 John Hutchison, Lesmahagow\* ... 952 10 0 Simpson ... 1,372 0 10  
 Stewart ... 1,274 18 6  
 \*Accepted.

*[Tenders for slating, plumbing, and plastering, all below £100.]*

**LEICESTER.**—For sewerage, &c., St. Dunstan, St. Paul's, and Bramley-roads. Mr. Cecil Ogden, C.E., Leicester. Quantities by engineer:—

J. T. Hutchinson and Sons ... £1,290 0 S. Thumbs ... £1,163 7 T. Philbrick ... 1,280 0 Stimson and Rolles, Leicester\* ... 1,100 0 Bentley, Son, and Partington ... 1,208 0  
 \*Accepted.

**LINGFIELD.**—For alterations and additions to Ford Manor, Lingfield, Surrey, for R. Spender Clay, Esq. A. William West, Architect, 448, Maddox-street, London, W.:—  
 A. Bush, London ... £3,279 J. Longley and Co., Patman & Fotheringham, London ... £2,769  
 S. Salt ... 552 J. T. Robey ... £845 T. Osborn and Sons\* ... 911 W. Harper ... 830  
 \*Accepted (shortest time).

**LONDON.**—For drying chambers and horses and warm-air blast apparatus at the St. Luke's Workhouse, City-road, E.C. for the Guardians of Holborn Union. Mr. A. Saxon Snell, Architect:—

Rosser and Russell, Waller and Co. ... £555 0 0 Bradford and Co. ... £770 0 0 T. Potter and Sons, D. and J. Tullis ... 699 0 0 South Molton, D. and J. Tullis ... 691 2 6 street\* ... 398 0 0 Summerscales & Sons ... 685 0 0  
 \*Accepted.

**LONDON.**—For alterations and additions, 271, Wick-road, Hackney, for Mr. Jones. Messrs. Cooper and Goulding, Architects:—

E. Houghton and Son ... £245 10 S. Grist ... £228 0

**LONDON.**—For pulling down and rebuilding "The Locomotive" public-house, James-street, Camden Town, for Messrs. Matthews and Canning. Messrs. Perry and Reed, Architects, 9, John-street, Adelphi, W.C.:—

Clarke and Bracey ... £4,997 Faulker ... £4,670 Perry and Co. ... 4,999 H. Knight and Son ... 4,552 Patman & Fotheringham ... 4,821 Edwards and Medway ... 4,539

**LONDON.**—Accepted for building three houses on the Birkbeck Estate, Tottenham, for Mrs. Bell. Mr. J. W. Couchman, Architect, Pembury-road, Tottenham:—

H. Knight and Son, Tottenham ... £1,024 10

**LONDON.**—For 253, 253A, 254B, Portobello-road, Notting Hill, for Messrs. Lilley and Skinner. Mr. A. Sykes, Architect, 45, Finsbury-pavement, E.C.:—

Bennett ... £1,025 Perkins and Co. ... £977 Powditch and Co. ... 1,020 Polden ... 955 McCormick and Sons ... 987

**MANCHESTER.**—For alterations to the Congregational Church, Ashley-lane. Mr. Herbert Ogden, Architect, 14, Brown-street, Manchester:—

Peace and Noquoy ... £380 0 Young, Tinker & Young, Gerrard and Son ... 348 10 Manchester (accepted) £348 0

**MOLD (Flints).**—For additions to school buildings, for the School Board:—

R. Roberts ... £115 10

**MORLEY (Yorks).**—For the erection of mill premises for Mr. A. Glover. Mr. T. A. Buttery, Architect, Queen-street, Morley:—

*Masonry.*—Pearson & Ainsworth, Morley (labour only) ... £1,910 0 0 Do. do. (materials) ... 1,610 0 0 Joinery.—G. Elliot, Hanging Heaton ... 1,337 6 0 Plumbing.—G. A. Firth, Morley ... 105 0 0 Plastering.—W. Broadbent, Morley ... 270 17 10 Slating.—J. Atkinson and Son, Leeds ... 390 0 0

**NEW MILLS (Derbyshire).**—For the execution of sewerage works, for the Urban District Council of New Mills. Messrs. Spinks and Beaver, Engineers, 9, Albert-square, Manchester. Quantities by engineers:—

L. & W. Meadows £8,099 0 0 Geo. Freeman Ben Graham & Sons 6,708 0 0 and Sons ... £5,925 0 0 A. Brunton & Son 6,037 11 0 Etheridge and Wm. Underwood ... 5,824 12 0 and Bro. ... 6,329 0 0 A. Taylor ... 5,551 3 5 Enoch Tempest 6,218 8 2 A. Kellett, Manchester\* ... 5,541 0 0 A. Braithwaite & Co. 6,190 0 0  
 \*Accepted.

**NEWTOWN.**—Accepted for two houses, Llanidloes-road, Newtown, Montgomeryshire. Mr. George Hornblower, Architect, London:—

J. W. Swain, Newtown ... £1,219

*[Exclusive of fittings.]*

**PAISLEY (N.B.).**—For the erection of a fire-engine station, Johnston-street, for the Commissioners. Mr. W. Monteur, Surveyor, Municipal Buildings, Paisley:—

*Masonry.*—Morrison and Muir, Glasgow £4,067 3 5 Wright.—Alex. McNaughton, Paisley ... 1,631 2 0 Iron and Steel.—Hanna, Donald, and Wilson, Paisley ... 648 10 9

*Plumbing.*—Barr and Provan, Paisley ... 323 7 2

*Plastering.*—William Spiers, Paisley ... 249 6 0

*Slating.*—J. Jeffrey and Co., Paisley ... 206 0 8

*Gasfitting.*—Jas. Kilpatrick and Son, Paisley ... 76 16 4

**PARKSTONE (Dorset).**—For alterations to premises, Station-road, Parkstone, for Mr. J. A. Haynes. Mr. Walter Andrew, Architect, Parkstone:—

Jenkins and Sons ... £443 J. H. Wilson\* ... £280 Burt and Vick ... 315  
 \*Accepted.

**PETERBOROUGH.**—For the construction of a new street, for Messrs. Keeble Bros. Mr. F. H. Cooke, Surveyor, Priestgate, Peterborough. Quantities by Surveyor:—

J. Guttridge ... £885 0 Hockley and Son, J. W. Rowe ... 490 12 Grantham\* ... £400 0 D. Gray ... 447 0  
 \*Accepted.

**RUSHDEN (Northamptonshire).**—For alterations and additions to "The Rectory," Rushden, for Mr. Fred. Knight. Mr. Arthur Garner, Architect, 66, Oakhurst-grove, East Dulwich, London, S.E.:—

E. C. Bayes ... £670

*(No competition.)*

**SHILLINGFORD HILL.**—Accepted for erecting a house at Shillingford Hill, Berkshire. Mr. George Hornblower, Architect, London, W.:—

Brasher and Sons, Wallingford ... £3,300

*[First contract.]*

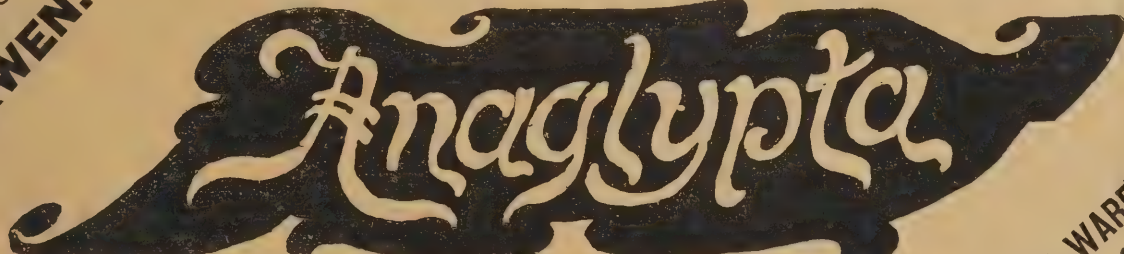
**SOUTHAMPTON.**—For taking down and rebuilding Nos. 137 and 139, St. Mary-street, Southampton. Mr. Walter Andrew, Architect, Parkstone, Dorset. Quantities by Mr. H. J. Weston, Southampton:—

Exors. of Franklin ... £1,478 Dyer and Sons ... £1,170 T. Tashley ... 1,290 F. Osann ... 1,144 Burt and Vick ... 1,175 Jenkins and Sons\* ... 1,118 Wright and Son ... 1,172  
 \*Accepted.

**SOUTHEND-ON-SEA.**—For structural alterations to the "Cornucopia" public-house, Marine Parade, Southend, Essex, for Messrs. Walker and Son. Messrs. Burles and Harris, Architects, Clarence-street, Southend. Quantities by Mr. Henry Bushell, 33, New Bridge-street, E.C.:—

F. Dupont ... £465 A. E. Symes ... £433 T. Whur ... 450

WORKS:  
**DARWEN.**



LONDON WAREHOUSE:  
 92 & 93,  
 Great Russell St.,  
 W.C.

THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
 IN VERY BOLD RELIEF AND LOW RELIEF.

**EASTON, ANDERSON & GOOLDEN, LIMITED,**

BROAD SANCTUARY CHAMBERS,  
 BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."  
 Telephone—3695.

**ELECTRIC & HYDRAULIC LIFTS & CRANES,**  
**PUMPS, RAMS,**  
**WATER SUPPLIES, ENGINES AND BOILERS,**  
**ELECTRIC LIGHT AND POWER.**

**MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST**

**AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD**



**SOWERBY BRIDGE.**—Accepted for the erection of twelve houses at Beech. S. Wilkinson, Architect, Sowerby Bridge.

**Masonry.**—Wm. Sutcliffe, Marsh, Sowerby Bridge.  
**Joinery and Carpentry.**—Sam Sutcliffe, Marsh, Sowerby Bridge.

**Slating and Plastering.**—Tom Dyson, Tuel-lane, Sowerby Bridge.

**Plumbing and Glazing.**—J. Kershaw, Wharf-street, Sowerby Bridge.

**Painting.**—E. Whitehead and Co., West-street, Sowerby Bridge.

**Concreting.**—Geo. Greenwood and Sons, Brunswick-street, Halifax.  
**STOCKPORT.**—For the execution of road works within the borough, for the Corporation. Mr. J. Atkinson, C.E., Borough Surveyor, St. Petersgate, Stockport.

Wm. Biscoe and Sons ... £705 12 10 3  
P. D. and S. D. Hayes, Stockport\* ... 701 11 1

**SUTTON** (co. Dublin).—For the erection of three dwelling-houses. Messrs. A. Scott and Son, Architects, 16, William-street, Drogheda.

P. Monks ... £4,000 | Scott and Co. ... £2,365  
P. Hannay ... 2,500 | Robt. Johnson, Dublin\* ... 2,250

**SWORDS** (co. Dublin).—For erection of new dispensary for the Bulrothy Board of Guardians. Messrs. A. Scott and Son, Architects.

Frances Gogarty ... £535 | John Reid, Garresown, ... £490  
Thos. Quinn ... 495 | co. Dublin\* ... 490

**UCKFIELD** (Sussex).—For the construction of sewerage disposal works, for the Urban District Council. Mr. G. Maxwell Lawford, Engineer, 13, Victoria-street, Westminster.

Quantities by Mr. F. C. Hunt.

B. Cooke and Co. £691 0 0 | Joseph Jackson, ... £248 15 7  
J. Piper ... 0 0 0 | Forest Gate ... 522 3 6  
C. Pelham ... 579 17 7 | W. H. Holman and Co. ... 522 3 6

**WALTHAM CROSS.**—For the erection of stables, &c., at "Black Prince," Waltham Cross, for Messrs. Christie and Co., The Brewery, Huddesdon. Mr. Thos. Merchant, Surveyor, Huddesdon.

J. A. Hunt ... £417 | T. Pollit ... £325  
J. Bance ... 355 | W. Lawrence, Waltham ... 319

**WEST ARDSLEY** (Yorks).—For the erection of farm buildings, Black Gates Farm, for Messrs. Holliday and Sons. Mr. T. A. Buttery, Architect, Queen-street, Morley.

A. Furness, East Ardsley (all trades except joinery).  
**YARMOUTH** (Yorks).—For the erection of a constable's house. Mr. W. Stead, C.E., County Surveyor, Northallerton.

H. Doughty ... £645 10 0 | A. Atkinson and H. J. Bainbridge ... £35 7 11 | Co., Stockport\* ... £578 5 2  
E. Cruddas & Son ... £32 12 8

\* Recommended for acceptance.

## J. J. ETRIDGE, JR.

SLATE MERCHANT,  
SLATER AND TILER.

ESTIMATES GIVEN FOR

## SLATING AND TILING,

To be Executed by Contract in any part of ENGLAND.

## Penrhyn=Bangor, Oakeley=Portmadoc

And other descriptions of Slates ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to

**BETHNAL GREEN SLATE WORKS,**  
Bethnal Green, London, E.

## THE BATH STONE FIRMS LTD.

BATH,

FOR ALL THE PROVED KINDS OF BATH STONE. FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

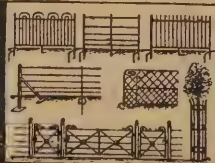
LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

## IRON FENCING.

BAYLISS, JONES  
AND BAYLISS,  
WOLVERHAMPTON.

LONDON 133X14 CANNON ST. E.  
SHOW ROOMS CATALOGUES FREE



## THE LOCAL GOVERNMENT

1897. ANNUAL, 1897.

### AN OFFICIAL DIRECTORY.

Gives the Names and Addresses of the Chief Officials of

All Corporations, County Councils, Boards of Guardians, Rural and Urban District Councils, Borough and County Asylums, Vestries, District Boards, &c., Members of the London County Council, Corporation of London, London School Board, Metropolitan Asylums Board, together with a Diary.

It also contains Abstracts of the

### TEN ACTS OF PARLIAMENT

affecting Local Government passed last year.

2s. 6d.; post free, 2s. 6d.

315 pages, crown 8vo, bound cloth.

S. EDGECEMBE-ROGERS, 2, Dorset St., Fleet St.

**LONDON PLATE-GLASS INSURANCE CO. LTD.**

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

MODERATE RATES. PROMPT REPLACEMENTS.

SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited.

Liberal Terms for Business Introduced.

For

# BLIND LATHS

go to

**R. BELL & CO., BROMLEY BY BOW,**  
LONDON. 1832.

## THOMAS ADAMS & SONS LTD.

Dry Oak, Mahogany & Teak, Red & Pine Deals, &c.

Large Stock of Floorings and Match Boardings.

BLOCK FLOORING A SPECIALITY.

TIMBER YARDS AND SAW MILLS—

CRESSENT WHARF, CAMBRIDGE STREET, BIRMINGHAM.

Dépôt for Bricks, Slates, and Building Material,

BREWERY WHARF, CAMBRIDGE STREET.

FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

Telephone No. 77 (Hon)

DO  
YOU  
WANT  
TO BUY  
RIGHT?

# GEORGE HYDE & CO

173 & 175, KENNINGTON CROSS,  
LONDON, S.E.

DO  
YOU WANT  
SPEEDY  
DELIVERY?



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.



Price 3s. 6d.  
**GLOSSARY OF TECHNICAL TERMS**  
used in Architecture and the Building Trades.  
By GAVIN JAMES BURNS, B.Sc., F.S.I.  
Contains explanations of over 2000 terms.  
London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**  
—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**ASSISTANT SURVEYORS, R.E. CIVIL STAFF EXAMINATION ANNOUNCED.** For terms for tuition, apply to Mr. G. A. T. MIDDLETON, A.R.I.B.A., 56, Dafforne-road, Upper Tooting, S.W. First place on three occasions.

**R.I.B.A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

**PRACTICE OF ARCHITECT AND SURVEYOR FOR SALE,** South of England. Established 14 years. Income £250 to £350 per annum. Good reason for selling. Address, VENDOR, care of Advertising Offices, 10, High Holborn, W.C.

**TECHNOLOGICAL EXAMINATIONS,** 1897.

**CITY AND GUILDS OF LONDON INSTITUTE.** The Institute's EXAMINATIONS in TECHNOLOGY will be held on APRIL 24th, MAY 1st, 3rd, 4th, 5th, 6th, 7th, and 8th.

All applications for examination in Technology must be forwarded to the Institute on or before MARCH 29th. Only in exceptional cases, and by payment of an additional fee, can applications be received from Local Secretaries after that date.

Candidates on Technology, not attending any registered class, should apply not later than MARCH 19th to the Secretary of the nearest local centre.

Applications from individual candidates for examination at the offices of the Institute should be made not later than APRIL 17th, addressed City Guilds Institute, Examinations Department, Exhibition Road, S.W., and should be accompanied by a postal order for the amount of the fee.

## SLATES. BRICKS.

VELINHELI, BANGOR, PORTMADOC, GREEN, &c.

GOOD STOCKS ON HAND.

COMMON WIRE CUTS.

Large Quantities. Prompt Delivery.

**GIBBS BROTHERS,**  
LOUGHBOROUGH.



## INDEX OF ILLUSTRATIONS AND CONTENTS.

ILLUSTRATIONS.	PAGE	CONTENTS.	PAGE	ILLUSTRATIONS.	PAGE
Lithographic Plate Supplement: Mr. Beit's House in Park Lane, Messrs. Ba'four and Turner, Architects.		An Old Oak Cabinet. Measured and drawn by G. A. Johnson	91	"Eighteenth Century Work." By J. A. Gatch	90
York Street Residential Chambers. Messrs. Ba'four and Turner, Architects.	85	The Architect as Organiser	85	"The Service of Art." By Richard Seaver, M.A.	91
Mr. Eustace Balfour	87	A Model Estate	85	Keystones	91
Ampton Hall, Bury St. Edmunds	87	Leaning Towers and Chimneys	86	Bricks and Mortar	95-93
Dining Room, Ampton Hall	88	Setting-Out Problems	86	Professional Items	93
St. Anselm's, Davies Street, W.	89	Men Who Build—Mr. Eustace Balfour	87	Trade and Craft	90
				Society Meetings	100
				Surveying and Sanitary Notes	100
				BUILDING TRADES EXHIBITION SUPPLEMENT	i-viii

## "THE BUILDERS' JOURNAL" ADVERTISERS.

Names and Addresses with the page on which their Announcements Appear.

Adams & Co.	viii	Couzens, G. and F., Cardiff	—	Hope, Henry, Birmingham	—	Rogers, S. E., London	xi
Adams, Robert, London	—	Cox, Sons, Buckley & Co., London	—	Hyde & Co., G., London	x	Safety Tread Syndicate, Ltd.	xii
Adams, T., & Sons, Ltd., Birmingham	x	Dennis, Henry, Ruabon	xii	Itter, A. W., Peterborough	—	St. Pancras Ironwork Co., London	v
Albion Clay Co., Ltd., London	vii	De Ridder, E. P., Liverpool	xii	Jones & Attwood, Stourbridge	i	Self-Lock Roofing Tile Co., Ltd.	—
Allday, J. L., Birmingham	—	Doulton & Co., Lambeth	i, vi	Jones and Willis, London	iv	Skidmore, Thos., & Son	i
Anaglypta, Darwen	ix	Easton, Anderson & Goolden, Ltd.	ix	Kaye, Joseph, & Sons, Ltd., London	i	Smokeless Fire Co., Ltd., London	xii
Ashmore, Benson, Pease & Co., Ltd.	—	Eastwood & Co., London	xii	King, John, Liverpool	—	Society of Architects, The	i
Attwood, J., Stourbridge	i	Ellis, Partridge & Co., Leicester	—	Lewis, J., London	—	Stanley Bros., Ltd., Nuneaton	xii
Ball, H. A.	xi	Elsley, Thomas, London	—	London Hoist and Chain Co.	—	Stiff & Sons, London	iii
Barnett, Edward, Walsall	—	Emley & Sons, Newcastle-on-Tyne	—	London Plate-Glass Insurance Co., Ltd.	xi	Strode & Co., London	i
Barrows & Co., Ltd., Banbury	—	Etridge, J. J., Junr., London	x	Lux Patent Venetian Blind Limited	xii	Szerelmey & Co., London	iv
Bath Stone Firms, Ltd., Bath	x	Ewart & Sons, London	—	McNeill, F., & Co., London	xi	Talbot Co., Leeds	v
Batchelar, J., & Co., London	x	Farniloe, G., & Sons, London	—	Maw & Co., Ltd., Jackfield	—	Thornton-Pickard Mfg. Co.	x
Batsford, B. T., High Holborn	xii	Farrar, E., & Co., London	—	Measures Bros., Ltd., London	xi	Twyford, Ltd., Hanley	vii
Bayliss, Jones & Bayliss	x	Fawcett, M., & Co., London	x	Medway, M. T., & Co.	—	Ward, B., & Co., London	xvi
Bell, R., & Co., London	xi	Gibbs Bros., Loughborough	x	Mellowes & Co., Sheffield	—	Warings, Ltd., London	xiv
Blackman Ventilating Co., Ltd.	xii	Glover, F. A., & Son, Withington	i	Minton, Hollins & Co.	i	Waygood, R., & Co., Ltd., London	i
Blundell, Spence & Co., Hull	—	Goodwin, W., London	—	N. A. P. Window Co., London	iii	Webb & Co., London	—
Boote, Ltd., T. & R., Burslem	—	Gooding, W., London	—	Oates & Green, Ltd., Halifax	—	Wilkinson, W. B., & Co., Ltd.	—
Brady, G., Manchester	xii	Granite Silicon Plaster Co.	—	Parker, Robert, & Co., Liverpool	—	Williams, G. A. & Son	iii
Briggs, W., Dundee	—	Gregory, Thomas, & Co., London	xii	Patteson, J. & H., Manchester	i	Wilson & Co., London	—
Burmantofts, Leeds	viii	Grundy, John, Ltd., London	—	Perkins, A. M. & Sons, Ltd., London	—	Woollams, Wm., & Co., London	—
Candy & Co., Ltd., London	—	Hamilton & Co., London	—	Pilkingtone Tile and Pottery Co.	xii	Wragge, Geo., Manchester	—
Carpenters, Worshipful Company of	i	Hartley and Sugden, Ltd., Halifax	—	Roberts, Adlard & Co.	i	Wright, G., & Co., Rotherham	—
Charteris & Longley, London	i	Hentschel, C., & Co., London	i	Robson & Co., Sunderland	—	Young & Marten, Stratford	i, ii, xv
Claridge's Asphalte Co., Ltd.	—	Homan & Rodgers, London	i, viii			Young & Co., J., London	xii

ADCOCK, Mr. W. J., Builder, Dover.

"I have proved your invention easy of application. Both my joiners and apprentices could fix the apparatus without difficulty after having inspected a model."

CRICKMAY &amp; SONS, Messrs., F.R.I.B.A., London, S.W.

"The Patent Windows supplied for Sir Edward Walters' house at Salisbury gave us every satisfaction. We shall continue to use them."

JONES, Mr. PETER, Sloane Sq., London.

"I am glad to be able to bear testimony to the great utility and general usefulness of the N.A.P. Sliding Windows. I am very pleased with them, and should be sorry to be without them."

LUCAS &amp; AIRD, Messrs., Contractors, London.

"Cheap, simple, and effective. We are using some 1200 sets of your fittings on these exceptionally tall buildings."

MORGAN, ISTD &amp; MORGAN, Messrs., Contractors, Southampton.

"A very clever arrangement, and one which will certainly come into daily use."

PERRY &amp; READ, Messrs., F.R.I.B.A., London.

"It is with pleasure that we are able to inform you of our entire satisfaction with the 'N.A.P. Windows,' we shall continue to

specify them."

Write for Full Particulars to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.

G.A. WILLIAMS & SON.

BLINDS

21. QUEEN'S ROYAL BAYSWATER LONDON. W.

## STIFF &amp; SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS,  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

For Illustrated Price Lists apply to

JAS. STIFF &amp; SONS, LONDON POTTERY, LAMBETH, S.E.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
March 27	Sheffield. Drapery Establishment	J. Walsh	Flockton, Gibbs, and Flockton, 15, St. James's-row, Sheffield.
" 27	Alford, Aberdeen. Various Works for Epidemic Hospital	District Committee	Duncan and Son, Architects, Tarriff.
" 27	Fleet (Lines). Church Restoration		W. M. Fawcett, 1, Silver-street, Cambridge.
" 27	Uppermill. Masonry Work in Re-building Bridge	West Riding City Council	J. Vickers Edwards, Surveyor, Wakefield.
" 27	Weston-super-Mare. Lounge Hall at Grand Atlantic Hotel.		Price and Wooler, Architects, Waterloo-street, Weston-super-Mare.
" 27	Knowlton (near Canterbury). Re-building Hop Oast, &c.		W. J. Jennings, Architect, 4, St. Margaret-street, Canterbury.
" 27	Paisley. Drill Hall, High-street		T. G. Abercrombie, Architect, 13, Gilmour-street, Paisley.
" 27	Hampton Wick. Repairs to Lansdowne House		J. N. Horsfield, Surveyor, Hampton Wick.
" 27	Kinnitty (Inland). Residence	Urban District Council	James Kennedy, C.E., Parsonstown.
" 27	Cleish (near Edinburgh). Additions to Church	Guardians of Parsonstown Union	Hardy and Wight, Architects, 74, George-street, Edinburgh.
" 27	Cockfield (Durham). Additions to Schools		W. Livesey, Architect, Raby, Staundrop.
" 27	Dullerton (near Londonderry). Gate Lodge		W. E. Pinkerton, Architect, 8, Diamond, Derry.
" 29	Nantymoel (Wales). Houses (10) near Board Schools	Major-General Bond	John Owen, The Villa, Nantymoel.
" 30	Car-k-in-Cartmel. New Church		Austin and Paley, Architects, Lancaster.
" 30	Consett (Durham). Houses (8), Green-street	Mr. V. C. W. Cavendish	Secretary, Gibson-street, Consett.
" 30	Dover. Car Shed at Maxton	Industrial and Provident Society, Lim.	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 30	Epsom. Laundry Buildings and Engine House	Town Council	H. D. Scarles-Wood, Architect, 157, Wool Exchange, E.C.
" 31	Newtown (Montgomery). County School	Guardians	H. Teather, Andrews-buildings, Queen-street, Cardiff.
" 31	Sheffield. Public Baths	Newtown School Governors	C. F. Wike, Town Hall, Sheffield.
" 31	Whitfield (Northumberland). Widening Bridge	Health Committee	County Surveyor's Office, Moot Hall, Newcastle.
" 31	London, N.E. Repairs to Chimney Stacks and Ventilators.	County Council	F. E. Coles, Clerk's Office, Hackney Union, Homerton, N.E.
" 31	Drighlington (Yorks.). Wesleyan Schools	Hackney Union	
" 31	London, N. Alterations to Northumberland Arms		W. Hanstock, Architect, Branch-road, Batley.
" 31	Fochriw (Wales). Dwelling House		V. P. Rawlings, Architect, 19, Willoughby Park-road, Tottenham.
" 31	Leeds. Abutments and Walls for Bridge	Corporation	Lewis Evans, Penybank, Fochriw.
" 31	Selby. Engine Shed, Coaling Stage, &c.	North-Eastern Railway Company	City Engineers' Office, Leeds.
" 31	London, S.E. Underpinning Hospital, Old Kent-road	Metropolitan Asylums Board	W. Bell, Architect, York.
" 31	Spittal Houses (15), Promenade	Messrs. Boston	T. Duncombe Mann, Norfolk House, Norfolk-street, Strand.
" 31	St. Thomas by Launceston. Parsonage House	Rev. T. G. Johnson	J. L. Miller, Architect, 39, Hide-hill, Berwick-on-Tweed.
" 31	Strontian (in Oban) Cottage		O. B. Peter, Architect, Launceston.
April 1	Repairs and Materials (Triennial Contracts)	War Department	Alex. Shairp, Architect, Oban.
" 1	London, W. Greenhouse	Paddington Burial Board	Commanding Royal Engineer (in each district).
" 1	Tudhoe (Bishop Auckland). Partitions at Schools	Tudhoe School Board	H. Cecil, Clerk, Vestry Hall, Harrow-road, W.
" 1	Sunbury-on-Thames. Building and Precipitation Tanks	Urban District Council	S. Adams, Clerk, Bishop Auckland.
" 2	West Hartlepool. Post Office	Commissioners H.M. Works	J. Austie, 17, Victoria-street, Westminster, S.W.
" 2	Sandbach. Shop, The Hill	Industrial Co-operative Society	12, Whitehall-place, S.W.
" 2	Old Hill (Staffs.) Schools and other Works	Rev. H. G. Button	A. Price, Architect, Elworth, Sandbach.
" 2	London, S.W. Additions to Westminster Union	Guardians	Caretaker, Primitive Methodist Tabernacle, Old Hill.
" 3	Sheffield. Roof, &c., for Retort House	United Gas Company	J. Waldram and Sons, Surveyors, 17, Buckingham-street, Charing Cross, W.C.
" 6	Mansfield (Notts.) Additions to Cattle Market	Corporation	F. W. Stevenson, Company's Engineer.
" 6	London, S.E. New Postmen's Office, Walworth	Official	R. Frank Vallance, Architect, Mansfield.
" 10	Bushmills, co. Antrim. Enlargement of Church	Rev. J. B. Bristow	H. Tanner, 15, Whitehall-place, S.W.
" 13	Pontypridd. School	School Board	D. Douglas, Bushmills.
" 13	West Ham. Buildings at Abbey Wharf, Stratford	West Ham County Council	A. O. Evans, Architect, Post Office-chambers, Pontypridd.
" 13	Ipswich. Alterations to Tower House	Ipswich School Board	Lewis Angell, Engineer, Town Hall, Stratford, E.
" 26	Chatham. Town Hall and Municipal Buildings	Corporation	J. S. Corder, Architect, Tower-street, Ipswich.
May 3	Cairo. Prison and Police Barracks	Egyptian Government	G. E. Bond, Architect, High-street, Rochester.
No date.	London. Two Blocks Stabling and Yard		Service Administrative Offices, Cairo.
"	Alderbury (Salisbury). Timber Framed Bungalow		Mr. King, 10, Agar-street, Charing Cross, W.C.
"			J. Bath, Architect, Crown-chambers, Salisbury.



## JONES &amp; WILLIS,

MANUFACTURERS OF

## Wrought Metal Work, Architectural Carving and Joinery

For Ecclesiastical Purposes, Domestic and Public Buildings,

## Lighting Appliances, &amp;c.

Estimates given to Architects' own Designs.

Work can be inspected during execution.

OFFICES AND SHOWROOMS:—79, Edmund Street, Birmingham; 43, Great Russell Street, London, W.C.; Concert Street, Bold Street, Liverpool.

WORKS:—Eagle Works, Hornsey, N.; Porchester Street, Birmingham.



## DAMP WALLS CURED.

## MASONRY PRESERVED

## SZERELMEY STONE LIQUID,

Which absolutely Waterproofs and Preserves Bricks, Stone, Plaster, Cement.

IT HAS STOOD THE TEST OF TIME.

Approved and Adopted by Her Majesty's Government for MANY YEARS.

EASILY APPLIED, SMALL COST, RELIABLE.

FORTY YEARS' EXPERIENCE.

## PORCELAIN PAINTS

For Interior and Exterior Decoration. Beautiful Glazed Surface.

Do not Chip. Non-Poisonous.

## SZERELMEY'S

## HIGH-CLASS PAINTS.

## IRON PAINTS

For Wood or Iron.

GREAT - -

- - DURABILITY.

Prevent Corrosion.

Offices and Works: ROTHERHITHE NEW ROAD, S.E.

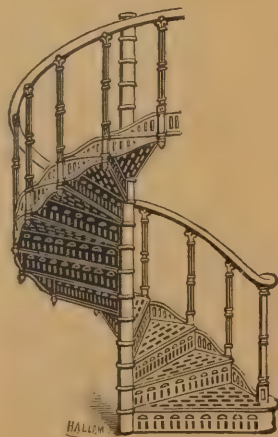
Telegrams: "SZERELMEY LONDON."



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>ENGINEERING—</b>			
March 27	Wells (Somerset). Electric Lighting Plant	Corporation	Dr. John Hopkinson, 5, Victoria-street, Westminster, S.W.
" 29	Cork. Cast-iron Pipes and Castings	Corporation	H. A. Cutler, Municipal Buildings, Cork.
" 30	London, India Office, S.W. Steel Springs, Wheels and Axles, &c.	Official	Director-General of Stores, India Office, Whitehall, S.W.
" 31	Leeds. Steel Girder Bridge	Corporation	City Engineer's Office, Leeds.
" 31	Frankley. Railway, Reservoir and Filter Beds	Birmingham Corporation	E. Orford Smith, Municipal Buildings, Birmingham.
April 5	King's Lynn. Covered Service Reservoir	Corporation	E. J. Silcock, Borough Engineer, King's Lynn.
" 7	Birkenhead. Sinking Borehole	West Cheshire Water Company	G. Miller, Secretary, 9, Hamilton-square, Birkenhead.
" 7	Bristol. Condensing Plant, &c.	Corporation	H. Faraday Proctor, Engineer, Town Hall, Bristol.
" 13	Harbour Work Extensions at Ostende	Provincial Administration	Brussels, 17, Rue des Augustins.
" 14	Lerwick (Scotland). Waterworks	Commissioners	J. A. Leslie & Reid, Engineers, 72A, George-st., Edinburgh.
" 14	Edinburgh. Reservoir on the Thalla Water	Water Trustees	J. Wilson, Engineer, 72A, George-street, Edinburgh.
" 17	Romford. 20-h.p. Steam Engine, &c.	Urban District Council	E. Winnill, Engineer, Britton's Farm, Hornchurch.
<b>IRON AND STEEL—</b>			
March 29	Cork. Cast-iron Pipes and Castings (300 tons)	Corporation	H. A. Cutler, Engineer, Municipal-buildings, Cork.
" 31	Aberdare. Girder, Footbridge, and sundry Cast-iron and Steel Work.	Aberdare Urban District Council	W. Fox, Engineer, 5, Victoria-street, Westminster, S.W.
" 31	Belper. Iron Roofs, Columns, Gutters, &c. (310 tons)	Park Foundry Company	M. Hunter, Engineer, Bridge-street, Belper.
April 1	Bethnal Green, London, E. Lamp Columns and Gully Gratings.	Vestry of St. Matthew	J. W. Barratt, Surveyor, Vestry Hall, Church-row, Bethnal Green.
" 15	Bucharest. Rails (2665 tons)	Direction of Roumanian State Railways	Rue de Chateaudun 28, Paris.
<b>PAINTING—</b>			
April 1	London, S.W. Painting and Repairs to Tate Library	Commissioners	H. J. Smith, Vestry Hall, Lambeth, S.W.
<b>ROADS—</b>			
March 27	Warminster. Flints and Labour, 1 Year, to March 31, 1898.	Rural District Council	A. H. Bourne, Surveyor, Crookerton, Warminster.
" 27	Aylesbury. Granite (15,000 tons)	Bucks County Council	R. J. Thomas, County Hall, Aylesbury.
" 27	Chester. Carting Road Material, 1 Year, to March 31, 1898	Cheshire County Council	County Surveyor's Office, Castle, Chester.
" 27	Colne (Lancs.) Materials, 1 Year, to March 25, 1898	Highways and Sewers Committee	T. H. Hartley, Borough Surveyor, Colne.
" 27	Aylesbury. Carting Granite, 1 Year	Bucks County Council	E. J. Thomas, Surveyor, County Hall, Aylesbury.
" 27	Chatham. New Road and Drainage Work	Trustees of Watts' Charity, Rochester	J. W. Nash, Surveyor, High-st., Medway-terrace, Rochester.
" 27	Clayton-le-Moors. Materials, 1 Year, to March 31, 1898	Urban District Council	A. Dodgson, Surveyor, Clayton-le-Moors.
" 27	Duffield. Stones (Whinstone and Seaside)	Rural District Council	T. Casson Beaumont, Surveyor, Exchange-street, Duffield.
" 27	London, N. Surveying, Levelling, and Making Good	Hornsey Urban District Council	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N.
" 27	Newbury. Highway Repairs, 1 Year, to March 31, 1898	Rural District Council	H. S. Talbot, Surveyor, Red Lodge, Cold Ash, Newbury.
" 27	Nelson (Lancs.) Street Improvement Works	General Purposes Committee	B. Ball, Surveyor, Town Hall, Nelson.
" 27	Stonehaven (Scotland). Macadamising, Paving, &c.	Commissioners	G. Murdoch, Surveyor, Stonehaven.
" 27	Wakefield. Street Works	Corporation	R. Porter, Surveyor, Town Hall, Wakefield.
" 29	Macclesfield. Road Material, 1 Year, to March 31, 1898	Rural District Council	Assistant Clerk, Union Offices, Macclesfield.
" 29	Beckenham. Granite, &c.	Urban District Council	J. A. Angell, Council Offices, Beckenham.
" 29	Boston (Lincs.) Broken Granite (1700 tons) and Slag (1400 tons)	Silsey Rural District Council	J. M. Simpson, Clerk, Boston.
" 29	Heywood. Street Works	Corporation	J. Diggle, Engineer, Municipal Buildings, Heywood.
" 29	Macclesfield. Materials and Drain Pipes, 1 year	Rural District Council	J. F. May, Union Offices, Macclesfield.
" 29	Wellingborough. Granite	Rural District Council	W. Jackson, Clerk, Wellingborough.
" 30	Dover. Street Works	Corporation	Borough Engineer's Office, Town Hall, Dover.
" 30	Southampton. Tar Paving Footpaths	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
" 30	Billericay (Essex). Carting Gravel, 1 year, to March 31, 1898	Rural District Council	G. Lapwood, Brentwood.
" 30	Luton. Materials, 1 year, to March 31, 1898	Town Council	A. J. L. Evans, Surveyor, Town Hall, Luton.
" 30	Lutterworth. Granite, 1 year, to March 31, 1898	Rural District Council	J. C. Coats, Surveyor, Biteswell, Lutterworth.
" 30	Walsall. Making	Corporation	Borough Surveyor, Bridge-street, Walsall.
" 31	St. George (near Bristol). Re-laying Footpath	Urban District Council	T. L. Lewis, Surveyor, Parochial Offices, St. George.
" 31	East Molesey. Cartage, 1 year, to March 31, 1898	Urban District Council	Surveyor's Office, Walton-road, East Molesey.
" 31	Hoo (Kent). Road Materials	Rural District Council	F. C. Thurston, Surveyor, Hoo.
" 31	Hunslet (Leeds). Stone, for 1 Year, to March 31, 1898	Rural District Council	T. Schofield, Clerk, Union Offices, Glasshouse-st., Hunslet.
" 31	Kingston-on-Thames. Road Making	Corporation	Borough Surveyor, Clattern House, Kingston.
" 31	Litherland (Lancs.). Completing Passages	Urban District Council	H. B. Garton, Surveyor, 25, Sefton-road, Litherland.
" 31	Middleton (Lancs.). Materials, 1 Year, to March, 1898	Corporation	W. Welburn, Surveyor, Town Hall, Middleton.

## THE ST. PANCRAS IRON WORK COMPANY, ENGINEERS & IRONFOUNDERS.



Manufacturers of  
**IRON STAIRCASES**  
(Straight and Spiral),

**IRON ROOFS, FOOT BRIDGES,  
IRON DOORS,  
VERANDAHS, BALCONIES,  
PORCHES, GATES & RAILINGS.  
GENERAL WROUGHT & CAST-IRON WORK.**

LARGE SHOWROOMS AT

**The St. Pancras Iron Works,**

PANCRAS ROAD, LONDON, N.W.

(Close to King's Cross, St. Pancras and Euston Stations.)

**TALBOT & CO**  
LEEDS

**ARTISTS  
IN  
STAINED  
GLASS**

**TILE PAINTING  
& MOSAICS  
GLASS ENBUSSING**

**CASEMENTS  
IN WROUGHT IRON  
& GUNMETAL**

**SPECIAL DESIGN  
AND  
ESTIMATES**



COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>ROADS—continued.</b>			
April 1	Aylesbury. Sewering, Metalling, and Paving, &c. ...	Urban District Council ...	J. H. Bradford, Surveyor, 2, Rickford's-hill, Aylesbury.
" 1	Pontefract. Materials, 1 Year, to March 31, 1898. ...	Rural District Council ...	J. Dickson Smith, Assistant Clerk, Pontefract.
" 2	Oxendon (Market Harborough). Granite ...	Rural District Council ...	C. Burgoine, Corn Exchange, Market Harborough.
" 2	Wanstead (Essex). Tar Paving ...	District Council ...	Surveyor, Council Offices, Wanstead.
" 3	Cockermouth. Road Repairs, 1 Year, to March 31, 1898 ...	Rural District Council ...	J. Wilson, Surveyor, Cockermouth.
" 5	Batley. Levelling, Paving, Channelling, &c., St. James-st. ...	Town Council ...	O. J. Kirby, Surveyor, Market-place, Batley.
" 5	Hounslow. Making-up and Sewering ...	Heston and Isleworth Urban District Council ...	W. A. Davies, Surveyor, Town Hall, Hounslow.
" 5	East Dereham. Granite (300 tons) ...	Council ...	H. G. Himson, Surveyor, Theatre-street, East Dereham.
" 6	Mansfield (Notts). Sewering, Levelling, &c. ...	Corporation ...	F. Vallance, Borough Surveyor, Mansfield.
" 6	Windsor. Making up ...	Town Council ...	Borough Surveyor, Helena-road, Windsor.
" 7	London, S.W. Cartage of Granite and Gravel ...	Middlesex County Council ...	J. H. Pownall, Surveyor, Guildhall, Westminster, S.W.
" 8	Lutterworth. Granite, 1 Year, to March 31, 1898 ...	Monks Kirby Rural District Council ...	J. C. Coates, Surveyor, Bitteswell, Lutterworth.
No date.	Streatham, S.W. Road and Sewering ...	Mr. Lees Knowles ...	J. H. Harvey, Surveyor, 183, Lavender-hill, S.W.
"	East Sheen (Surrey). Roads and Sewers ...	Mr. H. S. Cross ...	J. H. Harvey, Surveyor, 183, Lavender-hill, S.W.
<b>SANITARY—</b>			
March 25	Hayland Nether (near Barnsley). Sewers, &c. ...	Urban District Council ...	W. Farrington, Surveyor, Hayland.
" 25	Sandgate. Sewerage Works ...	Urban District Council ...	A. R. Bowles, Engineer to the Council, Sandgate.
" 25	Barnstaple. Sewer (600ft.) ...	Corporation ...	J. Bosson, Municipal-buildings, High-street, Barnstaple.
" 27	Gloucester. Pipe Sewers ...	Rural District Council ...	J. F. Trew, Council-chambers, Gloucester.
" 29	Stone (Staffs.) Drainage and Plumbing Works ...	Guardians ...	J. J. Chapman, Architect, Stone.
" 29	Burnley. Iron Pipe Sewer ...	Highways Committee ...	G. H. Pickles, Surveyor, Burnley.
" 29	Hornsey, N. Stoneware Surface Water Sewers ...	District Council ...	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N.
" 30	Tunbridge Wells. Glazed Stoneware Pipe Sewers ...	High Brooms Brick and Tile Company ...	W. Harmer, 137, London-road, Southborough.
March 31	Harrogate. Pipe Sewers and Drains ...	Commissioners ...	Martin and Fenwick, 1, Park-place, Leeds.
" 31	Kinning Park (in Glasgow). Cleansing and Watering ...	Urban District Council ...	W. and W. L. Lucas, 140, Hope-street, Glasgow.
" 31	Milurrow (Lancs.). Sewage Disposal Works ...	Urban District Council ...	J. Diggle, Engineer, 27, Alexander-street, Heywood.
April 1	Sunbury-on-Thames. Main Drainage Works ...	Urban District Council ...	J. Anstie, 17, Victoria-street, S.W.
" 2	Ashby-de-la-Zouch. Main Drainage Works ...	Urban District Council ...	J. B. Everard, 6, Millstone-lane, Leicester.
" 2	East Molesey. Removal of Dust and Refuge, 1 Year, to March 31, 1898 ...	Urban District Council ...	Surveyor's Office, Walton-road, East Molesey.
" 5	Stowmarket. Sewage and Disposal Works ...	Urban District Council ...	Pollard and Tingle, Engineers, 31, Old Queen-street, Westminster, S.W.
" 12	Monmouth. Sewage Disposal and Lighting Works ...	Town Council ...	Bramwell and Harris, Engineers, 5, Great George-street, Westminster, S.W.
" 13	Southampton. Brick and Concrete Sewers ...	Corporation ...	W. B. G. Bennett, Municipal Office, Southampton.
" 22	Woking. Drainage Works ...	Urban District Council ...	J. Taylor, Sons, and Santo Crimp, 27, Great George-street, Westminster, S.W.
July 31	Oporto, Portugal. Sanitary Improvement Works ...	Corporation ...	Municipal Town Hall, Oporto.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
March 31	Christiania. Railway Stations ...	Kroner 10,000, 4000, 2000, 1000 ...	Railway Offices, Department of Public Works, Victoria-terrace, No. 6, Christiania.
" 31	Govan. Designs for Public Halls and Municipal Offices ...	£100, £50 ...	Commissioners of the Burgh.
April 17	Guernsey. Plans and Designs for Assembly Hall, &c. ...	30 guineas ...	States of Guernsey.
" 21	Long Buckley (Northamptonshire). Competitive Schemes for Water Supply.	£50, £25 ...	Rural District Council.
" 30	Halifax. Designs for Police Station and Court House...	£50, £25 ...	Corporation.
July 1	Elne (France). Designs for Water Supply ...	£52 10s., £21, £10 10s. ...	La Mairie, Elne, Pyrenées Orientales.
No date.	Wandsworth and Clapham Union. Design for Nurses' Home.		Guardians.

1894.

SANITARY CONGRESS, LIVERPOOL.

DOULTON & Co.

Have been awarded the

ONLY MEDAL

Of the Sanitary Institute for their

"Metallo-Keramic Joint,"

WHICH ENSURES A

PERFECT CONNEXION and INCORPORATION between POTTERY CLOSETS and LEAD SOIL-PIPES.

THIS JOINT MEETS THE REQUIREMENTS OF THE LONDON COUNTY COUNCIL.



FULL PARTICULARS AT THE SHOWROOMS:

ALBERT EMBANKMENT, LONDON, S.E.; PAISLEY, & PARIS.



# Building Trades Exhibition SUPPLEMENT.

MARCH 24TH, 1897.

## THE BUILDING TRADES EXHIBITION.

ON Saturday the annual Building Trades Exhibition was opened at the Royal Agricultural Hall, Islington, by the Lord Mayor, accompanied by the Sheriffs and Professor J. Banister Fletcher, Mr. H. Greville Montgomery, Sir A. Blomfield, Mr. Charles Barry, Mr. Frampton, Major Isaacs, Mr. Richman, Major Leslie, Mr. Boys, Mr. L. Angell, and Mr. W. Matthews.—Professor Banister Fletcher, in moving a vote of thanks to the Lord Mayor, explained the origin and present positions of the handicraft competitions that are to take place during the Exhibition. They were started as an experiment five years ago, when the Building Trades Exhibitions had got to about as low a level as they well could be. It was thought that open competition, free to all, would stimulate men to better work, and must be of advantage to those not so advanced in practical work, who would have the opportunity of watching day by day the work done. Both classes would be able during their resting-time to see the best material, appliances, and inventions connected with their trade, and the works of Art that were lent by the Science and Art Department, the Corporation of the City of London, the City Companies, and others. This year the number of competitors more than doubled those of last year, while last year's total more than doubled its predecessor. As there was every prospect of the number continuing to increase now that the competitions were well known and had proved a success, voluntary help would be required to enable this valuable and growing work to be continued.—A vote of thanks having been seconded by Sir Arthur Blomfield, the Lord Mayor said that inasmuch as some years had passed—some said thousands, and some millions—since we abandoned the habit of living in tents and took to living in houses, it was most desirable that we should have fit, proper, and commodious houses to live in, and above all, that the sanitary arrangements should be complete. There was very little doubt that the decrease in the mortality of the human race was nearly as much attributable to the advance in our sanitary regulations, and the manner in which they were carried out, as to the enormous strides that science had made not only in therapeutics, but in surgery and the whole art of healing. It was a curious thing that, whereas all science and invention were the mere reproduction of things, and had been done either by the Egyptians, the Greeks, or the Romans, we in England had, perhaps, invented a more remarkable structure than any known in ancient history. He alluded to the Crystal Palace. When it was first determined to hold the Great Exhibition in England, a great discussion arose as to how it should be housed, and Mr. Joseph Paxton

submitted a design of glass and iron, which was not only a thoroughly original idea, but which, having been successfully carried out, remained a monument to the imaginative genius of the building trade of England, and of the admirable manner in which an invention could be carried out. The more they could foster such institutions as this, the more they would help to beautify this City of which they were so proud, and to make their homes sanitary, comfortable, and free from draughts—a consummation devoutly to be wished for. Mr. Blashill having proposed, and Mr. Angell having seconded a vote of thanks to the Sheriffs, the ceremony concluded by the Lord Mayor declaring the Exhibition open, after which the civic party made a tour of the exhibits, many of which were minutely examined by the visitors. With regard to the Exhibition itself, it may at once be stated that it is the best of the kind ever held in London, the excellence of the present display amply demonstrating the soundness of the decision of the promoters in permitting a year to elapse between each display, the result being that the ground floor is occupied by many leading firms in various branches of the trade, many of whose stands are really very Artistic conceptions, some of the most pleasing effects having been obtained from such unpromising materials as stone. Another cause for congratulation is the fact that all extraneous and foreign matters to the trades represented have been rigorously excluded, the result being that the display in fact, as well as in name, constitutes a technical exhibition, and not a fancy bazaar, as too many of these have proved in the past. Everything that goes to the building and construction of houses is to be found here, including concrete for the foundations, stone and brick for the walls, tiles for the roofs, decorations for the interiors, stoves and ranges of all kinds, together with various heating and ventilating arrangements and apparatus, and all the latest inventions in fireproof floorings, house draining and trapping, fibrous and fireproof plastering, wall decorating, door fastenings, cisterns, window frames and sashes, lifts, pavements and floor coverings of various descriptions, locks, glass and other decorations, glazing, lighting, roofing, joinery, tiling, and sanitary works, the result being a very comprehensive and thoroughly representative whole. As the different exhibits are specially dealt with in another column, we refrain from touching on them here, though we cannot resist mentioning the very pleasing and artistic manner in which the stands of the N.A.P. Window Company; Messrs. Ewart and Son, who showed several fine specimens of copper work, including a figure of Industry and some artistic Renaissance copper tiles; the "Emdeca" Decoration Company; the Incandescent Gaslight Company; Messrs. J. Mitchell and Co.; the Expanded Metal Company; Aspinall's Enamel, who had a model villa furnished with articles decorated with their specialty; Messrs. Bratt, Colbran, and Co., with a varied assortment of

stoves, tiles, and wrought metal work; Messrs. Candy and Co., with glazed and vitrified bricks; Messrs. Diespeken and Co., with some very choice marble mosaic work; the United Asbestos Company, with their Salamander decorations; the Pilkington Tile and Pottery Company; Mr. H. Herrmann, with a varied assortment of carved woodwork; Messrs. Sutton and Co., with silicated stoneware pipes; and the Barton Limestone Company were arranged, this stall being very effective and pleasing, while many of the exhibitors added to the general attractiveness by the free employment of foliage and flowering plants. Messrs. Stanley Bros., of Nuneaton also deserve a special mention for their exhibit. In the galleries wherein the educational work will be carried on during the time the Exhibition is open by the Craftsmanship competitions in masonry, painting, joinery, stone carving, carpentry, brickworking, wheelwrighting, plumbing, smithing, and wood carving—and the awards in which will be presented on Saturday next by Sir Arthur Arnold, promoted by the Trades' Training School—will be found some very interesting exhibits, including some choice old wood and stone carvings from the South Kensington Museum, drawings and models of the Tower Bridge from the City Corporation, and a cabinet designed by Mr. J. P. Seddon, which in its decoration illustrates the honeymoon of King Reece, and has panels painted by Dante Gabriel Rossetti, Ford Madox Brown, and Sir Edward Burne-Jones, the work being one of the gems of the exhibit. We are betraying no secret, we believe, when we mention that, with the walnut wood and mosaic overmantel in the adjoining bay, it will form a wedding gift to Mr. Seddon's daughter, and happy must the lady be in their possession. The exhibit of the Della Robbia Pottery Company should also be visited, and with this mention our general remarks upon what is a most interesting Exhibition must close. Altogether Mr. H. Greville Montgomery is to be heartily congratulated upon his present success, and on his prospective wisdom in not holding another similar Exhibition till 1899.

### THE ALBION CLAY COMPANY.

THE most central stand in the commodious Hall is occupied by the Albion Clay Company. That the usual high standard of their display is maintained, a look at Stand 88 will quickly prove. It is carefully set out, and the most striking feature is a system of drainage which the company have laid down showing the application of Sykes' patents. A description of this system will be read with interest. Commencing at the outfall we have Sykes' interceptor which hermetically seals the chamber whilst by means of the screw plugged access-eyes a ready access to the respective drains is obtained. At the same time, it prevents flooding of the chambers, and in case of a stoppage in the system it is quickly detected at the back of the house. This interceptor



will doubtless be well known to many of our readers. It is used very extensively throughout the United Kingdom and abroad—as a matter of fact the patent is at present doing duty at the Cape, in India, in China, and other foreign parts—and there can be no doubt that it discharges its functions very effectively. Connected with this interceptor, in the system under consideration, are Sykes' patent joint pipes, which consist of a male and female thread screwed home, and compressing a composite medium, which will admit of the pipes being laid in or under water. The insertion of junctions in this joint has puzzled many practical men, but the application is clearly illustrated at the exhibition, and it appears to us to be almost as simple as the laying of the pipes themselves. We now came to a junction at the chamber, which is also hermetically sealed by means of Sykes' improved inspection pipes. The next chamber contains a set of Jones and Sykes' patent channel bends, which are designed to prevent the splashing that occurs in all chambers. The extension of the system shows the application of Sykes' inspection block and disconnecting slipper (which, by the bye, the Albion Clay Co. are introducing into Park Hospital, which is under the control of the Metropolitan Asylums Board), and also gullies fitted with Sykes' patent screw-stopper access-eye. The system is completed by the application of a soil pipe shoe, which has an inspection hole fitted with a screw stopper, and a substantial foot to support it and take the weight of a soil pipe. Stoppages frequently occur at the foot of soil pipes through domestic articles lodging at the knuckle bend, and it is in such a case that this system has the advantage over others, in that the blockage is readily released by merely taking up the screw stopper, thus avoiding a breakage of the pipe or a disturbance of the surface of the ground. The system is undoubtedly interesting, and possesses many advantages over other systems we have recently inspected. Coming to the other exhibits of the Albion Clay Company, the well known patent "Paragon" pipes are to the fore. These pipes have their sockets made eccentric instead of concentric, as with ordinary pipes, and the effect of this is to give them a true alignment with the inverts. As every builder knows, ledges are commonly caused in ordinary pipes by the weight of the earthenware forcing out the cement, but in the case of the "Paragon" pipe this is obviated. On inspecting the pipes on view, we found the invert presented a true and even surface throughout. Sykes' patent street gully, which is also well represented, is designed to arrest road detritus—and no gully serves its purpose unless it does accomplish this end. The patent possesses a deep water seal, which, the Company maintain, will stand the hottest weather without becoming evaporated. The outlet to the sewer is well below the surface of the road, where it cannot be affected by steam rollers and heavy traffic, and in addition to this there is a ready access in case of stoppage. These gullies, we are told, have been used extensively by corporations and urban district councils throughout the United Kingdom. Among other specialities which the Albion Clay Company has on exhibition, are Sankey's gully and Keith's flushing trap, and, lastly, a word might deservedly be said respecting the excellence of their stoneware. The Company's "Granitic" stoneware is too well-known to require lengthy notice. It is sufficient to say the body presents a dense and impervious section. One exhibit is conspicuous among the rest. It is a broken pipe—12in. Sykes' patent—with a tale to tell. It was laid in the Stafford main drainage under most difficult conditions, and in some of the worst water-logged ground, viz., running sand and water, and on inspecting the pipe we find the joint was splendidly made—a fact all the more satisfactory because the pipe has not been jointed for exhibition purposes.

#### N.A.P. WINDOW COMPANY, LIMITED.

It is an acknowledged characteristic of the N.A.P. Window Company, Limited, 159, Victoria Street, Westminster, S.W., that everything which this firm takes in hand is

thoroughly well done. The space allotted to them is in the centre of the hall, and the exhibits displayed (many of which are of a comparatively recent date) are one and all distinguished by novelty and undoubted utility. Every speciality is shown full size; indeed it was said that the example of the N.A.P. Asylum Window, which forms a most prominent feature of the general exhibit, is large enough to light anew the darkest mind ever shut up in a padded room. A detailed examination of each exhibit is recommended. The steel in and out opening casements embrace a variety of inventions which have been perfected with great care during the past few years at considerable cost. Every method is guaranteed to be perfectly water-tight in any situation. As the novel parts of each casement form the subject-matter of separate Royal Letters Patent, almost any desired combination of the patented parts is possible. The company is thereby enabled to comply with the special wishes of Architects upon matters of detail. All movable parts are of gunmetal. All non-movable parts are of rolled steel of a high grade, possessing great strength and rigidity. Consequently the casements are much lighter in appearance than if they were of iron. The advantages claimed for these casements are the following:—They open for ventilation in the same way as ordinary casements, and each is secured while open or shut by the usual casement-stay and fastener. When it is desired to clean the outside it is only necessary, before swinging the casement inwards, to lower the sill water-bar in the case of the "slip patent." With respect to each of the other methods, the operations necessary prior to opening the casements inwards are equally simple. Repainting or reglazing can be conveniently done from within, and the injury which the use of ladders (carelessly handled) does to the sills and window masonry generally is thereby obviated. The absence of risk to life or limb attending the cleaning or repair of the casements, enables owners and occupiers to avoid all the moral and legal liabilities generally connected with every "window-cleaning accident."

#### MESSRS. STANLEY BROTHERS.

STAND 99 can scarcely pass unnoticed. It comprises a very striking erection built in different coloured glazed bricks, relieved by red terra-cotta decorations, and glazed Grecian caps and string courses in glazed and red. Messrs. Stanley Brothers have shown great enterprise at the present exhibition, and the cost must be appreciable. The most striking feature of the building is their Diamond Jubilee panel, which we have previously noticed in our columns, and a lion head fountain in red terra-cotta. Both are exquisite pieces of work; and it is not difficult to believe that the Jubilee panel is meeting with general approval. A special feature is made of different coloured brown glazes, string course bricks and roofing tiles in red and white glazed. The white glazed is distinctly new. It can be used to advantage in covering old walls where light is required. It recommends itself on economic grounds, and is generally admitted to be more durable than other materials used for the same purpose. Surmounting the roof are a number of red terra-cotta chimney-pots in very deep colour, and with red ridges and finials of a very grotesque nature. On the stand adjoining are shown the various manufactures of the firm, which includes cane-glazed sinks, blue Staffordshire goods, blue ridges, quarries in red, blue, and buff, 4in. and 6in. semi-encaustic tiles in red, buff, and chocolate. These tiles have been largely introduced in the erection of churches, conservatories, &c., being better than encaustic tiles and quite as economical.

#### BLACKMAN VENTILATING COMPANY, LIMITED.

At Stand 165, the Blackman Ventilating Company, Limited, exhibits some ventilation appliances which are well worth close inspection. Foremost, is the Blackman Fan, which, combined with a steam air-warmer fitted with a bye-pass for cold air, serves in the treble capacity of ventilating, heating, and drying,

and although its powers are thus divided, it has been found very efficient, and has met with considerable approval. Another Blackman Fan, carried out on the same principle, and having a diameter of 48in., unites ventilating with drying, and is also very effective in removing dust, steam, fumes, &c. The Electric Blackman Fans, which are solely for ventilating, are also on exhibition. They are driven by electric current and are specially suitable for ventilating offices, restaurants, or very large rooms generally. The Electric Blackman Fans at present do duty at the Houses of Parliament, in the Hotel Cecil, on Royal Yachts, &c., having withstood the test of time successfully.

#### THE ANAGLYPTA COMPANY, LIMITED.

The Anaglypta Company is showing its well-known decoration on Stand 44. Anaglypta is a comparatively recent production, and has met with a warm reception by decorators, because it gives them the opportunity of producing decorated surfaces bearing the imprint of their own thought and skill. A variety of original effects may be produced by the addition of a few artistic touches to simple scrambled treatment, and a decorator can, therefore, produce many new decorative schemes based on one given decoration. The Anaglypta Company has, perhaps, never illustrated the decorative wealth, the capability of innumerable beautiful colour effects of Anaglypta as in the present Exhibition. Two striking ceilings in high relief are shown with equally attractive dados, fillings, cornices, friezes, &c. One of the company's latest friezes is of a grape pattern in very bold relief, which we are told is the first of its kind that has ever been executed. A dado shown makes a very realistic imitation of wood carving, and treated in dark oak colour has a very fine effect. Anaglypta will doubtless continue to increase in popularity, and the knowledge of decorative effects displayed by the company—or its Artists—no one, we think, will dispute. The decorations are not only beautiful; they are sanitary, and, though made of paper pulp, are very durable.

#### PILKINGTON'S TILE AND POTTERY CO., LIMITED.

This Company, of Manchester, London, and Paris, has on exhibition a great variety of glazed tiles for walling purposes and general use. Several of the examples are distinct specialities, and all are of pretty design. Some of the patterns are by such men as Lewis F. Day and C.F.A. Voysey. The tile first calling for notice is what is called the Cloissonné tile (No. 19). It is quite a new invention in its application to tiles and its object is to prevent the flowing of the various glazes of a design. The effect is obtained by means of a raised line. In another pattern this is reversed. The same effect is obtained by an incised line, and in both cases the result is very pleasing. Very low relief is obtained in another panel of the Pilkington Tile and Pottery Company's show, which will, doubtless, appeal to those who do not care for embossed decorations. Still a further panel shows tiles decorated in colours with a thin transparent colour glazed over, and which produces a soft and pleasing effect. Dados in rich brown, in blueish gray, and in warm madder brown are shown on the stand, the greater number of the tiles being arranged merely for exhibition, without any regard as to definite positions for decorations. The same exhibitors have also on show examples of plain flooring. Their quartzite is specially hard, whilst it also combines the advantage of cheapness. It is made in about half-a-dozen colours.

#### MESSRS. SHANKS AND COMPANY.

MESSRS. SHANKS AND COMPANY, of 46, Cannon Street, E.C., occupy a commodious stand immediately near the public entrance and utilise nearly the whole of the space by an interesting exhibition of their improved baths and patented closets. These include their patent lever syphon closet (which embraces patent Dicksee arrangement for slops), their patent Barrhead syphon closet, their improved



washdown closet, with greatly increased water area, and a similar closet with lead trap, together with their patent *fin de siècle* and other modern baths with accessible waste. Their lavatories are particularly noticeable, and are up-to-date in every respect. Several are fitted on frieze brackets, and, both from considerations of utility and appearance, are to be well recommended. There is a finish about all Messrs. Shanks and Company's goods which the practical observer—or even the casual observer—cannot fail to notice.

#### MESSRS. F. McNEIL AND CO.

MESSRS. McNEIL AND CO., of Lambs Buildings, Bunhill Row, E.C., are not lacking in enterprise. Their patent felts are much *en evidence*. These felts are for roofing under slating tiles and metal, and for lining corrugated iron buildings. For deadening sound it has been proved that they act admirably; whilst they have been found equally satisfactory when used for lining damp walls, for covering cisterns, or for covering hot water pipes and boilers to prevent loss of heat. The Company's patent "Silicate Cotton" or "Slag Wool" is a very essential part of Messrs. McNeil's exhibits. It is shown in various forms for use in building construction and rests its claim for patronage upon its non-conducting, fire-proof and sound-proof qualities. Again on

admirably to decorative treatment—a fact which the Company's stand amply proves. It contains numerous very fine examples, but first of all, a word as to the material may be of interest. Asbestos is a mineral fibre, and is obtained from the Company's own mines in Italy. Its fire-resisting qualities are well known, and are resulting in the "Salamander" decorations being very extensively used in modern works throughout the kingdom. The asbestos after being subjected to special treatment, retains the hard firm impression made upon its surface by the process of embossing, whether in high or low relief, so that the character of the design is not impaired. Another point worthy of note is the plaster-like effect of the decorations. This is amply illustrated in the present exhibition, where there are four ceiling panels and several friezes—scrolls, floral, and swag—which are almost indistinguishable from plaster mouldings which represent a cost almost treble that of "Salamander." "Salamander" is more easily hung than other embossed decorations, and we believe it is especially suitable in cases where it is required to combine effective and sanitary decoration with additional security from fire. The designs on exhibition have been drawn by well-known Artists, and there is a commendable excellence about all. The ceilings, as indi-

#### MESSRS. J. KAYE AND SONS.

MESSRS. J. KAYE AND SONS, of 93, High Holborn, are demonstrating on Stand 52 the superior utility of their patent locks, bolts, latches, and handles. They are the makers of patent bolts, &c., for every kind of door, desk, drawer, window, cupboard, &c., and some of these contrivances show an aptly applied ingenuity which has produced the most satisfactory results. Messrs. Kaye do not make an imposing display; they merely seek to put their wares to the test, and prove their superiority as special contrivances for special purposes. The goods on show are made for railway carriage doors, brougham and other carriage doors, house doors, school doors, prison doors, and many other doors, not to speak of the doors for which Messrs. Kaye's engaged bolts and automatic bolts are specially adapted.

#### MESSRS. CHARTERIS AND LONGLEY.

MESSRS. CHARTERIS AND LONGLEY do not make a very pretentious show. Their stand, numbered 112 E, is interesting none the less. The nature of their goods—wood block flooring—does not permit of grandiloquent display, but in arranging their stand they have not only given an example of the flooring as it is laid upon its concrete basis, but they have neatly incorporated, in the construction of their



SPECIMEN OF "SALAMANDER" DECORATION BY THE UNITED ASBESTOS CO.

the same stand we find the Fibrous Asphalte damp course on foundation felt. It is effectual in preventing damp rising—a fact which we believe is not in dispute. It overcomes the difficulty encountered in the use of slates and pitch and asphalte, viz., the liability to crack. Patent pipe coverings and glues of all kinds are also included among Messrs. McNeil's exhibits.

#### MESSRS. WALTON AND COMPANY, LIMITED.

LINCROSTA-WALTON, or the Sunbury wall decoration, is being exhibited on Stand 69, along with the "Lincrosta-Walton" table mats. A wide range of patterns are displayed, among the newest being a tile dado, by Lewis F. Day, the "Saracen" dado, and a delicate suite in "Empire" style, consisting of ceiling, frieze, filling, and dado, which fully illustrate the beauty and utility of Lincrosta-Walton as a wall and ceiling covering. The table mats have been pronounced as embodying the three greatest essentials—non-conductive quality, freedom from liability to damage under ordinary wear and tear, and possessing an attractive shape and design. The mats are made of Lincrosta-Walton, which is specially adapted to this kind of work.

#### THE UNITED ASBESTOS CO., LIMITED.

The United Asbestos Company, Limited, has made a very pretty display of the "Salamander" decorations. Apart from other considerations altogether, asbestos lends itself

cated, are very plaster-like in effect, two of the panels being in very bold relief, and particularly striking as imitative of plaster work. The fittings include designs in the style of the Italian Renaissance, Old English, Louis XV., Francis I., Oriental, &c., whilst underneath are dados equally representative in style and colour of design. One pattern is worth mentioning as bearing a striking resemblance to wood-carving. The effect was a little heavy, however.

#### MESSRS W. GIBBS AND SONS.

THE Art of glass decoration has worthy exponents in Messrs Gibbs and Sons of Charlotte Street, Blackfriars Road, S.E. They occupy Stand 53, and show work suitable for nearly all needs—for public-houses, hotels, restaurants, and public buildings in general, together with domestic work, and work for churches, &c. The feature of the stand is an embossed decoration embracing Gibbs patent amber staining. A prettier design is not frequently met with. It is a combination of white and gold, and most certainly is a beautiful form of glass decoration. There is much variety of design and also style of decoration; some back painted mirrors being worthy of close inspection. The work has been very finely executed, and its object is, of course, to preclude colours being injured or washed off, and also to avoid a reflection of the design, which are the great disadvantages of mirrors painted on the outer surface. Messrs Gibbs make a speciality of advertising tablets.

pavilion, specimen pieces of the various woods—pitch pine, deal, oak, walnut, and teak—used in the manufacture of the wood blocks. Messrs. Charteris and Longley's floor is commonly known as the Patent Perfected System. The full-sized models on the stand show how well a special grooving provides a perfect key, in addition to forming a rebate for securing the tongue, which is a special feature of the system, in that each block is complete in itself without any auxiliary means of security, such as loose dowels, tongues, or discs, which are so liable to be left out by careless workmen. A good article will come to the front sooner or later, and by sheer merit alone the "Patent Perfected System" has, in spite of its price, won many patrons amongst prominent Architects. Such names as Messrs. Waterhouse and Sons, the late Ewan Christian, Sir Arthur Blomfield, Mr. Aston Webb, &c., figure in a long list, a fact which, in itself, is eloquent testimony of efficiency. The blocks are all prepared at the firm's own workshops, at either Peckham or Crawley, by an ingenious machine, which not only cuts off the blocks to lengths, but forms a special dove-tail tongue at each end, so as to ensure greater accuracy. The material is also specially dried by the well-known Shapland process, which obviates discolouring the wood or the destruction of the fibre. During the last eighteen months, we may mention, the system has been largely adopted in America, and at the present time the firm has in hand contracts in all parts of England.



### THE EXPANDED METAL COMPANY, LIMITED.

THE variety of the applications of expanded metal for building purposes is almost limitless. Further examples of it are shown on the Company's stand—special position No. 3. The expanded steel lathing has been generally accepted as one of the best metallic lathings now on the market. It requires just sufficient mortar to ensure fireproof capacity, for when embedded in the mortar it becomes beyond the reach of fire. Herein lies an important advantage, for a lathing which does not admit of this cannot be absolutely fireproof. The Company also exhibits examples of fencing, tree guards, and all kinds of ironwork for use in horticultural connections. A novelty on the stand is expanded brass. The Company has just made the innovation, and it bids fair to remain. The "expansion" is chiefly made in the construction of fenders, fire grates, letter baskets, &c., with results which compare very favourably with other expanded metals. Expanded metal suspended ceilings are also shown, and among other exhibits may be mentioned concrete and channel iron arched floors, encasing for girders and columns, and other goods in copper and aluminium for various purposes.

### G. WRAGGE, LONDON AND MANCHESTER

THE Metal Company's neighbour, Mr. G. Wragge, of London and Manchester, makes a similar display of ironware. The feature of his stand is a baldachino, which is to surmount the altar of a Catholic Church at Burnley. This baldachino is specially interesting, as it is made solely of hammered wrought iron, and in design is very neat. Mr. Wragge also shows a pair of gates, made for the Leeds branch of the National and Provincial Bank; and a novelty is to be seen in the way of sign lettering. The pattern is worked out in wrought iron with polished copper letters with pleasing effect. Some goods in gun metal will also attract the attention of interested visitors.

### MESSRS. CANDY AND COMPANY, LIMITED.

MESSRS. CANDY AND COMPANY, of 11, Queen Victoria-street, E.C., occupy a central stand, and make a rather large show of their white and coloured glazed bricks and sanitary materials. Coming within this latter category are stoneware pipes, traps, sewer gas excluders, &c., whilst among the numerous kinds of glazed bricks, are included their buff vitrified Olympia stable bricks without cross grooves, their buff vitrified engineering and facing bricks, their Silica fire bricks as used in the Government Dockyards, their buff vitreous stable bricks as used by the War Department for cavalry stables, &c. Examples of buff Architectural terra-cotta are also shown, and are not only artistic but have been executed in very good style.

### THE ENAMELLED METAL DECORATION COMPANY.

THE Enamelled Metal Decoration Company of 97, Queen Victoria Street, E.C., has erected a small building of their enamelled flexible metal known as "Emdeca." It is a new secret process—it has been on the market about a year—and as a wall and ceiling decoration is claimed to be permanent, and a friend of sanitation. It seems to us to be, at any rate, a worthy substitute for tiles, lending itself to very decorative, though not essentially artistic, treatment. "Emdeca" is easily fixed, and being flexible can be put upon any smooth surface, be it flat or circular, without damaging the enamel. "Emdeca" is of that host of decorative materials employed to make every part of the Trocadero Restaurant beautiful, whilst it has also been introduced into the Westminster Palace and other hotels and public buildings. The Enamelled Decoration Company, also shows some lovely panels of hand-painted marble.

### ASPINAL'S ENAMEL, LIMITED.

ASPINAL'S have a pretty villa furnished with furniture decorated with enamel and distemper Wapicti. The effect is very pleasing.

### THE GRANITE SILICON PLASTER COMPANY.

"A MUCH-NEEDED substitute for the common lime and hair plaster," we are told, is granite plaster. And we are inclined to agree. Granite plaster is an artificial stone composition for use in the interior of buildings, and for covering ceilings, walls, &c. It is applied to lath work, brick, stone, or other building material in the usual way, and is very easy and plastic to use. It dries quickly and hardens to such a degree as to well deserve its name of "granite" plaster. How quickly it dries and hardens is illustrated at the Exhibition, where a small structure was put up, and became quite fit for any use within three days. In fact, within twenty-four hours of application "granite" plaster is hard and dense, and will bear rough treatment without denting, chipping, cracking, or loosening. The frequent objection to common lime and hair plaster on the ground of insufficient adhesiveness, certainly cannot be brought against "Granite" plaster. And it is in this respect that it has foremost claim for use in ceiling work, except, of course, in cases where expense is not a very pressing consideration. Then it would obviously be better to use cements of various makes. Granite plaster has also to compete with the different sorts of wood which have come into use for interiors; but here again the special plaster has the advantage, not only on the score of cost, but on account of its incombustible nature. Its tenacity and adhesive power is well exemplified at Stand 43, where the granite has been placed on different surfaces: on one side it is on expanded metal lathing, on another finial metal lathing, and on a third, on ordinary sawn laths, whilst on a partition made of expanded metal the plaster is shown as applied to both sides. The results are most satisfactory, and without a doubt granite plaster has a great future.

### J. P. WHITE, BEDFORD.

ONE result of the Exhibition is to show a tendency towards the displacement of wood chimney-pieces by chimney-pieces made of iron, but however that may be, the fact remains that Mr. J. P. White, of the Pyghtle Works, Bedford, has some of the former on show in every notable design. Such men as J. S. Cooper, G. Jack, W. E. Lethaby, G. Ll. Morris, and C. F. A. Voysey have had a hand in the work, and their excellent drawings have been very artistically interpreted. Mr. White executes general joinery work, but chimney-pieces are his forte.

### MESSRS. W. E. RENDLE AND COMPANY.

AT Stand 67 is shown a model of Rendle's "Invincible" glass roofing. It is a very excellent and durable method, and has been very largely used in the roofing of railway stations. Rendle's has a new system of glazed glass decoration which can add beauty to any building.

### MESSRS. J. CLIFF AND SONS.

THE greatest variety of building material on any one stand is, perhaps, shown by Messrs. J. Cliff and Sons. It ranges from patent bricks to imperial porcelain baths, and includes white glazed channels, patent jointed socket-pipes, Hall's patent hanging tiles, Sherwood's patent partition bricks, chimney-pots, glazed brick fireplaces, and earthenware ornaments of various descriptions.

### M. T. MEDWAY, LONDON.

A SPECIALLY strong and well made self-sustaining dinner lift is shown by Mr. Medway (Deptford) on Stand 33. Hydraulic gears are also made by the same manufacturer, embodying the latest improvements.

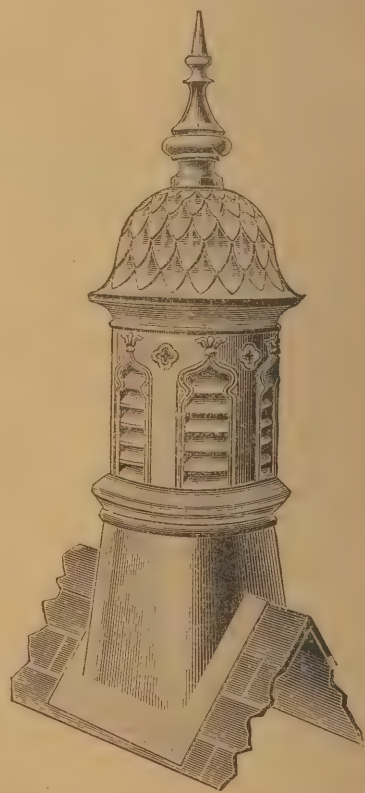
### LONDON HOIST AND CHAIN COMPANY.

"THE latest" in the way of hoists is shown by the above Company on Stand 34. Pickering's twin brake hand hoist is the latest development of the well-known Pickering sack hoist, and is fitted with a spring hand brake placed on the top half of the wheel and actuated by two levers, the brake becomes effective no

matter which chain is in use. The utility of such a brake is obvious. By sustaining a load when hoisting it facilitates labour. But that is common to all hoists with brakes; what is claimed for the brake under notice is that it is free from the jerky action of the ordinary kind of Pickering hoist, and that the application of the brake encircling the top half of the chain groove entirely prevents the chain getting off the wheel. Pickering's patent warehouse hoist is also on exhibition. The hoist is self-contained on its own frame, and, therefore, merely requires bolting down to timbers. The brake is automatic in its action, and the controlling rope can be led over pulleys to any position convenient to the operator, so as to give him full control in handling the load. In addition to hoists of other descriptions, the Company has pulley blocks, crane chains, chain wheels, &c., on show.

### MESSRS. EWART AND SON.

MESSRS. EWART AND SON occupy a conspicuous position in the present Exhibition. Theirs is one of the most interesting—if not the most interesting—shows in what, to the professional man, is a most attractive Exhibition. They have on view numerous examples of deep stamping in copper for Architectural decorations, and the large gleaming figures of Homer, and of Socrates, together with many other devices, cannot fail to attract general attention. It is



a very representative illustration of an Art of which Messrs. Ewart and Sons are acknowledged masters, though prominence has, of course, been given to goods coming most directly under the notice of the builder. A particularly fine Capital is included amongst the exhibits, and also a pair of exquisitely worked figures for erection on pediments. Work is shown similar to that which Messrs. Ewart have carried out at the new Her Majesty's Theatre in the Haymarket, where they have constructed a tower wholly of copper, and amongst these exhibits is a specimen of copper balustrading which is worth inspecting. Perhaps Messrs. Ewart's chief speciality, however, is their copper crown ventilator, of which we give an illustration.

So far as we can see, however, this ventilator aims not so much at supplying an improved system of ventilation as the more modest purpose of providing more "substantial" advantages. Its great recommendation is its rigidity and permanence. Its time-resisting quality equals that of—if not the hills, at least the



walls over which it towers. Another exhibit on the stand worth noticing is their copper "Renaissance" tile, which has already won great approval, and is a form of roofing well known to Architects and builders. It looks well, but it is on utilitarian grounds that it bases its claim for favourable notice. It fixes with a patent clip underneath, and, consequently, there are no holes through which water can penetrate. Ewart's have also a model showing their method of laying their copper flat tiling, which, perhaps, is in even greater use than their "Renaissance" tile. It covers many well-known buildings, and, for an illustration, Somerset House has often been pointed to.

#### J. GRUNDY, LONDON AND MANCHESTER.

At Stand 151 Mr. John Grundy is demonstrating a few achievements in engineering as applied to ventilation. His chief exhibit is a sectional apparatus built in brick work, and which introduces a system of heating by pure warm air. The outer air is received into the chamber and is ultimately conveyed into the various parts of the building. Mr. Grundy also shows "Portsmouth" and "Hestia" stoves, which are independent warm air stoves, and the "Helios" patent smoke-consuming grates, which differ from other grates in the treatment of the smoke by means of heated air impinging upon the smoke, thus turning it into gas. By this means about 30 per cent. additional heating power is gained with the entire absence of dust and dirt.

#### THE SANITARY BATH COMPANY, LIMITED.

The usual order of the Exhibition is varied at the Sanitary Bath Company's stand. Their exhibits, as their name indicates, are baths, but they differ from the ordinary make in that they are lined in copper. The bath, which is known as the Steel-clad Copper Bath, is the outcome of a demand, the makers tell us, for a thoroughly high-class sanitary article. It has received the endorsement of numerous sanitary engineers and Architects, and has, since it was first placed upon the market, been in great demand, not only in America, where it was first brought out, but in England and abroad. The bath is made of Siemens-Martin heavy sheet steel, lined with sheet copper that has been specially rolled and planished, the exposed surface of the copper being heavily tinned by a patent process which, when finished and buffed, resembles electro-plate. The bath is supported by an ornamental frame and feet of malleable iron, and is capped with a handsome rim of natural polished wood, the plug and overflow being nickel-plated. The copper lining is so closely fitted to the steel as to render it impossible to distinguish that two metals are used in the construction. The most important advantage of the bath is its great durability. Another advantage accrues from the fact that this bath is quite open and accessible, and therefore does not harbour the dirt and impurities that collect when baths are encased with wood, &c. It has met with a most encouraging sale. A great demand exists for a cheaper bath, and on the same model as the foregoing one has been produced: this bath is made of strong galvanised steel sheets, enamelled inside and painted any colour outside; shape, legs, and rim being the same as for the copper bath. Great care is used in galvanising the steel so as to ensure an even surface for the enamel. Galvanising also prevents the possibility of rust, even if after years of use the enamel should chip off. In addition to the baths, the Company has numerous bath appliances on view, including a patent bath trap for connecting overflow of bath and trapping without a wiped joint.

#### MESSRS. LINE AND SONS.

STAND 71 in Row 6 is conspicuous, more on account of the Architecture of the pavilion than on account of any unusually pretentious display inside. It is occupied by Messrs. John Line and Sons, of London and Reading, who are making rather an effective show of wall and ceiling decorations. About a score of varying

patterns are on view—large swinging screens in the centre of the erection facilitate the display—all of which are the work of eminent designers, and have been manufactured by Messrs. Line's own printing blocks and rollers. Some of the patterns are decidedly attractive and pretty, and though wall paper is not a form of decoration which appeals very strongly to the Architectural taste—some Architects have been heard to speak very sneeringly of everybody and everything connected with paper decoration—yet it is a necessary form of decoration, and one that will be always with us. Some of the best examples are to be seen at Messrs. Line's stand.

relief; and as all can be placed on the market at low rates, Petruia is likely to be considerably used in the future.

#### THE INCANDESCENT GAS LIGHT CO., LIMITED.

For size there are many stands to beat that of the Incandescent Gas Light Co. But as a bright and attractive show it takes premier honours. Naturally, it is easy to invest this stand with glamour, of which the very prosaic building stands are altogether destitute. The powerful incandescent light sheds lustre all around, and conspicuous among the rest is the "Eclipse" lamp, which, with its three burners,



#### THE MURAL DECORATIONS COMPANY, LIMITED.

The Mural Decorations Company, of 50, Milton Street, E.C., has a large pavilion decorated internally with patent plaster work. The ceilings, panels, mouldings, cornices, trusses, scrolls, &c., are really beautiful, a patent process of undercut relief having worked charming effects in some of the designs. The advantages claimed for the Mural decoration are that it is solid in relief, that it does not alter, cringe, crack, or move before or after being hung, and that there is a substantiality and artistic beauty about it which cannot fail to charm. We have no doubt that the claims of the company are in the main justified; of the artistic beauty of the exhibits there can be no doubt, and we are able to give an illustration on this page of a specimen of their work.

#### B. T. BATSFORD, LONDON.

MR. B. T. BATSFORD, of 94, High Holborn, occupies Stand 117, and has technical works for all engaged in the building trades, including a recent work on "Plastering," by William Miller. On the same stand specimens of Petruia artificial stone, plaster, tiles, &c., are shown, having been manufactured by patent process from slate debris. The new patent plaster is intended as a substitute for lime plaster, and is compounded from the "schist" as a basis, is sanitary, impervious, and fire-proof. The cement, the latest of the plaster cements adapted for plaster work and general building purposes, is mainly composed of a waste of bye-product, of which enormous quantities are available. Petruia paving is exceedingly hard, the slate makes a good roofing tile, the stone is capable of undercut

gives a splendid illumination of 180 candle-power. The lamp, in appearance, is similar to an electric light arc, and can be made with only two burners, in which case the candle-power is 120. This lamp is the latest effort of the Incandescent Gas Light Co., so far as street lighting is concerned. Another system of incandescent gas lighting on exhibition is the "Welsbach" system. The "Welsbach" mantle is constructed by impregnating in the salts of certain rare earths the woven cotton or fabric, which, when dried and exposed to a flame, is completely consumed, leaving a residuum composed of the oxides. These, when suspended, as above stated, over the flame of an atmospheric burner, give out a pure white, brilliant light of an illuminating power highly in excess of any form of gas light hitherto introduced. It is claimed for this patent that, having the monopoly of the rare earths, it is the only system of incandescent gas lighting by which the high illuminating power obtained can be retained with any efficiency for a considerable time. The average duration of a "Welsbach" mantle is 1000 hours, whereas it is claimed that by any other system 80 to 100 hours is the extreme limit. Of the economy of incandescent lighting there can now be no doubt. With the "Gem" burners, which are the newest thing on the market, and which give a light of 35 candle-power, the consumption of gas is represented by the small figures of 1½. Besides, the light is especially suitable for decorative purposes, as the exhibits show.

#### THE RATNOR SAFE COMPANY, LIMITED.

UNDOUBTEDLY the speciality among the Ratnor Safe Company's exhibits which appeals most strongly to those interesting in building



trades, is the iron party-wall door, which has many advantages to recommend it to the builder. It is of very good quality and fits into grooves all round, the stiles and rails being jointless. It is made out of one solid sheet. The Ratnor Safe Company, who are quartered near the public entrance to the Hall, and whose address is 51, Moorgate Street, E.C., have other specialities equally interesting in their way. The chief of them is their improved drill-proof unbreakable bullion-vault and strong-room doors. They are colossal structures, and the weight of the one on exhibition approaches three tons. It would certainly be an exercise requiring almost superhuman patience to drill through the various thicknesses of steel which go to make up the three tons, even were the material to yield at all to persistent effort. Fire-resisting and thief-resisting safes are shown on the same stand, and it may be mentioned in passing that they include one which has been specially constructed for the reception of the valuable plate which Mr. Ernest Terah Hooley is presenting to St. Paul's in commemoration of the Diamond Jubilee. In all these safes the fire-resisting chambers, usually of a breadth of 3 in., have been increased to 3½ in.

#### WALLER'S "GRIP-FAST" TILE COMPANY, LIMITED.

THERE are numerous exhibitors in the tile trade, and Waller's "Grip-Fast" Company certainly comes well to the front. Their pavilion can scarcely go unnoticed. It is one of the largest stands in the hall, and its glaring red roof suggests the rustic cottage. This roof has been specially made in order to put the tiles to the severest test so far as construction is concerned. It embraces dormers, hips, and valleys, to demonstrate to unbelieving builders that the "grip-fast" tile is capable of meeting all constructional ends. The cement tile is not a novelty. It has stood the test of years on the Continent, and in introducing it into England the manufacturers seek to make assurance doubly sure by embracing Waller's patent dove-tail grip and patent water drip channel. The tile is made of the best Portland cement, sand, and other materials, and having a glazed surface, introduced by special process, is impervious to moisture, and generally has great weather resisting qualities. The various shapes of the tile—and there are nine in all—interlock, and thereby handsome designs in different colours are readily obtainable, and, the manufacturers tell us, "a neatness of appearance arrived at which, in these days of elaborate and æsthetic ornament, is so essential." And with its advantages—be they few or many—the "grip-fast" tile entails no increased cost. In fact, the price is below the figure at present quoted for slates.

#### MESSRS. H. HERRMANN, LIMITED.

SOME very good modern examples of wood-carving for builders' work are to be seen on Stand No. 11 in row E, which is occupied by Messrs. H. Herrmann, Limited, of 11, Dod Street, Limehouse. Most, if not all, of the work is not pure carving. It is produced by machinery and finished by hand. For all practical purposes, however, the result is quite as satisfactory, and, of course, much more economical. The central feature of the stand is a railway carriage door, and this, together with the panels, is of excellent cutting, and seems to us to be a vast improvement on old press work.

#### MESSRS. MESSENGER AND COMPANY.

MANY kinds and descriptions of "horticultural" iron work are shown on Stand 77. Perhaps the chief exhibit of Messrs. Messenger, whose London address is 96A, Victoria Street, Westminster, S.W., is a section showing span stove-house 15 ft. wide, with imperishable iron sill, oven tins, condensation rafters and bars. It is filled with a patent lever which gives an opening at both front and roof of the apparatus, thus securing advantages of which ordinary span stove-houses are destitute. There is a plant protector on the stall which must appeal to horticulturists. The frame is of iron with wood lights, and so constructed that the

lights may be set open or lifted out. Messrs. Messenger and Company's valves make an interesting display. They include their full-way syphon valve and their improved throttle valve, in which the working parts are so arranged that they can easily be removed for repair without disturbing the pipes. Other exhibits on this stand are varied, and range from iron walks and kerbs for vineries (which are supported at intervals by brick piers allowing for the vine border under walk being top dressed), to a display of oval tube radiators (both single and double), and also a linen fold ventilating ditto.

#### THE CAMEO WOOD-WORKING COMPANY.

IN the same pavilion as that in which Messrs. Messenger and Company are exhibiting, the Cameo Wood-Working Company are showing examples of their work to advantage. As in the case of their neighbours, Messrs. Herrmann, the work is produced by special machinery, and decorations for dados, cornices, architraves, ceilings, picture rails, screens, &c., are on show. One point in the company's work is worth noticing, and that is that the treatment of the wood prevents the burring or crushing of the fibre, and it, therefore, retains its natural colour and remains perfectly solid.

#### EAGLE RANGE AND FOUNDRY COMPANY, LIMITED.

A VARIED display of stoves, ranges, grates, &c., is made by the above company on Stand 173, but, perhaps, the most interesting exhibit is a kitchen range, having a tile canopy fitted with ventilation contrivances for carrying away the fumes and also for ventilating the kitchen. A feature of this range is an inner glass door to the oven, above which there is a thermometer. On the same stand is a new chimney-top, for preventing chimneys smoking, caused through down-draught. A disc seems to be the most essential part of the apparatus, and the difficulty of sweeping is overcome by the work being so constructed as to allow of the removal of the disc. Another exhibit is what is known as the Gold Medal Eagle Grate, which combines numerous advantages over ordinary stoves. Perhaps the greatest advantage is the easy regulation, by means of doors, of temperature. These doors fold back behind the decorative panels when not in use; when closed the fire may be kept in without attention for a space of something like fourteen hours.

#### MESSRS. ASHTON AND GREEN.

MESSRS. ASHTON AND GREEN make a similar display of stoves, &c., to that of the Eagle Range and Foundry Co. Their chief exhibit is a gold medal *Sine qua non* stove. It has a rising fire, and is fitted with under flues to the oven, so as to provide a uniform heat all round. It is convertible from close to open fires, and all steam and smell of cooking is carried away by patent ventilating appliances. It also has an open fire-hood to regulate the draught. The rest of Ashton and Green's Stand is occupied by various enamelled slate and marble mantelpieces, &c.

#### SOUTH KENSINGTON MUSEUM LOAN COLLECTION.

AN interesting collection from South Kensington Museum occupies considerable space in the Gallery, and consists principally of exquisite wood carving. The list of the exhibits is as follows:—Oak panel, carved in high relief with a representation of the legend of St. George and the Dragon. English; 14th century. Carved oak panelling, from a farmhouse, now destroyed, at Kingstone, near Taunton. English; 15th century. Carved oak door, from a former palace of the Bishops of Exeter. English; 15th century. Carved oak panelling and two plasters from an old house near Exeter. English; about 1600. Carved oak Court cupboard. English; 17th century (with restorations). Carved oak cabinet. English; 17th century (with restorations). Carved oak mantelpiece, with frieze and jambs of carved stone, the mantelpiece from a house in Lime Street, the stonework from Bromley-

by-Bow Palace. English; early 17th century. Carved oak mantelpiece, from a house in Lime Street. English; early 17th century. Upper portion of a chimney-piece of carved oak, from Sir Paul Pindar's house, formerly in Bishopsgate Without. English; 18th century. Organ bellows lever of carved wood, from the church of St. Mary Somerset (Somershithe), Thames Street, built by Sir Christopher Wren in 1695. English; late 17th century. Panel of carved plane wood, from St. Sepulchre's Church, Holborn. English; late 17th century. Porch with door frame and jambs of carved wood, from an old house in Great Ormond Street. English; dated 1707. Panel carved with the arms of Queen Anne. English; about 1710. Lead Cistern, removed from the Royal Agricultural Society's house, 12, Hanover Square, English; dated 1732. Chimney-piece of carved pinewood, from a house in Carey Street, Lincoln's Inn Fields. English; early 18th century. Portions of a frieze and cornice of carved pinewood, from an old house on Richmond Hill. English; 18th century. Chimney-piece of carved pinewood. English 18th century. Clock in inlaid case by "Mansell Bennett, at Charing Cross." English; middle of 18th century. Cornice of carved pinewood, from the Palazzo Bensi Ceccini, Venice 16th century. Metal Casting of Door Plating. The original, of cast bronze, was formerly in the Mosque of Beybars I at Cairo, and is now in the South Kensington Museum. Saracenic; 1266-1268. Electrototype reproduction of a copper door made by the coppersmiths of the Golden Temple of Amritsar, for the Indian and Colonial Exhibition, 1886; modern Indian. Panel of Tiles in imitation of Damascus tiles of the 16th century; made by the Derby Tile Co.

#### MESSRS. MATTHEWS AND YATES.

MESSRS. MATTHEWS AND YATES are trying to solve the vexed question of ventilation. They forsake automatic means and resort to mechanical, which is an absolute necessity under certain conditions—dealing with a smoke-room, for instance. It has been found impossible in practice to move air in sufficient volumes by means of cowls, louvres, and flues, and Messrs. Matthews and Yates seek to remedy the defect by their "Cyclone" air propellers which are built for both continuous and alternating currents. One advantage of the design is that the parts additional to the fan which revolve are close upon the axis, and not, as is often the case, upon the periphery. A 48 in. electric fan, similar to the one on exhibition, has been tested by Mr. W. H. Preece, Chief Electrician to the Telegraphs, who finds that with 250 revolutions per minute, 13,000 cubic feet of air is discharged during the same period. A similar fan, differing only in the motor, made for dealing with alternate currents is on show; and we may state that these "cyclone" air propellers have been fitted up by Messrs. Matthews and Yates at numerous hotels and restaurants, including The First Avenue, The Trocadero, Romanos, and The Criterion. The firm believes automatic ventilation to be a delusion, and certainly is taking effective steps to dispel it.

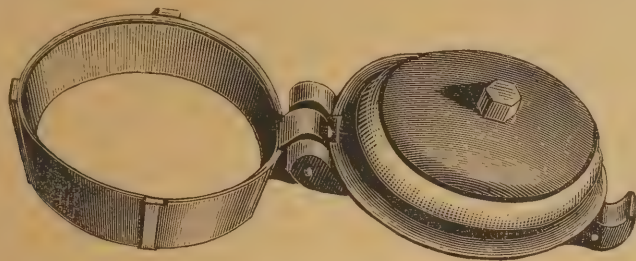
#### VAL DE TRAVERS ASPHALTE PAVING COMPANY.

VAL DE TRAVERS rock asphalt is displayed on Stand 15. It is a limestone rock, naturally impregnated with about 8½ per cent. of bitumen, and comes from the mine at Travers, Neuchâtel, Switzerland. Specimens of compressed paving, cut up from the surface of carriage way after several years' traffic, are shown, and also grit from the seashore employed in proportions in the manufacture of mastic. Mastic is cast into blocks, and on the works, is broken into pieces, melted in suitable cauldrons, and in a semi-fluid condition spread on the surface of a concrete foundation to form paving for footways, platforms, warehouse floors, &c. There are models on exhibition showing section of roof covered with asphalt, and an asphalt damp course in walls, besides other specimens of the material after long usage.

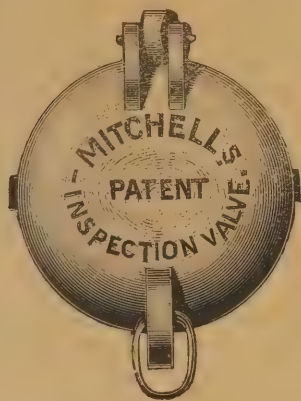


## MESSRS. MITCHELL AND COMPANY.

For something new and novel recommend us to Messrs. Mitchell and Company, of Drury-lane. They make a very large show of fire-glazed goods at the entrance end of the Hall, but their stand is chiefly noteworthy on account of the many specialities, principally in the way of lavatory basins, it contains. In the principle of one of their latest wash-basins they go right back to nature. They provide a mechanical imitation of a running fountain, which obviously does not merely appeal to sentiment. With an incessantly running stream of water, flowing upwards, sediment at the bottom of the basin is unknown. This seems to us to be as it should be. The same principle of a running stream is embodied in another wash basin, shown by



Messrs. Mitchell and Co. This example is older than the one just referred to, and in our opinion is not so perfect, though it certainly answers the same purpose as basin No. 1 in precluding any settlement of sediment. On the same stand we find numerous examples of fireclay slop sinks, and here, too, there is a speciality which arrested our attention. It is a sink which has been constructed to meet the requirements of the London School Board, and is glazed both inside and out; it has a specially large waste fitting with a vulcanite fibre block and a removable grating. Another sink, known as Chrisolm's patent "Ideal" sink, is something out of the ordinary, but its utility beyond preventing overflow does not specially appeal to us. Messrs. Mitchell and Co. have also made a modest attempt to improve interceptors, and in this they have



certainly succeeded. "Mitchell's Valve" consists of a heavy valve flap attached to the mouth of the clearing pipe, and it is so contrived that when dropped it constitutes a perfectly secure joint, whilst at the same time it can be opened by means of an attached chain should the flooding of the chamber necessitate such a course.

## MESSRS. HEATHER AND SCOTT.

A NOVELTY which the present Exhibition has disclosed is the photo-decorated tiles shown by Messrs. Heather and Scott. The process, which has just been discovered, is, of course, a patent, and by it, photographic representations of any subject can be transferred to tiles, and its permanence ensured by an outer glaze. The examples shown include landscapes, numerous figures, and well-known objects of interest; but whether these photo-decorated tiles will ever become generally used time will reveal. Certainly, the discovery is one which others, besides Messrs. Heather and Scott, have long tried to make.

## MESSRS. G. AND F. COUZENS.

THE number of improved and patented sanitary appliances shown at the present Exhibition is something extraordinary. Messrs. Couzens are among the greatest offenders. Their exhibition is confined to a few sanitary specialities, and among others we may mention their patent ball and flap valve gully traps, their ball valve and syphon interceptors or inspection chambers, and their patent ball valve water-closets. The first-mentioned patent is designed to prevent the back flow of tidal or storm water, and the uprising of sewer gas. The action in each case is automatic. In the first example of the patent, any back pressure of water raises a copper ball against an india-rubber seating, thus making an effectual seal. Should the

water evaporate, as is sometimes the case in dry weather, the ball lowers on to the bottom seating, and thus an effectual hindrance to sewer gas rising is secured. In the second example, a door, with a weighted lever, allows water to pass into the gully, and closes automatically; thus it serves the same purpose as in the previous case. The same principle is also applied in the ball valve tidal interceptors, whilst it affords an easy access to the drains, and would greatly facilitate operations in case of a stoppage. In the mechanism of the syphon interceptor, or inspection chamber, the iron cover joints are gas and water tight, being bedded in suitable material and secured to the earthenware with brass screws. They are therefore self-contained, and in most cases brick manholes and manhole covers are not necessary.

## JAMES JONES, BIRMINGHAM.

THE latest patent for providing reversible window-sashes has been brought out by Mr. J. Jones, of Birmingham—Stand 113—whose fittings have been pronounced by authorities to equal in simplicity and effect those of any at present on the market. With Mr. Jones's system no springs, pivots, or extra woodwork are required. Part of one inside bead is hinged to allow the bottom sash to be taken out of the frame. Part of one parting bead is of brass or iron attached to the pulley stiles with pins. The cords are attached to lower part of sash stiles, and act as centres to reverse the sashes. Thus the windows can be cleaned, the glass repaired, and the woodwork painted inside the room; and another point—the old sashes can be made reversible just as well as new.

## MESSRS. R. CRITTALL AND COMPANY.

IT is satisfactory to note the efforts made by heating and ventilating engineers in bringing their various appliances nearer perfection. Messrs. Crittall are to the front, and are exhibiting their latest patent in the way of ventilators. The "Honeyman" is made both with a single and double diaphragm, the first for fixing in open timber roofs, and the second for use in roofs with closed ceiling. A 12in. "Honeyman" ventilator, when acted upon by the wind, has an exit area of 144 superficial inches, which is equal to the exit area of most turret ventilators of very much greater diameter. Another point of importance is that the exit area of this ventilator is very much increased when there is a dead calm, and it thus overcomes a great difficulty encountered in other varieties. Messrs. Crittall also have on their stand-radiators, cast in separate sections and put in with nipples which are screwed right and left. They are made in plain and ornamental patterns, the company having made and fixed 25,000 superficial feet in all parts of the kingdom.

## C. WATSON, NAPTON-ON-THE-HILL.

MR. C. WATSON, brick and tile manufacturer, of Napton-on-the-Hill, near Rugby, makes a quiet show of sanitary materials, tiles, chimney-pots, &c. His stand is near Messrs. Stanley Brothers. His principal exhibit is his improved patent roofing tile—and, by-the-by, the number of patent tiles in this year's exhibition is something extraordinary. Mr. Watson, however, works on new lines, and his patent is designed for the purpose of preventing rain from being beaten underneath the tiles and into the roof. To obviate this is a laudable object. The ridges of the "Fluted Faced Tile," as Mr. Watson calls his patent, ensure the equal distribution of the rain over its surface, and the stops at the end of fluting, which are about two inches above the bottom edge of the upper tile, prevent the rain from being driven further up the tile, and at the same time the fluting provides a ready means for its down flow. The use of the tile certainly does not detract from the appearance of a building, and its chances of success are therefore by no means remote.

## MESSRS. WOOD AND IVERY, LIMITED.

STAND 101 is occupied exclusively by the durable blue brick of which Messrs. Wood and Ivery, of West Bromwich, are very large manufacturers. Almost every kind of blue brick is on view—bricks for sewerage work, railway work, footpath paving, stable paving, channelling, &c.—and samples are included of the bricks being supplied by Messrs. Wood and Ivery for the great Midland water-works scheme. Of course, the great thing about the bricks is their durability. They are absolutely impervious to damp and moisture, and as a solitary instance of durability the exhibitors point to Charing Cross, where their bricks have been used for thirty years, and are as sound to-day as ever.

## L. TOLD, DUNDREY, BRISTOL.

HIDDEN in a corner of the great Exhibition is an interesting exhibit in the shape of a model of Dundry Tower, made of Dundry free stone. Many Cathedrals in the West of England and in Wales are built of the same stone.

## C. H. BROODBANK, LONDON.

THERE is an unassuming exhibition of French and American slates on Mr. Broodbank's stand, Bay 22. The French slates are manufactured of material from the quarries of Messrs. Larivière and Company, of Angers, and the quality is claimed to be equal to the average Welsh slates. A large quantity has been imported into England during the past few years. The American slates are from the Bangor district, and the rate of importation during the last two years has greatly increased, the slates having even found their way into South Wales. Mr. Broodbank also shows some French steel-wire ropes for building purposes, and maintains that they stand as high a tensile test as the work of any of the English makers.

## THE LINOLEUM TILE COMPANY, LIMITED.

STAND 76 is given over to a display of linoleum tiles. They are specially adapted for use in churches, hospitals, clubs, &c., as they are noiseless and not slippery. They are made in many patterns and colours, and can be laid on wood, stone, or cement.

## THE PARAGON PATENT GLAZING AND ROOFING COMPANY.

THIS company occupies Stand 126, and shows practical illustrations of patent glazing and roofing, which it is maintained not only combines all the advantages of other systems, but also incorporates new features. Its chief aim is to surmount the disadvantages involved in the periodical painting, &c., of ordinary glass roofs, and to accomplish this aim, it substitutes simple locking internal fastenings for bolts and screws, and omits outside fastenings, thus removing the difficulty of corrosion resulting from the action of the atmosphere consequent upon iron being used in contact with zinc or other metals.



## MESSRS. WILSON AND COMPANY.

THE trade is in want of a good pavement light, and Messrs. Wilson and Company, who are exhibiting on Stand 35, offer a light which is so constructed as to prevent slipping, and also to meet the objection so often raised to projecting studs on the surface of the lights. The upper portions of the frames are made entirely of lead, and, therefore, provide a firm foothold and give an opportunity for decoration in the way of lead bars intersected with ornamental tile or mosaic work. Messrs. Wilson and Co. also have a horizontal light which prevents the moisture formed by condensation falling on anything below. We can strongly recommend these lights.

## LYTE'S METALLIC WOVEN STAIR TREAD COMPANY.

THE above company shows a model, on Stand 29, of its woven stair tread, the charm of which is the pleasantness of the tread. In durability it ranks before lead, and it has already been largely in demand.

## MESSRS. SUTTON AND COMPANY.

BUILDERS may rely upon seeing something new on Messrs. Sutton and Company's stand. Their exhibits include more than one notable novelty in sanitary goods, and first of all we may mention Rayner's key-joint and double socket pipe, which is made in two different ways, No. 1 with a stoneware inner socket, and No. 2 with a composition inner socket. The advantages claimed for the patent are that it is self-centring, key-jointed, watertight, and that the cement cannot be washed out of the socket. Messrs. Sutton have numerous examples of Green's patents on their stand, and they include his "stopless" disconnecting and ventilating interceptors, S. and P. traps, and soil and ventilating hoppers, stoneware channel blocks, &c.

## THE SOUTH WESTERN POTTERY.

ANOTHER display of stoneware pipes is made by Mr. George Jennings, of the South Western Pottery, Parkstone, Dorset. As a display it, however, falls far short of that of the Albion Clay Company. There is a great variety of pipes on the stand, all made from Dorset clay.

## MESSRS. BRATT, COLBRAN, AND COMPANY.

MESSRS. BRATT, COLBRAN, AND COMPANY have a collection of stoves, ranges, grates, &c., which are noteworthy more on account of newness of design than structural improvements. They show a wrought iron dog stove, which has a square recess lined by five by five Dutch tiles, with copper balls on dogs. Other exhibits attracting attention are a fine mantel, painted white, with a double row of six by six Dutch tiles on the flat, and a mantel of Jacobean design, with marble slips and wrought iron stove front, a copper hood, and copper discs. The combination of colour in this mantel is very pleasing, the tiles being of a pinkish madder, and the marble slips and kerb in levanto. All the designs are the work of Mr. Oliver E. Bryan, but the Company also executes special works for Architects.

## PETRIFITE, LIMITED.

"PETRIFITE is one of the most startling of modern discoveries" we are told. It has not long been upon the market, and is consequently little known. Its use is for solidifying materials without mechanism, and it is claimed that all materials, no matter of what nature or description, are equally apt subjects for treatment. Remarkable results have already been obtained, and some authorities have gone so far as to say that Petrifite will revolutionise the whole building trade. With it, articles of use and beauty are manufactured from such materials as ashes, destructor refuse, garden mould, slate, sand, straw, road sweepings, and an endless variety of things of little or no value. Building materials composed of such ingredients are shown in the present Exhibition, and must be quite a revelation to many. Its facility of application and great durability, together with its cheapness, must give it a leading place for decorative purposes.

and as evidence of its durability—if evidence be needed—there is shown a pipe which was taken out of the ground in a perfectly sound condition after having laid there for twenty-five years. Professor Tyndall's patent—double seal pipes—is on exhibition, and the advantage claimed for it is that it supplies a perfect joint. It is a justifiable claim for, in addition to a composition which makes the joint watertight, matters are made doubly secure by an additional cement joint. The patent has been on the market for some time, and has been used very largely in Government works. An exhibit on the same stand, with a greater claim to novelty, is a glazed stoneware electric cable conduit. It, also, is made of Dorset clay, and when used, a junction piece may be added at any time without disturbing the conduits. Mr. Jennings has also some terra-cotta work on show.

## THE LONDON MOSAIC COMPANY.

The London Mosaic Company is making an unpretentious but interesting show of mosaic work, for both decorative and flooring purposes. It occupies Stand 86; the firm's address is 13, South Wharf, Paddington, W. Italian marble, Ceramic mosaics, stained glass, mural painting, parquet and wood block flooring, encaustic tiling, marble tiling are its specialities; the parquet flooring being worth special mention for the decorative patterns and high finish of the work.

## ADAMANT CO. LIMITED.

THE qualities of Adamant as a patent decorative plaster, are well extolled by the structure in which the company is exhibiting. The external appearance is rather striking. A highly decorative arch is surmounted by a frieze, cornice, and spandrels, the whole supported by fluted columns. There is a double entrance, and the panels in the interior exhibit Adamant in different qualities, the best being capable of a very high polish. The plaster can be set up in any design in extreme frost, and can be painted and decorated before the men leave the scaffold. It is claimed that Adamant does away with warping and shrinking of doors and casings, as water is not required as in the case of ordinary plaster, and that it does not absorb germs of disease. "Adamant," however, is not so cheap as plaster.

## LIMMER ASPHALTE PAVING COMPANY, LIMITED.

STAND 70 is full of specimens of the Limmer Asphalt Paving Co.'s work, of the raw material as it comes from the mines, and as powder, when the rock has undergone the grinding process. Excellent testimony to the durability of the asphalt is borne by two pieces shown on the stand, which have been taken up from City roadways after lengthy service, and which are nevertheless in a perfectly sound condition—as hard as the proverbial rock. Blake's Patent Bituminous Culvert is also shown; it is constructed to receive all kinds of wires to be laid underground. It is rather an ingenious patent, and answers its purpose well.

## MESSRS. YATES, HAWOOD, AND CO.

THE most notable exhibit on the large stand occupied by the above company is, perhaps, an example of the latest invention in cooking ranges. It is known as the patent "Quadrant" Kitchener, which not only recommends itself on economic grounds, but has the great advantage over older ranges in that it gives a uniform heat throughout the ovens. It has a self-adjusting lifting-fire, and can be raised or lowered to any point with one hand. The moveable parts do not come in contact with the fire, and consequently the apparatus is not specially liable to be thrown out of order. The "Quadrant" is made either with single or double ovens, and seems to be up-to-date in every respect. A massive iron mantel is also shown on the same stand, and though it does not lend itself to the same decorative treatment as wood, the utilitarian mind will at once approve of it. Wood mantels and overmantels are also exhibited along with other patents in fire ranges.

## A. T. COOPER, LONDON.

ANOTHER exhibit, more or less novel, is a patent suction and vacuum pump, shown by Mr. A. T. Cooper, of Moray Road, London, N. The pump is a simple contrivance in which a rubber disc is the most essential part, and in working it for the removal of obstructions in drains, soil pipes, baths, sinks, stack pipes, &c., the disc is placed on the surface of wherever operations are to be carried out, and by the strong suction of the pumps action, obstructions, provided there is no structural difficulty, are speedily removed.

## MESSRS. PILKINGTON AND COMPANY.

STAND 134 is occupied by examples of the Seyssel asphalt paving, Poloucean asphalt paving, and asphalt roofing, on Pilkington's patent system. The Seyssel asphalt is a natural product procured from the mines in the district of Seyssel (France), and is especially suitable for covering flat roofs and terraces; whilst it can also be used, with satisfactory results, for paving corridors, courtyards, tennis courts, and so forth. Poloucean asphalt is superior in quality to Seyssel, and is especially manufactured for paving carways, approaches to warehouses, &c., where very heavy traffic occurs. One advantage it possesses in this respect is that its surface can be grooved, to render a foothold for horses. Applied tests have amply proved the durability of Messrs. Pilkington's asphaltes.

## W. S. FOSTER, LONDON.

MR. W. S. FOSTER shows, at Stand 32, a bay window and carriage door fitted with his patent spring and rack. It is rather an ingenious device for maintaining window sashes open with the desired depth of aperture. Its construction makes it especially useful for railway carriage windows; but it can also be applied to sash windows of any kind. Its use in sash windows enables the centre and sides of oriel and bay windows to be opened. Window inventions are plentiful, but Mr. Foster's patent is obviously sound and useful.

## MESSRS. RANDALL BROTHERS.

"THE effect of white tiles or glazed bricks at one-tenth the cost" is something which must recommend itself in cases where economic laws press heavily. This is what Messrs. Randall Brothers claim for their Paris white japan. Moreover, they maintain that, on sanitary grounds, it is superior to white tiles as it leaves one continued smooth surface with no interstices or crevices for the lodgment of dust, germs, &c. It is equally pliable on plaster, cement, bricks, wood, or iron, and the finish, as shown in the firms exhibits, is more than satisfactory.

## W. OSMENT, LONDON.

MR. W. OSMENT, of the Clapton Steam Joinery Works, shows numerous examples of spiral, plain, square, and ornamental turning. Mr. Osmont also exhibits his patent window fittings, which allow of new sash lines being inserted without removing the beads—except a small piece of the parting bead.

## THE CORK PAVEMENT CO., LIMITED.

GREAT advances have been made in street paving during the last fifty years. But there is still much to learn. The Cork Pavement Company, however, is taking a leading part in present day improvements, and associated with its paving are as many qualities as have yet been combined with any one brick. Its durability alone would be a sufficient consideration to keep it well to the front; but happily it combines other virtues—it is non-slippery, practically noiseless, almost non-absorbent, sanitary and cheap. As the name implies the bricks are made of cork, and are combined by an ingenious process with a description of bitumen. The material, says Professor Redwood, is remarkably tough and cohesive, and is sufficiently elastic without being too easily compressed or indented. The bricks can be used not only as a road paving, but they can be introduced into stables, coach-houses, lavatories, &c. The company's stand is floored with these bricks.





### Gesso Duro as a Decorative Material.

Now that the revived gesso duro has apparently taken a permanent place as a material for Decorative Art, a short history and brief description thereof may not prove unacceptable to my readers, especially when it is borne in mind that specimens of the work form regular exhibits at our Art Schools and at the Royal Academy, while it is also of great use to modellers and decorators. At the outset it may be as well to point out the difference between stucco and gesso duro, as gesso, burnt gypsum, or plaster of Paris, is employed in both. Vetruius, a celebrated Architect of the time of Cæsar Augustus, gives a recipe for stucco for painting upon, consisting of slaked lime or gypsum (plaster of Paris), which were to be mixed with water; and he particularly insists upon the materials being well soaked, in order that the burning properties of the lime might not injure the pigments. The Romans of ancient days were very proficient in the employment of stucco work, though they were not the first to use it. Soaked lime dates back to very early times, for we find that the highly-decorated mummy cases of the Egyptians were made of linen saturated with acacia gum, and moulded into form, which, when dry, becomes exceedingly hard, forming a thin shell, afterwards primed inside and outside with soaked lime, thus forming the white ground upon which the designs were drawn, with the colouring and gilding filled in as handed down to the present day. The secret of the colours retaining their pristine brilliancy is that the lime or plaster had been previously well washed. The employment of stucco was not confined to the minor part of ground- ing, for about the period of the second century gesso was used for ornamentation, as borders composed of it have been discovered, having a continuous design placed round the portraits in the wooden coffins containing mummies from Fayum. It was, however, at a much later period that stucco reached its perfection, and the Villa Madonna at Rome is one of the finest examples of this work that can be found. It was designed by Julio Romano, who executed the paintings, while the reliefs are in all probability the labour of Giovanni da Udine, a noted workman of the time in stucco. Coming to more modern times, there are many ceilings in houses of the eighteenth century which are admirable specimens of stucco, being the work of a colony of Italian Artists settled in London, but who travelled around the country. Working in gesso may be said to be a painter's rather than a sculptor's Art, as it roughly consists in covering the surface with a mixture of plaster of Paris and glue, or similar composition, high relief being obtained by repainting the parts desired to be raised, and still higher relief by modelling with teased wool soaked in the plaster and glue, and when dry being painted or glazed in colours. Gesso duro has precisely the same basis as stucco, viz., gypsum, or plaster of Paris, but it is mixed with glue or size while warm and in a liquefied state. It is with this mixture that decorative works of the fourteenth, fifteenth, and sixteenth centuries were made, and Cermينو Cermينو, who lived in the fourteenth century, has

handed down to us a considerable amount of valuable information on the Arts of that time, the instructions in which apply equally to modern work, and for which we are indebted to some of the recipes given in succeeding lines. He begins by giving instructions for preparing wood panelling with strong glue made of parchment, which must be of a consistency to stick the hands together. The panel was to be made level by having knots cut down and holes stopped, and, a coat of parchment size having been spread over, Cermينو proceeds as follows: "Get some linen cloth, old fine white, and free from grease; take your best glue, cut or tear the linen into large and small strips, soak them in the glue, and spread them with your hands over the surface of the panel, leave it to dry for two or three days; when very dry, rasp it well. Then take some

panel before priming, which was then to be passed over the whole, clearing up the design after each coat, and giving two coats of gesso sottile, or fine plaster, to finish with. The recipe for making the fine plaster is thus: "This is made from the same plaster as the first (gesso grosso), but it must be well washed (purgata), and kept moist in a tub for at least a month, until it almost rots (marcise), and is completely slaked; it will become as soft as silk; throw away the water, make it into cakes, and let it dry." The following gives the finishing process: "Having laid on the gesso grosso, rub down the surface, and polish it well; put some cakes of gesso sottile into a pipkin of cold water, let them absorb as much as they will. Put a small portion at a time on a slab, and grind it without adding any more water, and when you have sufficient put it in a



DOORWAY TO CLOISTERS OF S. GREGORIO, VENICE. BY HOWARD INCE. SEE PAGE 102.

gesso grosso (which is really ordinary plaster of Paris) sifted like flour, put a porringer full on the porphyry slab, and grind it well with this glue as you would colours, collect it, and put it on the surface of the panels with a large spatula, then take some of this ground plaster and warm it, for by this time the glue will have chilled, and materials mixed with size should be used warm. Take a soft hog-hair pencil, give a coat over the cornices and foliage on the even surface with the spatula. Procure some small iron rods, and with these pick out all the cornices and foliage which are not flat." Referring to the same authority, it will be found that the raised work was done in two different ways; the first of making the prominent parts of plaster of Paris, and glue on the

piece of linen cloth, strong and white. Take some of the same glue with which you tempered the gesso grosso, take a new glazed pipkin, take a cake of the damp gesso, scrape it fine with a knife as you would cheese into the pipkin; put more of the glue on to it, stir the gesso as you would paste for making fritters, smoothly and evenly, until there are no lumps in it. Procure a cauldron of water, put into it the pipkin of gesso, thus it will become warm without boiling; when warm, take up a proper quantity of the gesso with a soft hog's-bristle pencil, and spread it evenly over the level surfaces, the cornices, and the foliage. The first coat should be spread and rubbed in as much as possible with the fingers and hand, to incorporate it with the gesso grosso. When this has



been done spread again with the brush without using the hand, letting it dry partially; then pass over a third time with the brush, and let it dry. Then give a coating on the other side in this manner, keeping the gesso warm—giving eight coats. Foliage and reliefs require less. This finishes the first process, and the second is as follows:—"How to prepare grounds of gesso sottile: First pass glue three or four times over the panel and all small and delicate works; give as many coats as from experience you find them require." For small panels and delicate work the glued down strips of linen were not necessary, but till a late period pictures were painted on linen, glued in one piece on to the wood, and in the *cassone* of the fourteenth and fifteenth centuries two very fine specimens of which were exhibited at the New Gallery two years since, while others are to be found at South Kensington—the chests were always covered with the linen cloth and then primed with gesso. The linen may be seen at the broken edges of the chests, and it serves to distinguish them at once from the chests of carved wood. When no gesso grosso was used the size was made thinner, water being added to the glue used in preparing the gesso. In working, the panel having been prepared, the design was sketched in in ink on the flat portions, while those which were to be gilt were outlined with a needle. Fringes, borderings, cornices, and foliage were now to be raised with the gesso sottile, a little bole being mixed with it to prevent any minute defects in the gilding and linning, and to make the gesso a stronger mordant. In doing the raised work, the instruction proceeds: "Having the gesso in a vase on hot ashes, and other vase of hot water (because you must wash your pencil frequently, and this pencil must be of miniver, the hair fine and long), take a little of the gesso on the point of the pencil, and with it raise what figures you wish in relief. If you make any foliage draw the design previously, and be careful not to relieve too much. The clearer you make the foliage the better you will be able to make the design." It was at this stage of the process that the imitation gems of coloured glass were introduced, such as are to be found in the works of Crivelli and other Artists of the fifteenth century, a good specimen of which is to be found in the altar piece by this Artist in the National Gallery, where the crown and dress of the Madonna are so enriched. This work also affords means of studying relief work in gesso, and the Tuscan School affords many other fine examples. In the sixteenth century, however, working in gesso fell into disuse, the last remnants of it being seen in the bodies of costumes painted by Perugino, the greater Artists ignoring it altogether. In the fifteenth century, it was very extensively employed for modelling on a large scale, and it is more than passing strange that so convenient a medium for modelling on an extensive scale, especially for works to be cast in metal, should have been so utterly ignored in England till quite recent times—in fact, till 1886, when Mr. G. F. Watts, R.A., was commissioned by the Duke of Westminster to execute a colossal statue in bronze of Hugh Lupus. It is to Mr. Watts that Artists are really indebted for the introduction of this handy medium into England, which should be specially welcomed by Decorators, be they masters or journeymen, although the Japanese have made use of gesso work in their lacquer work from the earliest times. For the interior decoration of our Churches, gesso should be particularly adopted, if properly designed and applied, but the site and surroundings of the decoration should be taken into consideration. Gesso must not be in too high a relief, or it will probably crack, but it should be only sufficiently raised to afford a good

ground-work for decorative painting. With such a groundwork, true colour can be used with greater freedom and daring than it is possible on the flat, and for a cheap, simple, and highly effective decoration for the interior of halls and Churches, there is not much to beat properly executed artistic gesso work.

#### DOORWAY TO CLOISTERS OF S. GREGORIO, VENICE.

ALL students of Venetian Architecture, and, we may even say, all visitors to the Queen of the Adriatic, will remember the square-headed, almost square doorway giving on to the Grand Canal, just before it curves past the steps of Santa Maria della Salute. Our illustration is from a measured drawing by Mr. Howard Ince, and is interesting as an illustration of the free, we may fairly say free and easy, way in which the enrichments on the flat moulded architrave are set out. The result is not at all disturbing—it has even a certain quaint charm; but who would dare to set out such a piece of detail nowadays. A further charm, which a monotone reproduction can only vaguely suggest, is found in the rich stains and colouring which Time, who is now very fully occupied at Venice, has thrown across the marble, bringing it into the happiest harmony with the surrounding brick-work.

#### ARCHITECTURAL PHOTOGRAPHY.

IN the first of a series of illustrated articles on this subject in the "Amateur Photographer," Mr. G. A. T. Middleton says that Architecture and Photography appear at first sight to be Arts of such utterly diverse character as to have no points in common whatever. But first impressions are often mistaken ones. All Arts are one, in fact, and though some are more closely related than others—Sculpture, for instance, being more closely akin to Architecture than is photography—the family resemblance is always to be found if sought after. When it is intended to represent one Art through the medium of another, there must be this seeking else a wrong impression will probably be conveyed, and in the photographing of Architectural objects there is, or should be, this representation. Too often the result is a hard unfeeling view, utterly devoid of sentiment, however much there may be in the building represented—a photograph has been taken, but the camera has been treated as an exact scientific instrument, and not as a workman's tool capable of responding to its master's touch. The difference is precisely that between Architecture and mere building—the one instinct with life and feeling, the other no more than a heap of materials scientifically pieced together to enclose a room within four walls. Here it is that the

#### POINT OF CONTACT COMES.

Architecture and photography are both reflective Arts, and so he who would photograph Architecture aright, not for the purpose of scientific diagram making, but to represent the effect produced on the senses by the object illustrated, must have at least some idea of what sentiment may naturally be expected in any given building, else, not knowing, he cannot look for or find it. Architecture has at all times reflected the feelings and aspirations of the people among whom it has flourished, and in some instances is the only index left to us to show that the nations of antiquity were not composed of dolls or automatons, but of living, thinking, loving, hating human beings, like unto ourselves. The Pyramids of Egypt, for instance, tell of a people to whom stern simplicity, solidity, and mass, as representing power, were more than that elaboration of detail which indicates refinement, this being found in its highest perfection in the Grecian work of a much later date, applied to hard and rigid outlines mathematically corrected to produce the effect sought after—indicating

cultivation of mind, but little soul. Then Rome, with its aggressive militarism and its sensuous private life co-existent, is magnificently exemplified to us by the stern remains of aqueducts, and roads, and forts, and by its gorgeous carving and mosaics. Then in England alone we have

#### BUILDINGS WHICH TELL ALOUD

to him who cares to read of the life of our forefathers as nothing else can do. There is the stern work of the Norman feudal lord, followed after but a short interval by the elaborate soul-elevating Early Gothic of the days of chivalry. The Norman buildings of the twelfth century, with their thick walls, massive construction, semi-circular arches and flat proportions, all, whether castles or Churches, speak out of the masterful repression by the mailed warrior of a subject people; and the contrast is most marked with those of the following period, having thin walls, lofty proportions, and elegance both of general form and detail, all combined with perfect workmanship. It was an age whose spirit is best appreciated in its Architecture—an age of lofty aspiration, true nobility and manliness, when the armed men lived for honour. It was the time of the Crusades, when everyone, and all they did, was inspired by a noble, even if we now think in some respects a mistaken, Christianity, and our great Cathedrals and Abbeys, as well as our village Churches are, all alike, the monuments of the age, reflecting its glorious energy and its high ideals. But, as at all times, excessive zeal soon wore itself out, and the brilliant early Gothic period in France and England was as evanescent as had been the brilliant age of intellect in Greece. First came development and then deterioration in the objects and in the lives of the people, reflected, as it was bound to be, by the Architecture. The Ecclesiastical work showed the change most plainly, as the simply living, holy men of early monastic times were succeeded by those who put ostentations display first. There is always something substantial, however, in English Architecture, redeeming and often obliterating the defects of even the most luxurious times, and rendering in stone the difference of character between the English and the Continental nations. If it is all this which Architecture tells, it is this, likewise, which photographs of Architectural subjects should reflect. Find out what your building means, and endeavour to represent that rather than the dry-as-dust Archaeology of moulding and of date.

#### SETTING OUT PROBLEMS.

##### No. III.

WE have pleasure in announcing another of the series of Problems it is our intention to give from time to time, as stated in our issue of May 20th last.

##### PROBLEM.

It is required to take a cross-section of the bed of a river, shewing the depth at every 10ft. along a given straight line lying nearly at right angles to the stream. The banks slope gently to the water, which is known to be about 100ft. in breadth, and not more than about 8ft. or 9ft. in maximum depth. Circumstances preclude the erection of temporary staging. A small boat is available for use; but owing to the current it is found impossible to row her along the line of section to take soundings with the requisite accuracy.

To the authors of the first ten correct solutions of this Problem received at the Office, Volume IV. of THE BUILDERS' JOURNAL, bound and gilt-lettered, will be awarded. Solutions should be addressed to the Editor, and marked "Problem" on the envelope.

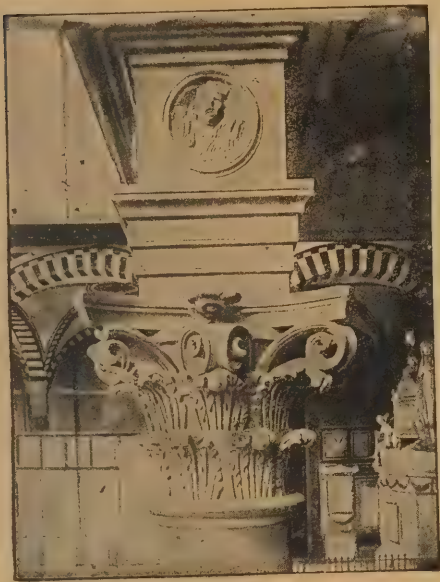
The postal authorities have not yet intimated their decision as to the selection of a site for the new Post Office for Aberdeen. The general belief is that Guild Street will be finally chosen as being the most suitable position.



## ITALIAN RENAISSANCE ARCHITECTURE.\*

THERE is no need for the almost apologetic terms in which Mr. Anderson introduces his book to his readers. It has long been needed, for it gives a clearly-written, dispassionate account of the wonderful designs made between the years 1420 and 1700, which, viewed as a series, form the Architecture of the Renaissance in Italy.

Had he done no more he had done well, for it may be said that, hitherto, the writings on this subject have been inspired by a strong partisan spirit, the real origin and meaning of the designs being obscured in the endeavour to prove that they illustrate either the greatest or the most disastrous period in Architectural history—according to the personal prejudice of the writer. Seeing the faults of the later (decadent) work as clearly as



CAPITAL MEDALLION PAZZI CHAPEL,  
FLORENCE. BRUNELLESCHI, ARCHITECT.

the merits of the earlier and culminating periods, Mr. Anderson is not merely more judicious in his criticism, but more scientific in his method. Concisely, and without missing a point, he traces out the causes from which the movement sprang, he shows us the circumstances and surroundings which, acting on the individuality of the Artists, led them inevitably and almost unconsciously to design as they did. It is this careful enquiry into the motives which gives his book its greatest value, and enables the student, for the first time, to grasp the true significance of the movement: the conclusions to which this enquiry lead, emphasising as they do the main principle of good design, its most essential quality—vitality, make the book moreover one which is worthy the study of all.

Assuming that the student of the Renaissance will be to some extent familiar with the ancient Roman Architecture, Mr. Anderson tells him that "almost equally essential to a proper understanding of the revival is an acquaintance with the Romanesque and Italian Gothic styles, in the variations of which there is a vivid picture of the struggle of the races which peopled Italy in the Mediæval period. St. Mark's, Venice, St. Ambrogio, Milan, Pisa Cathedral and San Miniato, Florence, are, for example, contemporary Churches; Byzantine, Lombard, Romanesque: without the slightest cohesion of style, except in so far as they represent the modifications exercised by different peoples upon the Latin element which lay underneath. . . . The necessity

for the study of the interval separating the Roman era from the Italian revival may not be so apparent, seeing that it is generally believed that the Italians of the fifteenth century took up Architecture at the point where the ancients laid it down. This they did eventually, but any such view of the origin of the Renaissance Art is not only incomplete, but wrong. Though the suddenness of the change and the sharpness of the cleavage may have been unparalleled in history, it was impossible that hand and eye and mind should not have been unconsciously, even unwillingly, tenacious of what had been their habit through generations. Renaissance Architecture had a long experimental career . . . and was modified throughout very materially by all the work of the Mediæval period." It was this grafting of new methods on old traditions which formed the strangest of the early Renaissance in Italy, since it preserved the vital power of expression; that it "eventually degenerated into something like formal copyism and died in affectation . . . is an indication that a style which ceases to conform to the spirit and requirements of the age is foredoomed and suppressed by a natural law."

It is most interesting to follow the reasoning which leads Mr. Anderson to assign to Brunelleschi the leadership of the Renaissance movement, he admits that the sculptors of the fourteenth century, headed by Nicholo and Andrea Pisano, had carefully studied classical sculpture, "the influence of which in Italy they could scarcely escape had they even desired to do so." He goes even so far as to admit that the Art traditions of the middle ages, such as they were in Italy, may have been broken by the departure of Nicholo Pisano, and he says "if merely a rebuild of interest, a clearer insight into Nature is understood, then we may cheerfully yield to the sculptors the credit of the origin of the movement; if besides this we understand it to include (as Architects always have done) the tendency to the revival of classic forms and principles, then the Architectural demarcation is correct which dates the Renaissance from the beginning of Brunelleschi's time and labours. He says, "the Church of San Lorenzo and the Palazzo Rucellai at Florence dealt the death blow to Gothic Art." There is of course no doubt of the tendency of Brunelleschi towards classic detail, but at the same time one is not convinced that his work can be defined as making a real revival. Take for instance the very typical door in cloister of Santa Croce at Florence, this is surely as unlike any ancient Roman work as the pulpits and ambos of the Pisano; both are strongly individual, there is nothing slavish or literal about them,



DOOR IN CLOISTER OF SANTA CROCE,  
FLORENCE. BRUNELLESCHI, ARCHITECT.

they are essentially Gothic in their freedom. With the Palazzo Rucellai it is different, it is a decided effort to tender classical work

correctly, but this is by Albrito, and with all deference to Mr. Anderson, it is to him one is induced to ascribe the real initiation of the Renaissance movement—not only by his practice but far more influentially by his



PAL. RUCELLAI, FLORENCE. ALBERTI,  
ARCHITECT.

teaching. "His ten books, *Re' Edificatoria*, were, for centuries, looked upon as the foundation of all that had been written about Architecture or building," he was the first who seems to have devoted himself to the subject from the scholars point of view, "he was the first who seriously attempted the veneration of Roman Architecture as distinct from Roman principles." Unlike Brunelleschi, he was an Archaeologist rather than an Artist, of refined taste certainly, but, still a pedant, insisting before all on an accurate reproduction of the old work, it is this effort before all to reproduce the ancient work which seems to have been so essential a condition of the Renaissance, and one cannot help ascribing the most powerful influence to Albrito's book. It may even have influenced Brunelleschi in his later days, and quite well accounts for the much greater closeness to Roman Art of Bramante's earliest work—Santa Maria, near San Latin, Milan, for example. This point will always remain a favourite one, for argument, since it can never be definitely settled, but must be left to the individual bias of those who enquire into it; it is moreover not so very important. It is more interesting to note how slowly Brunelleschi influenced the local tradition of the craftsmen who worked under his direction. Take, for example, the capital from the Pizzi chapel. It is not to be supposed that Brunelleschi carved this with his own hands, or, that the Florentine carver who did it was not technically skilful; yet the result is only an approximation to the original classical capital which the master had studied. An extremely interesting point which is drawn into notice is the divergence of the style of work produced by these Italian artists accordingly as their strongest bent was towards Painting, Sculpture, or Architecture itself. Compare, for instance, the lower part of the Certosa at Paiza by Borgognone, a painter, the ante-room of the sacristy of Santo Spirito by Andrea di Sansitino, a sculptor, and the work of their contemporary Bramante. On the other hand, Mr. Anderson proudly chooses as a frontispiece the reproduction of the magnificent fresco by Penizzi, who was before all things an Architect. It is another illustration of the famous paradox—that the world knows nothing of its greatest men—to see that the now little noticed Baldessare Penizzi was by common consent (to quote literally a French writer) placed at the head of such men as Sanzallo, Michelangelo, and Raphaello, because of his genius and talents, and the degree to which he contributed to the glory of the age; but the modesty of his character and his lack of

\* "The Architecture of the Renaissance in Italy," a general view for the use of students and others, by William J. Anderson, A.R.I.B.A., with fifty-four colotype and other plates. B. T. Batsford, 94, High Holborn, London.





PAL. ALBERGATI, BOLOGNA. PERUZZI,  
ARCHITECT.

ambition have robbed him of these honours, and his merits, appreciated alone by artists, repose almost without fame. As Mr. Anderson says: "it is his work which gives character to the culminating period. . . . To enumerate his special characteristics is to enumerate all the qualities which give distinction to the highest development of the movement. . . . Penizzi's works are notable for their simplicity, breadth, beauty of proportion, the delicacy and purity of the moulding profiles, and the ingenuity displayed in every detail, nothing being executed at hazard . . . never startling by crudities or eccentricities." This is a fine epitaph to have written 350 years after death, and no more could be said for the greatest Architect of any age or country.

Mr. Anderson is in the introduction a little severe on English writers for referring, as they certainly do, almost exclusively, to the work of the later Decadent masters, Palladio and Vignola. They do so for this reason, that, though there are scattered about England a considerable number of examples of Renaissance in feeling, and showing much of the vigour of the early Italian masters, Bramante and Michelozzi, these were invariably done by foreigners like John of Padua, surveyor to Queen Elizabeth. The first English master, the man who stands out as the leader of the Renaissance, as we know it in England, was Inigo Jones, and he was a follower of Palladio, and looked to him for guidance, and from him learned his methods, and it is quite natural that Palladio, who instructed our leaders, and who did so much to shape the method of our version of the Renaissance, should be regarded by writers on the period for English readers as the most representative and important originator of the movement. The fact is that there is a vast gulf between the conditions which produced the Renaissance in Italy and the Renaissance in England, and we may say the rest of Europe outside Italy. There was in England no gradual welding of classical detail upon an earlier tradition, the English Architects took the prescription ready dispensed from their Italian doctors, and there is no doubt would have seen little to admire in the work of Brunelleschi and Bramante, as they showed little sympathy for, and paid little heed to, the principles which guided those earlier masters.

There is this further and most important factor to be considered in estimating the value of the two movements, there remained above-ground in England probably no single example of classical work, not a forum, not a temple, not even a column, all the precedents had to be imported; whereas, as Mr. Anderson shows us, Brunelleschi had merely to travel from Florence to Rome, some 200 miles, to come upon a perfect storehouse of classical design; indeed, it seems quite probable that the studies

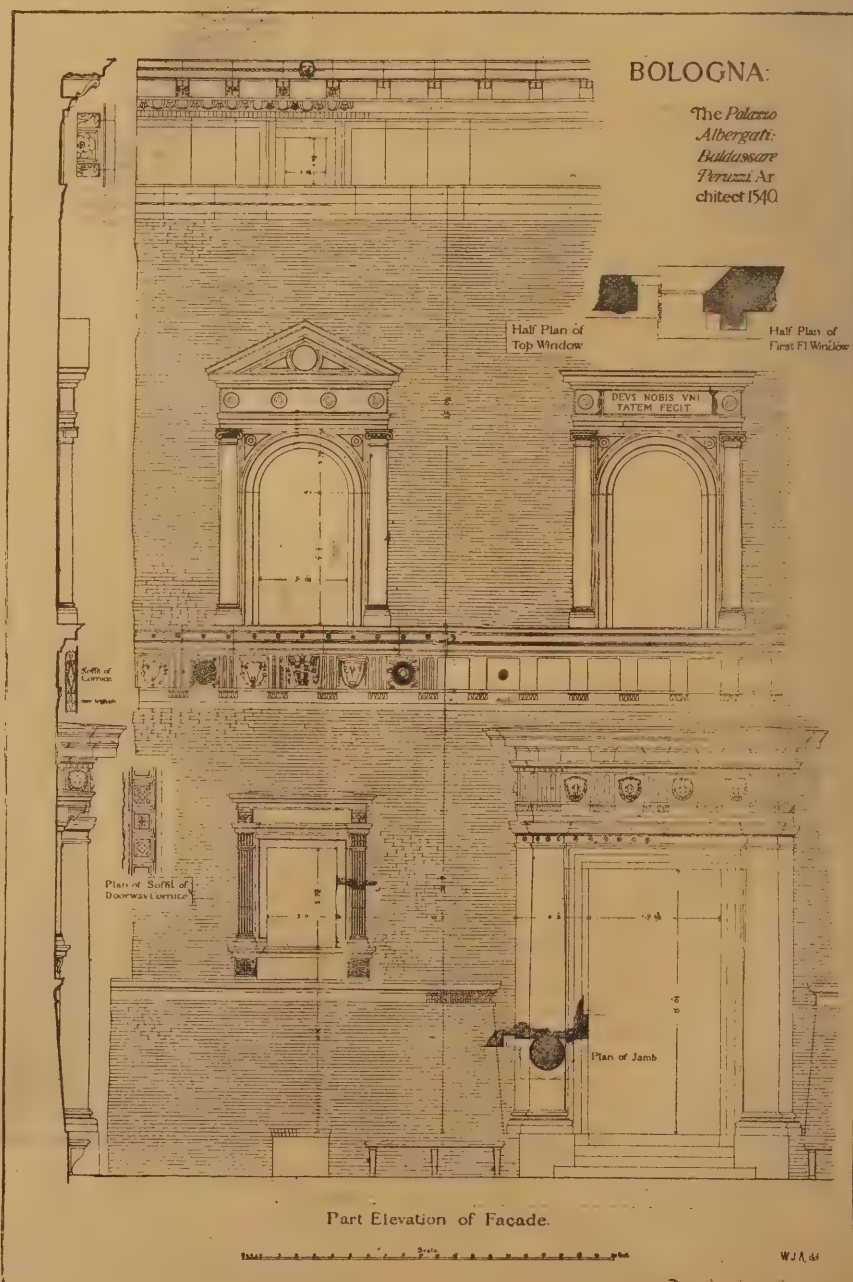
which he made then were suggested by the sight of the buildings themselves, and that he did not travel south for the express purpose of making them.

The chapters in which Mr. Anderson deals with the culminating period up to the death of Penizzo are especially interesting, and even the better-known Decadent period, from Palladio onwards, has great freshness given it, both by the reference to the lesser-known masters, like Alessi, and the admirable examples chosen for illustration; indeed, one cannot too highly congratulate the author or the publisher on the excellence of the plates, and the taste and judgment with which they are selected, or their almost lavish profusion (a few are here, by permission, reproduced). One interesting innovation, as far as one knows, is that of assigning a scale to a photogravure, like that of the south doorway of the Cathedral, Como. This is a book to be in the possession of all interested in the Art of Architecture, whether professionals or laymen.

The Mayor of Plymouth has announced that the decision arrived at by the Council, that the commemoration of the Queen's Diamond Jubilee should take the form of an Art Gallery and Museum, had been supported in a very gratifying manner. A sum of £1400 has already been promised.

#### NEW CHAPEL AT LEEDS.

A SCHEME for the improvement of Oxford Place Chapel, Leeds, and for the erection of a new Sunday-school and lecture hall, has been launched. The laying of the foundation-stones of the new school and the memorial-stone of the chapel front took place a few days ago. The new buildings will bear no resemblance to the existing bald-looking structure, but will harmonise with the Town Hall, in the immediate vicinity. The low situation, as compared with the artificially raised ground upon which the Town Hall is built, presented a serious difficulty to the joint Architects, Mr. George F. Danby and Mr. William H. Thorp. If funds had permitted of the erection of an entirely new structure, the chapel building would have been raised to a considerable height, with the floor elevated on a basement stage; but designs with this object in view had to be abandoned on account of the extra cost. The Architects, however, have minimised the disadvantage of the lowness of the site. The old boundary wall and entrance gates will be swept away, the ground floor raised fifteen inches, and a flight of steps will be constructed across the whole of the chapel front, giving access to the principal entrance porch in the centre of the façade, and also to the two side entrances. The building will be carried up to an additional height of about 24ft. from the main cornice level by means





of a central pedimented gable, and cupolas at either side, crowning corner pavilions. The leading features of the front will consist of a rusticated ground-floor stage, with piers, banded alternately with brick and stone ashlar work, marking the angles of the corner pavilions and the central gable; a bold projecting central porch, with a segmental arched canopy carried on rusticated piers, and coupled Ionic columns; and two square-headed side entrances, with circular fan-lights and carved spandrels. The upper first floor stage will be embellished by coupled and single columns, with richly carved composite capitals of a Renaissance character, carrying a bold, well-moulded entablature, with a projecting cornice displaying modillions. A three-light window in the central gable will be surmounted above the cornice level by a moulded, rusticated arch, the tympanum of which will be filled in with a moulded circular light and carved side panels. The cupolas, crowning the angle pavilions, and flanking the central gable, will spring from angle pedestals, with carved scroll terminals, and will have semi-circular arched faces, with angle columns, capped by moulded cornices and with stone dome-shaped roofs. The synod hall, or lecture hall, which will be brought up to the frontage line, will be connected with the principal front by means of a quadrant. A tower about 110ft. in height will form a leading feature in the block. On the plan it is square-shaped, up to the top of the stage immediately above the eaves of the main building, with rusticated angle piers and carved scroll terminals, and it is then surmounted by an octagonal belfry stage with open arcaded sides, carrying an ogee-shaped, domical roof. A treatment similar to that of the central gable of the chapel will be employed at the gable end of the lecture hall. The Park Lane elevation of the chapel will be re-faced with brick and stone work, and its present monotonous uniformity will be relieved by a pavilion at the south-west angle, with a lead-domed roof and two projecting central bays, with rusticated pilasters carrying moulded cornices and pedimented gables. The window openings will be adorned by stone moulded architraves and archivolts. In their designs for the chapel and synod hall, the Architects have, in the main, adopted the Italian Renaissance style, and they have aimed at securing picturesque grouping, combined with bold relief. The new Sunday-school building, fronting to Oxford Row, is designed to harmonise with the chapel renovation, but its design is of a more domestic type. The principal block, with high pitched roof over the large schoolroom, will have gables at either end, with moulded carved sides and pediments, and two small gables in the centre of the front to relieve the eaves line. The first floor stage will be treated with rusticated projecting pilasters. When completed the school, which is to be lighted by electricity, will accommodate 660 children. Internally the buildings will be fitted with all modern conveniences and appurtenances. It is estimated that the total cost of the alterations and extensions will be £18,000. Of this sum nearly £10,000 has already been raised.

THE work done by Mr. J. Price, the contractor for the new docks at Portsmouth, Nos. 14 and 15, which were accepted by the Admiralty on January 13th, is so satisfactory that he has obtained a contract for the new north railway jetty, at a cost of about £8000. It is to be completed in about eight months, and the new electric shop is to be finished somewhere near the same time.

THE Secretary of State for Foreign Affairs has received a dispatch from H.M. Consul-General at Christiania, stating that tenders are invited for the delivery to the Municipality of Stavanger of a certain number of gas, water, and drain pipes. Tenders for the above must be received at the Stavanger State Engineer's Office by April 1st next. Such further particulars as have been received may be seen at the Commercial Department of the Foreign Office any day between the hours of eleven a.m. and six p.m.

## EIGHTEENTH CENTURY WORK.\*

By J. A. GOTCH.

(Continued from page 93.)

MR. J. A. BRYDON opened the discussion by proposing a vote of thanks to Mr. Gotch. If eighteenth century writers and speakers had any distinguishing characteristic, he said, it was a gift for satire, and Mr. Gotch's paper was full of satire. To properly understand the houses and the homeliness of the people of the eighteenth century, they must project themselves back into the life of the people of the period. When they studied the tendencies of the age they found a great seeking after magnificence which had to be expressed in the houses of the great, who lived in a state in which the nobles of the present day would be very uncomfortable. The first thing the nobles of the land wanted in the eighteenth century was not a home—it was a palace. The disposition of plans was governed by this desire for magnificence, and although objection might be taken on the ground of utility and convenience, it certainly could not be denied that the plans achieved their aim. With the advent of the middle-class, in the eighteenth century, came the desire for a comfortable house to live in, much smaller than the palaces of the nobles—and if there was one thing more than another characteristic of this class of house it was its homeliness and comfort. They could not help feeling this very strongly whenever they were in a good eighteenth century country house. And not only were they comfortable; they were models of proportion, both internally and externally. As to adapting houses to their surroundings, the effort was long-continued before it culminated in the lovely gardens they had just seen on the screen. The admirable wood work, iron work and plaster work to be seen in eighteenth century houses was another point worth mentioning; they were studies in Design and also in good workmanship, and whether wood work, iron work or plaster work, they saw the work of the master-hand. Formerly, no gentleman's education was considered as complete without he had more than a smattering of Art and often Architecture, and he believed that if greater knowledge of Artistic matters were required to-day, the result would be better Architecture.—Mr. E. W. Mountford, in seconding the vote of thanks, thought Mr. Gotch's paper was one of the most interesting he had ever heard. He was more inclined to fall in with the views of Mr. Gotch than those of Mr. Brydon, though he agreed with the latter in his remarks about the great air of comfort surrounding the smaller houses of the eighteenth century as against the palatial buildings of nobles. The houses were very beautiful and very well planned as a general rule, but towards the end of the century matters began to go rather wrong, and culminated in the beginning of the present century in the worst form of classic Art the mind could conceive.—Mr. Henry Lovegrove, in continuing the discussion, remarked upon the excellent description of joinery work introduced into the smaller houses of the eighteenth century, but what struck him most, he said, was the smallness of the rooms. The front room on the ground floor was usually very small for a dining or a drawing-room, and in the back room a large portion of the space was taken up by an angle fireplace. He agreed that the plaster work was especially good; whether they could always admire the design or not, they could not but commend the workmanship. During the days of their pupilship they were not allowed to study the subject of eighteenth century work. They were told that it was not the Architecture of the present century, and certainly in criticising the work they ought to remember that Architects thought it was the right thing to follow the Roman manner.—Mr. Hampden W. Pratt said the middle-class of the eighteenth century did not attempt to

ape the nobles in the palatial style of their buildings, but now-a-days there was a tendency to copy the better style of houses in our smaller dwellings, and he thought it would be well if they took a leaf out of the eighteenth century book in this respect. One could not help feeling that the great buildings of last century, no matter how much they might be called theatrical in their style, were the work of masters in planning and grouping. But they could not appreciate the effect of this planning and grouping of last century mansions unless they went up in a balloon for a bird's-eye view.—Mr. E. Howley Sim asked Mr. Gotch if he could give the date of the first sash window, which seemed to him to mark a very important epoch in Architectural style. Eighteenth century Architecture seemed to have embodied all the characteristics of the time; they were not people in a hurry like ourselves, and absolute convenience was not so essential as it was to-day. He did not think the style was one which should be produced to any extent nowadays. It seemed to have been admirably suited to the people of that time, but he did not think it expressed the wants and feelings of the present day. Mr. Gotch, in replying to his question, might also tell them what he knew of the earliest example of Mitre mouldings.—The Chairman (Mr. W. H. Seth-Smith) spoke of one or two typical examples of eighteenth century work of which he was well acquainted, and remarked that to-day we had a perfect knowledge as to what was necessary to produce perfect Architecture of the present and of the future. A friend told him the other day that an Architect he had employed to build his house was "a perfect genius," and asked for his reasons which had led him to form such an opinion, said the Architect was a perfect genius because he had made the house equally beautiful on every side. And it was by such words that they would teach the public to appreciate their Art; if they displayed that care and practical convenience which Mr. Gotch had insisted on they meet the requirements of this age.—In replying, Mr. Gotch said that it struck him since writing his paper that he had not done justice to the eighteenth century. He had dealt with one aspect—the aspect which seemed to him to be the most characteristic of the age. And whatever might be said as to the treatment of Architecture, he had always maintained, and would always maintain, that its bed-rock was utility. It was no use going to him with a good drawing, and saying, "Here is a beautiful house;" it was a failure unless it fulfilled the purposes of a house. To be a work of Art, a thing, in his opinion, must fulfil the purposes for which it was designed. And these mansions of the great—if they said they were palaces only intended for show and not for dwelling, he agreed that they were very good, but as dwellings they were failures, and were considered failures by those who lived in the time they were built and were influenced by the same conditions. He could not give any definite information as to the date of the first sash window, but he thought it made its advent in Charles II.'s time—about 1675—and Mitre mouldings preceded it by fifty years.—The next meeting of the Association will be held next Friday, when Mr. T. G. Jackson, R.A., will read a paper on "Architecture in Relation to the Crafts."

By dint of untiring effort, the committee formed to secure Fortune Green as an open space for Hampstead has succeeded in its endeavours, and the site has been saved.

A SERIOUS outbreak of fire recently occurred on premises in Warren Lane, Woolwich, occupied by Messrs. Kirk and Randall, builders. Serious damage was done, a store-room being entirely gutted and the whole of the stock suffered.

CARDINAL VAUGHAN has laid the foundation-stone of a home for factory and working girls, to be conducted by the Sisters of Marie Auxiliatrice, whose present premises, at 24, Bow Road, E., are insufficient for their extending work. The new home will adjoin the existing one, and will cost £6,000.

\* Discussion on the paper read by Mr. Gotch before the Architectural Association.



## THE DOMUS OR VILLA AT WHITTON.

MR. HAMLET WATLING says that the finding recently of a Romano-British tessellated pavement at Whitton has opened a new and interesting chapter for the historian, archaeologist, and antiquary. Interesting as being on the ancient military route through Icen of our early British Queen, Boadicea, and her unfortunate husband, Prasulagus, who died at the point of time when his services were most required in assisting to drive out of the province the Roman invaders. Leaving the early history of this British trackway, we now come to that of the Romans, who evidently, from the vast remains of theirs being found upon it, made use of it for military purposes from the overthrow of the Britons A.D. 58 till the time of Antoninus Pius A.D. 138, when a more direct route to the Venta Icenorum from Camolodunum was so desirable that the heart of the province might be traversed by their legends. Coins of Antoninus, Marcus Aurelius, 161; Severus, 193; Tetricus, 267; Maximian, 286; have been found on various sites on this road; also coins of Constantius, 304—Constantine the Great, son of Constantius and Helena, born at York A.D. 274. Constantine was deeply and reverently attached to his mother. He caused her to be proclaimed Augusta, or Empress, in his armies, and through all the provinces of his empire. Medals were struck in her honour, in which she is called "Flavia Julia Helena." The town of Colchester—alleged to be named after her father, Coli, or Coel—has for ages boasted that it was the birthplace of this great Empress, and the inhabitants, to testify their veneration for her memory, take the following coat of arms of the town in remembrance of the cross which she discovered—a serrated or Raguly cross between four crowns (which is correct), not three crowns, the third being debruised upon the lower limb of the cross, the cross being a Roman one. How strange it is that Colchester, like Ipswich, should continue to cherish such palpable errors. With the above, coins of the Constantine family, and Romulus, down to the departure of the Romans from Britain, have been found at Whitton. So the villa must have survived till the inroad of the Saxons, who burnt and plundered wherever they went. This is visible upon every spot excavated, which the abundance of charcoal fully testifies. The beautiful household fittilia, as the Samian ware, Salopian, &c., the tessellated pavements, and even the foundations, were rooted up by their barbarous animosity, fragments of which are scattered about on all sides and mixed with the débris that is turned up. When the tessellated pavement, which is now in the Ipswich Museum, was raised from its position in the Peristylum, why were not the tiles, bricks, pottery (although in fragments), and coins, as well as those of the animals, preserved, especially those of the Bos Longiferous, a species of ox now extinct, but which, in the time of the Romans, must have been very plentiful, as well as those of the sheep, hog, horse, deer, wolf, &c.? It appears the transaction of removing the pavement was a barbarous one, especially when the affair was under the superintendence of an Architect who professed to be an archaeologist. The inscription beneath a drawing by Davy runs thus:—"Roman tessellated pavement, discovered December, 1854, in the Castle Field, St. Matthew's, Ipswich, Suffolk, the property of John Orford, Esq., and by him presented to the Ipswich Museum, and deposited there March 16th, 1855, under the superintendence of Mr. R. M. Phipson, Architect, and Mr. F. Mansome, &c." To effectually investigate the site would be to draw a trench four feet wide intersecting the foundations at a right angle, and thus the walls of the foundation might be easily traced.

It is stated that Lord Sudely has sold Toddington, his domain in Gloucestershire, subject to his life interest and that of his elder son. The mansion, which cost £200,000 to build, is famous for its beautiful stained glass. The estate extends over 7000 acres. The purchaser is Mr. E. T. Hooley.

## LONDON CHURCH ARCHITECTURE OF THE VICTORIAN ERA.\*

BY T. FRANCIS BUMPUS.

Author of "London Churches Ancient and Modern," "Ecclesiological Notes from North Germany," &c.

THE subject upon which I have been invited to speak to you this evening is one of great, I may say, inexhaustible interest, whether we regard it from the standpoint of churchmen, Architects, or amateur ecclesiologists. To the student of modern English Church history some knowledge of the Architecture and dates of erection of the Churches raised, not in London alone, but all over the country, within the last sixty years, will be found both pleasant and useful; for, when the religious history of the century comes to be written, that of the numerous magnificent Churches which have marked the course of the great religious revival will be indissolubly bound up in it. In bringing the modern Churches of London—many of which are doubtless known to you, either from reputation or actual inspection—before your notice, I shall endeavour, as far as possible to introduce them to you in chronological order. This rule, it will be found necessary in some instances to contravene, for it may happen that, in some parishes where the ecclesiological movement has made itself felt more strongly than in others, several Churches may exist which, although erected at different times, may, for our convenience sake, be grouped together and contrasted. Again, two Churches may, perhaps, have been built by the same Architect in different parts of the town; these, then, regardless of date, will be compared, and their various divergencies pointed out. Then it may be necessary when touching upon the redecoration and recasting of a debased or inferior Church in the East of London to refer to another which has undergone similar ameliorations in the North, West, or South. Indeed, a subject of this kind has so many ramifications, and presents so many aspects, that it behoves me to enter upon it without further preamble. It will, however, be necessary for us first to take a glance at the history of the revival of the true principles of Ecclesiastical Art and consider how it was brought about. Although the English Gothic style began to lose its purity about the reign of Edward IV., yet the additions to and embellishment of Cathedrals, Churches, Colleges, and conventual buildings was carried on with unabated vigour until the Reformation, when it received a sudden and decided check from which it was very slow in recovering. But although the Pointed styles, after a struggle with the Classical, became extinct before the middle of the seventeenth century, there has been no period since the Reformation, even during those eras of classicism, the Stuart and Hanoverian periods, in which constructions, either partially in the spirit of Gothic Architecture, or reproducing some of its details, have not been erected. Love for old Pointed Art never died out in England, even the absurdities of Strawberry Hill attest this; while a glance through volumes of "The Gentleman's Magazine"—almost the only periodical in which the Arts were represented during the last, and early part of the present century, registering as it did all the metropolitan improvements, describing the new Churches, and chronicling Archaeological discoveries—is sufficient to show that, while the descriptions too frequently betray an ignorance of technicalities, they are spiritedly penned, and did an immense deal of good towards keeping alive the love for old English Architecture.

## DAWN OF THE GOTHIC REVIVAL.

There are several writers of the end of the last century to whom we owe a debt of gratitude, sowing as they did those seeds of the great Gothic Revival of which at the present day we are reaping the fruits. I refer to Warton, Bishop Milner, and John Carter. Much of its progress, too, must be traced to the writings of Sir Walter Scott, whose truthful

\* A paper recently read before the Toynbee Architectural Society.

and accurate portrayal of mediæval manners and customs has won for him a higher praise from posterity than has fallen to the lot of any literary man. Britton's magnificent series of "Cathedrals" and "Architectural Antiquities," the writings and drawings of The Elder Pugin, Dawson-Turner, Cotman, and Wild, upon and of the buildings of France, must not be forgotten, although their publication, while serving to increase the widely spreading knowledge upon Architectural subjects, was of little practical use, for Churches were being built in London and provincial towns during the teens of the present century, anyhow or nohow, it mattered little, so long as they were occupied.

## THE COMMISSIONERS' CHURCHES.

Then came the "Million Act" of 1818, and the erection all over England of Churches, many of them well-intentioned and liberal in their cost, but sadly travestying the Grecian and Gothic styles which their Architects sought to reproduce in them.\* Of the Churches aiming at pure Hellenism of style, St. Pancras, in the Euston Road, finished in 1822, is the largest and most costly. Strangely unsuited, not only to the climate of our land, but to purposes of devotion, its details, although well executed, exhibit a motley collection of ill-assorted plagiarisms. Fine Doric porticos are found at Smirke's Church of West Hackney; Bedford's St. John's, Waterloo Road; and Porden's St. Matthew's, Brixton Rise, but the really excellent effect of these massive porticos is too often ruined by the steeple, which rises like a horn out of the Church's neck without any apparent basis. Among the Gothic Churches erected by the Commissioners between 1820 and 1830, St. Luke's, Chelsea, finished in 1824 with a stone-vaulted roof from the designs of Savage, together with St. Paul's, St. John's, and Holy Trinity, in the parish of Islington, all by Sir Charles Barry, deserve especial mention. While evincing in their detail and arrangements great ignorance of, or disregard for, the grammar of pointed Architecture, all these Churches—Perpendicular in style—are invested with a dignity of outline hard to find in later and more correct works of the Revival. The London Churches succeeding those of the "Million Act" show a decided retrogression. I allude to those erected between 1830 and 1846,\* chiefly under Bishop Blomfield's Metropolis Churches scheme from the plans of Blore, Clutton, and Vulliamy. Foreign, particularly German, Romanesque was the style most favoured, indeed, for a time this very protean style threatened to become the religious Architecture of England. Some infelicitous specimens exist within a very short walk of this room. I allude to such Churches as St. Andrew's and St. Philip's, Bethnal Green, and St. Peter's, Stepney. With them may be classed St. Thomas's, Charterhouse; Christ Church, Hoxton; St. Paul's, Bunhill Row; St. Philip's, Clerkenwell; and St. James', Curtain Road—structures in which all internal decency and Architectural fitness was ground down to the very dust to meet an idolised tariff of so many shillings per sitting.

\* Between 1820 and 1830 almost every London suburban parish had been provided with one of these "Commissioners' Churches." Of these Smirke erected three, i.e., West Hackney Parish Church; St. Mary, Wyndham Place; and St. Anne, Wandsworth; and each has an interior planned on the same model. The Doric pillars on the galleries of these three Churches contrive to invest their interiors with an air of grandeur which was attained by no other of the same class, St. James, Bermondsey, perhaps excepted. The three Churches in the parish of St. Pancras, by Inwood; Bedford's Churches of St. John, Waterloo Road, and St. George, Camberwell; St. Mary's, Greenwich, by Bassevi; and St. John's, Hoxton, by Edwards, are mere galleried rooms, but they have in many cases been rendered more devotional by redistribution of their fittings, and by the introduction of painted glass and mural decoration. St. Pancras, Euston Road, and West Hackney Church are good instances of such treatment, which has likewise been resorted to in the Gothic Churches erected under the same scheme. In such specimens of "Commissioners' Gothic" as St. Mary, Haggerstone, by Nash; St. Mary, Somers Town, by Inwood; and Holy Trinity, Little Queen Street, by Bedford, the details provoke laughter. St. Philip's Stepney, since removed to make way for its magnificent early English successor, was, perhaps, next to those by Barry and Savage, the most respectable of the Gothic Churches, all of which will be found minutely described, and in many instances caustically reviewed, in "The Gentleman's Magazine," between 1820—1830.



## EARLY CHURCHES OF THE REVIVAL.

Perhaps three of the most respectable of this class of Church built in London in the foreign Romanesque style were St. Matthias's, Bethnal Green,\* the Chapel of St. Mark's, Chelsea, by Blore; Christ Church, Watney Street, St. George-in-the-East, by Shaw; and the Roman Catholic Church of St. John, Duncan Terrace, Islington, by Scoles. In St. Mark's College Chapel, Blore sought to reproduce, but on a ridiculously small scale, one of the great Rhine Churches. Christ Church, Watney Street, well worth visiting on account of the skilful manner in which it was coloured, and an apsidal sanctuary added to it from the plastic hand of Mr. James Brooks about five and twenty years ago, has a very telling and effective nave elevation.† There are two tiers of arches on short columns with scalloped capitals; the upper one opens into a sort of triforium, somewhat after the style of the German Männerchor; and above this again is a clerestory of plain round-headed windows. Shaw, the Architect of this Church in Watney Street, was the son of the designer of the Great Hall of Christ's Hospital, and of St. Dunstan's, Fleet Street, whose fine lantern tower was often pointed to by the late Mr. Street as one of the most successful London steeples. It was finished in 1833. The third Church of this Romanesque group—St. John's, Duncan Terrace, Islington—was the work of Scoles. It is chiefly remarkable for its basilican arrangement, and for the fine frescoes in its apse and side chapel by Armitage. These frescoes represent respectively, "Christ enthroned among the Apostles;" and "S. Francis of Assisi receiving the approval of Pope Innocent III. to the Rule of the Order of Franciscans." In designing this Church, Scoles was severely censured by Pugin for adopting the Romanesque style; that merciless censor, in his "Ecclesiastical Architecture," publishing a view of the old Parish Church of Islington, which he declared, not without some show of reason, ought to have formed the model for St. John's. While on the subject of Roman Catholic Churches, mention might be made of an earlier work of Scoles, the Chapel of Our Lady, Grove End Road, St. John's Wood, an Early English Church finished in 1835, in imitation of the choir of the Temple Church. It was subsequently copied at Edgbaston, near Birmingham. All these works doubtless passed at the time for very tolerable specimens of Church Architecture, and gave great satisfaction to their several promoters. But a change was at hand.

## ESTABLISHMENT OF ARCHITECTURAL SOCIETIES.

In 1838‡ The Cambridge Camden Society was formed, followed a year later by the Oxford and other Architectural Societies. Each body had for its end the dissemination of the true principles of English Church Architecture, and these various societies, coupled with the writings of Brandon, Parker, Petit, Rickman, Sharpe, and Augustus Welby Pugin—who had before 1839 built several Churches far in advance of their age—had a very large share in inculcating the Grammar of Revived English Gothic Architecture. I alluded just now to the "Cambridge Camden Society," afterwards called on its removal to London early in the "forties," the "Ecclesiological Society." While, there is no doubt, both the Cambridge and Oxford Architectural Societies did no little mischief among our old Parish Churches, by rashly depriving them, under the term "restoration," of much historic interest—I mean that of the Caroline and early Georgian periods—the Cambridge Camden Society was one of which the Church of England may well be proud. Set on foot in 1838 by two undergraduates of Trinity College, Cambridge—Benjamin Webb and John Mason Neale, both since dead—it

gradually enrolled among its members countless names celebrated in Art, Literature, Divinity and Politics. It would take me too long to give even a tithe of these names.

## PUBLICATION OF "THE ECCLESIOLOGIST."

Many merely took up the subject of Ecclesiology as a pleasant recreation. The labours of the "Ecclesiological Society" were not confined to the building of Churches alone, but extended to every department of the Art—particularly Church music. Correspondence was carried on in the pages of their organ the "Ecclesiologist," with Architectural societies both at home and abroad, and for thirty years the greatest enthusiasm prevailed. At the time of which I am now speaking—the early "forties"—the Church Architects in practice, besides those whose names I have already introduced to your notice, were: Cundy, Hakewill, Dawkes, Ferrey, Poynter, Pugin, Salvin, and Wild,\* all of whom had produced Churches which, although they showed a vast improvement in detail yet were not at all satisfactory from the "Ecclesiologists'" point of view; and they got some good hard knocks from those relentless critics. Carpenter, Butterfield, Pearson, and Street, all of whom were, before long, to attain such eminence in their profession, had done little or nothing before 1848 to bring themselves prominently before public notice, but a Church had been built between the years 1842 and 1844 very much in advance of its age, and from the designs of an Architect to whom, in but a few years, the destinies of nearly all our Cathedral fabrics were to be entrusted. The Church was St. Giles, Camberwell; the Architect, George Gilbert Scott. No Church erected at the time was considered more orthodox in its arrangement than St. Giles', Camberwell. That such a structure attracted much notice on its completion goes without saying. And it was all the more remarkable when we remember that it was erected during the life-time of a generation which had witnessed the building of those semi-Pagan structures, St. Pancras, All Souls', Langham Place, West Hackney, and Holy Trinity, New Road. Refreshing, too, were its plan—cruciform, and its style—Early Middle Pointed—the latter highly so, after the miserable travesties of Romanesque, Early English, and Perpendicular, which were being sown broadcast all over the country from the hands of clumsy, incompetent Architects and ignorant building committees. Fifty years of London Church building has, I venture to say, failed to produce a steeple so well proportioned and so graceful as the central one of St. Giles', Camberwell. Rising as it does at the intersection of the neat, compact plan, it assists in investing the exterior of the Church, especially when viewed from the north-east, with an air of charm and dignity which few Architects of the Revival have succeeded in rivalling. Internally, Camberwell Church—which, I should have premised, replaces a mediæval building burnt down on Sunday, Feb. 7th, 1841—is extremely solemn and devotional, despite the galleries which, by an unfortunate necessity, were thrust into the nave aisles; while the fine effect produced at the crossing beneath the tower, and the tracery of its deep chancel windows, look, to the unpractised eye, the work of a mediæval Architect.

## WORKS OF SCOTT, FERREY, CARPENTER, BUTTERFIELD, AND PUGIN.

There is so much ground to be got over tonight that I am unable to dilate at any length upon this or any other Churches which I shall have to present to your notice. I hope, however, that you will be persuaded to visit them for yourselves, aided in however humble a degree by the brief notes I shall offer you upon them. The greater number of the Churches erected in London between 1845 and 1855 are reproductions of old examples. Thus, the magnificent parish Church of South Hackney†

has a tower and spire, an almost absolute copy of that of St. Mary, Stamford, while the inner plane of tracery to the clerestory windows, and the trefoiled arcading round the apse, are manifestly features borrowed from Stone Church near Dartford—one of the loveliest buildings of its size in the later Early English style that we possess, and said, by Mr. Street, not without some show of reason, to have been built by the same Architect as Westminster Abbey. Again, at St. Matthew's, City-road,\* the steeple is built on the model of that at Sutton St. Mary, Lincolnshire, one of a glorious line of Parish Churches—the finest, perhaps, that Northern Europe can show—extending from Sleaford, in Lincolnshire, to King's Lynn, in Norfolk. At Sutton St. Mary, where the steeple stands detached from the Church, the spire is of lead, a rare and curious instance of the employment of that material on so large a scale; at St. Matthew's the spire—identical in outline with the Lincolnshire example—is of stone, and, I must confess, far more elegant. Although hardly realising the idea of what a town Church should be in such a thoroughfare as the City Road—lacking height—St. Matthew's has many excellent points of detail. The painted glass in the aisle windows, by O'Connor, inserted nearly twenty years after the completion of the Church in 1848, is of rare excellence; while the elegant quintuplet of lancets which lights the east end is a copy of that in the Early English chancel of Chetwode Church, near Sir G. G. Scott's birthplace—Gawcott—in Buckinghamshire. A few brief notes upon some other Churches belonging to this first or "copying" phase of the Gothic Revival must be given, before introducing you to those of its second and still more important one. All these Churches are replete with interest, and, as I remarked at the outset, will have no little share in the religious history of the century when it comes to be written. I was speaking to you of the manner in which details from old English buildings were applied to modern Churches, so will resume with St. Paul's, Knightsbridge, whose western pinnacled tower is modelled on one of those at York Minster. It is very pleasing; far more so than the nave, which is but a large pillarless expanse, galleried on three sides, but rendered devotional by the stained glass which fills all its windows. A very imposing chancel, with rood-screen and reredos, has lately been added to this nave from the designs of Bodley and Garner. It however, stands in need of polychromatic decoration, its whiteness contrasting rather startlingly with the gorgeous little Chapel of St. Luke's, which abuts on its south side. Other very tolerable copies of old English examples are—Christ Church, Endell Street, by Ferrey; St. Paul's, Camden Road, by Ordish and Johnston; St. Matthew's, Oakley Square, by the latter Architect; Christ Church, Ealing, by Scott; Holy Trinity, Havestock Hill, by Wyatt and Brandon; and St. Mary, Lambeth, by Hardwick; but we shall not linger over these as I have to introduce several more interesting and important ones, to you.

## EARLY CHURCHES OF THE "TRACTARIAN MOVEMENT."

There are five of these Churches, each illustrating a distinct period of English pointed Gothic; each exhibiting in its arrangements a complete illustration of the ritualism of the Prayer Book; and most of them instances of splendid individual munificence. Taking them in order of date we have first St. Andrew's, Wells Street, finished in 1847 from the designs of Dawkes, and presenting us with an admirable instance of what an Architect can do when he has to deal with an awkward site. In this case the Architect had at his disposal a broad plot of ground lying between houses; taking as his model one of those lofty Perpendicular Churches in which cities like Norwich, Bristol, and York, are so rich, he erected upon it a Church with a broad but lofty clerestoried nave and chancel under one continuous roof, very wide aisles, and a steeple engaged at the extreme north-west angle. In style St. Andrew, Wells Street, is Early

\* Sir G. G. Scott's first strictly London Church.

\* A modest reproduction of the costly Byzantine Church, built by the same Architect—Wyatt—a few years previously at Wilton.

† In no London Church of its date has the *venusta questio* of galleries been more successfully grappled with.

‡ Three years later the Cambridge Society issued the first number of its organ, "The Ecclesiologist," an invaluable little quarterly, which ran on until 1868.

\* A highly creditable Church was erected at Streatham Hill in 1841 from the designs of Wild in the Early Pointed style of North Italy, which was much praised in the "Gentleman's Magazine" for November of that year.

† Finished in 1848 from the designs of Mr. E. C. Hakewill, and erected mainly through the exertion of the Rector, Rev. H. H. Norris. The Apse windows contain some of the best stained glass inserted at the time by Walses.



Perpendicular, and perhaps the best Church erected at the time in that style; while ritually considered it was a great gain to Art, and with its free and open seats, raised chancel, with stalls and fold-stool, its double daily service, and correct ritual, has long been considered a model Church. It is particularly interesting from the fact that it became in 1862 the cure of Rev. Benjamin Webb, one of the founders of the Cambridge Camden Society, who, between that period and the year of his death, 1885, spared no pains to render its interior, as far as the confined space would permit, the most artistically interesting in London, for it contains specimens of the work of all the great practitioners of the Revival except Sir G. G. Scott. To Pugin is due the drawing of the east window; Street re-arranged the chancel, and designed the magnificent reredos which extends up the wall on either side of the east window, besides occupying the customary place beneath it; Burges designed the tomb to a former incumbent, Rev. Jas. Murray; Bodley decorated the sacristies; Seddon furnished the designs for many of the altar frontals; to Pearson are due the sedilia, a memorial to Mr. Webb; while from the atelier of Clayton and Bell issued the delicate paintings on the gallery fronts and most of the painted glass.

#### SOME SPLENDID INSTANCES OF INDIVIDUAL MUNIFICENCE.

St. Barnabas', Pimlico, finished three years later than St. Andrew's, is the most creditable production of its Architect, Mr. T. Cundy. It was confessed, on its completion, to be a model of excellence; indeed, it was the most sumptuous and most correctly fitted Church erected in England since the Reformation. Raised at the time of the Papal Aggression in 1850, when any advance towards an improved ritual was regarded by the majority with intense suspicion, the Church and its furniture formed the subject of much litigation; riots ensued, and for some time the building was in danger of being sacked by mobs who, Sunday after Sunday, assembled to hoot, groan, and interrupt the services to such a degree that, had it not been for the intrepidity of the officials and clergy, they would have entirely set aside the right to undisturbed worship. St. Barnabas' is not a town Church, and this is the side on which it errs, but its detail evinces careful study. Indeed, to look really well, it should be removed from the contamination of smoke, being an almost absolute copy of an early English country Church. Its plain broach spire surmounting a well-proportioned tower on the north side of the west front\* is truly graceful, and the small court on the south side, surrounded by the Church and College for Clergy, with its cross opposite the porch is exceedingly picturesque, forming at the time of its erection a novelty in Ecclesiastical Design. There are not many London Churches whose interiors can be pronounced truly pictorial; but this of St. Barnabas—where all the windows are filled with stained glass by Wailes—seen under certain conditions of sunset; or, as it appears on festivals, when its chancel is illuminated only by candles, is strikingly impressive. Although enriched with polychromy from time to time, few structural changes have been effected in the interior of this beautiful little model Church. A handsome reredos, in the Late Decorated style, has, however, been added within the last three or four years, from Bodley and Garner's Designs, and the organ has received a case in the same style. Less ritually, but, perhaps, more Architecturally correct than St. Barnabas', is the second Church of this group—St. Stephen, Rochester Row, Westminster, built at the sole cost of Baroness Burdett-Coutts, from the designs of Ferrey. Like St. Barnabas', "free for ever to Christ's poor," it was consecrated only twelve days later in the same month of the memorable year 1850, its design calling forth the highest encomiums from the Architect, the ecclesiologist, and the amateur. One of those grand Late Decorated Lincolnshire Churches seems to have furnished Mr. Ferrey

with the model, but it has the same fault as St. Barnabas—insufficient height for a town Church. At the east end of the north aisle rises the tower, very fine and massive; but the spire which surmounts it is rather too acute, and its contour viewed at a little distance is not pleasing. Inside, the arcade of the nave, with its delicate clustering shafts, should be especially noticed, while the carving of their capitals is certainly unsurpassed by any contemporary work of the kind. A remarkably good reproduction of a town Church of the thirteenth century is St. Mary Magdalene, Munster Square, the fourth Church of this series. Partially finished in 1852, it must be considered the noblest conception of its Architect, Richard Carpenter (1812-1855)—one of the earliest, ablest, and most zealous of the ecclesiologists. Until 1884 St. Mary Magdalene's consisted only of the nave, chancel, and south aisle; but even in that state its internal appearance was one of the deepest solemnity and impressiveness—an effect derived from the noble sentiment which must have pervaded the mind of its designer; from the stonework, which five and thirty years had mellowed, and from the stained glass, with which all the windows were filled. Eleven years ago the north aisle was added as a memorial to the Church's revered co-founder, Rev. E. A. Stuart, but the tower and spire which Carpenter designed to be engaged at the south-west angle have yet to be reared. The interior of St. Mary Magdalene, Munster Square, is, to my mind, the beau ideal of a well-arranged town Church, from which the clerestory is absent, with its light, graceful arcades, its spacious aisles, deep chancel, and unencumbered area. The "motif" was the Dutch Church in Austin Friars, the style Geometrical, melting in the chancel into the Flowing Decorated. The east window of St. Mary Magdalene's is, for the period of its insertion, undoubtedly the most magnificent in the kingdom, both as regards its tracery and the painted glass which fills it. The latter was designed by Pugin and executed by Hardman, to whom are due the not quite so successful windows on the south side of the sanctuary and at the east end of the south aisle. I may also point to the great west window, an early work of Clayton and Bell's, and forming a memorial to the Architect, whose untimely death in 1855—three years after the completion of the Church—deprived the Church of England of one of her most promising Architects. I know nothing more beautiful than the interior of St. Mary Magdalene's, Munster Square, during a fine sunset, when the rich glow, streaming through the western painted windows, leaving the further end of the Church in shade, is deeply impressive.

#### PEARSON'S FIRST LONDON CHURCH.

It is singular that two of the most eminent Archaeologists of the century in England and France—Sir G. G. Scott and M. Didron—should have fixed upon the fifth Church of this group, Holy Trinity, Bessboro' Gardens, Westminster, as embodying the idea of an English Fourteenth Century Church in its greatest completeness. Viewed from the west end of Vauxhall Bridge, its central tower and spire; its chancel, lighted by a noble seven-light window, and having on its north side a cleverly-contrived gabled sacristy, help to compose a truly charming picture. Finished in 1852 from the designs of Mr. Pearson, whose earliest London work it is, Holy Trinity, Vauxhall, is another of those instances of wealth ungrudgingly bestowed to make the Lord's house beautiful. It was built and endowed at the sole cost of the late Archdeacon Bentinck. On the same day that Holy Trinity was founded, another Church in Westminster, but in a squalid district of it, was begun—that of St. Matthew, Great Peter Street,\* a spacious and pleasing, but not otherwise remarkable structure, in Early Decorated, from the designs of Scott, and recently enriched by the erection of an effective rood-screen, with crucifix and attendant figures.

I mentioned just now that Holy Trinity Church, Westminster, was a typical Church of the first phase of the Gothic Revival, viz., that of absolute copyism. Ten years later another Church at the opposite end of Vauxhall Bridge was rising from the pencil of the same Architect—Mr. Pearson—the very antipodes of Holy Trinity, in plan, style, and everything else. It was as foreign as Holy Trinity was English; but as the Church in question—St. Peter's, Vauxhall—belongs to the second or inventive phase of the movement, it will appropriately fall into its place when describing works of a similar character.

#### ROMAN CATHOLIC CHURCHES OF LONDON, 1848-1858.

Before passing on to this very important era of the Gothic Revival, when Architects were beginning to think for themselves, and to relinquish the copying process, I must just call your attention to three very large and noble Churches erected outside the Anglo-Catholic Communion—i.e., the Roman Church of St. George, Lambeth; and the Jesuit Church, in Farm Street, Berkely Square; and the so-called Apostolic Church, in Gordon Square. St. George's, Lambeth, one of the very few Churches erected in or near London by Pugin, is, as far as its nave goes, a reproduction of the once glorious Church of the Austin Friars, near Broad Street, or, perhaps, of St. Botolph's, Boston. It cannot be pronounced a success, for here, as in all his works, Pugin was hampered by the ignorance of the clergy of the Church which he had embraced, to say nothing of pecuniary considerations. Indeed, he himself said that his professional career was passed "in thinking of fine things, designing fine things, and realising very poor ones." Perhaps the heavy appearance of the Church externally is due to the huge unfinished Western Tower, and it seems a great pity that this fine work should not have been completed as a memorial to its Architect. It is regrettable to observe that the beautiful rood-screen—the only really cathedralic feature this Church possessed—has lately been removed from its legitimate position at the entrance of the choir, and placed beneath the tower arch, as if, forsooth, this noble feature of the Church were not already choked up enough as it is by a cumbrous organ-loft. It is a most extraordinary thing that almost without exception Roman Catholic Churches should be disfigured by such glaring instances of bad taste. The Farm Street Church, finished in 1849 from the designs of Scoles, whose name was mentioned earlier in this paper in connection with a small Early English Church at St. John's Wood, is, like St. George's, in Flowing Decorated style, a period of Architecture which, it is curious to note, was adopted in nearly all the Roman Catholic Churches erected between 1850 and 1860. I refer to several very fine ones built from the designs of Wardell, at Greenwich,\* Clapham,† Poplar, and in the Commercial Road.‡ The interior of the Church in Farm Street, with its lofty clerestoried nave separated from its double south aisle by elegant clustered piers, is extremely picturesque—quite Belgian in fact, though the detail is fine, nervous, English Flowing Decorated. One of the noblest features of the Church is the great eastern window filled—as is the one in a similar position at St. George's—with painted glass by Wailes.§ An immense quantity of work was executed by this Artist, but little of it rose above mediocrity. What we miss in Wailes' windows almost without exception, is the eye of a master—a really skilful combination of colour. The Church in Gordon Square, recalling in many details some of our great northern Minsters, was the work of Brandon, whose untiring researches into the old Architecture of our land enabled him to invest it with its present imposing, albeit incomplete, air.

(To be continued).

\* St. Mary, Star of the Sea, close to the Park.

† Our Lady of Victories, on the Common.

‡ St. Mary and St. Michael, Commercial Road, E.

§ Besides Wailes, the chief stained glass painters at this period of the Revival, i.e. 1845-1855, were Willement, Hardman, O'Connor, Warrington, Ward, and Nixon.

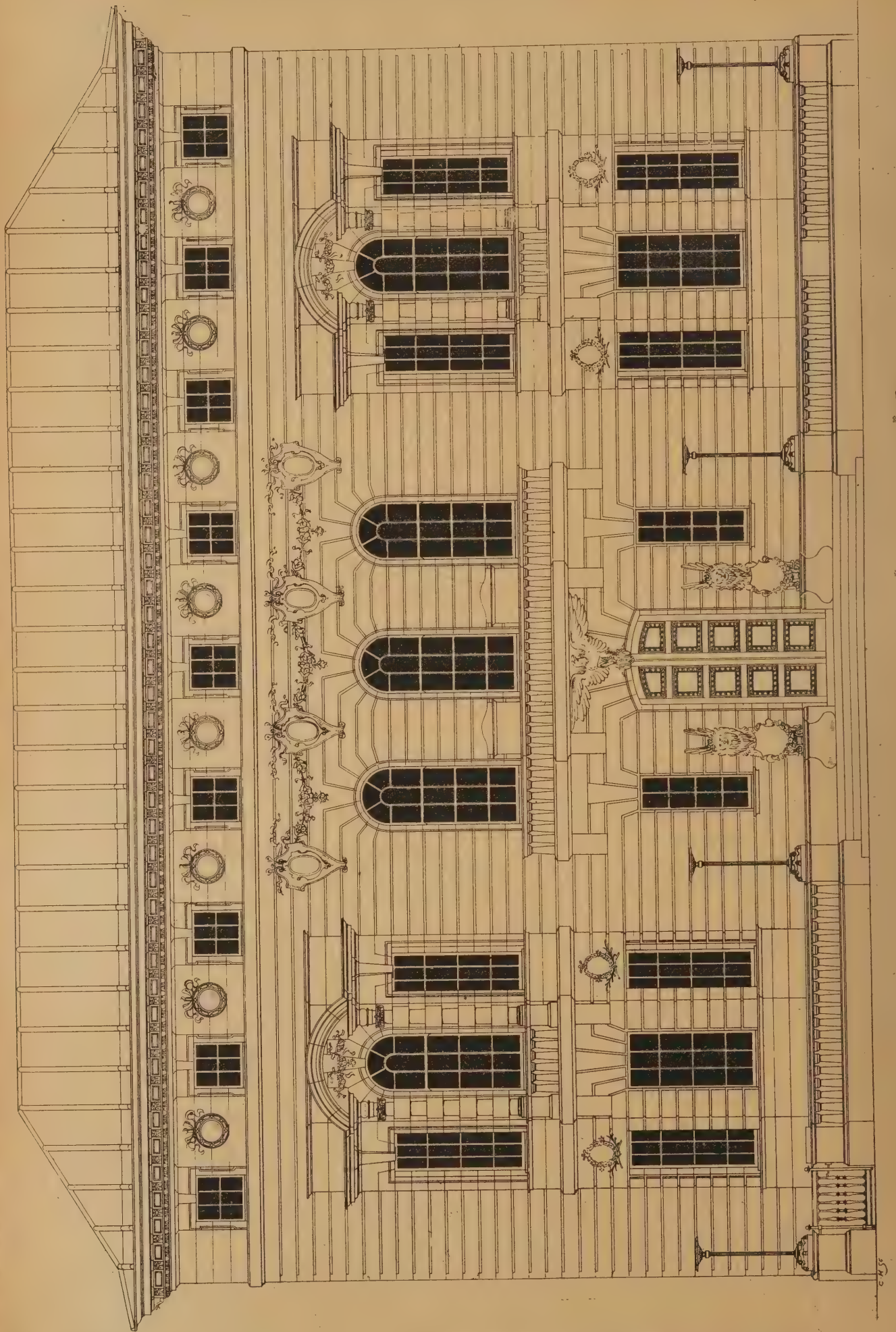
\* Copied from an ancient example, which had also furnished the "motif" for the west front of a Church by Pugin at Stockton-on-Tees.

\* The steeple of this Church, from lack of funds, has never been completed; but even in its unfinished state it has an air of great dignity and massiveness, which one would unwillingly see disturbed.



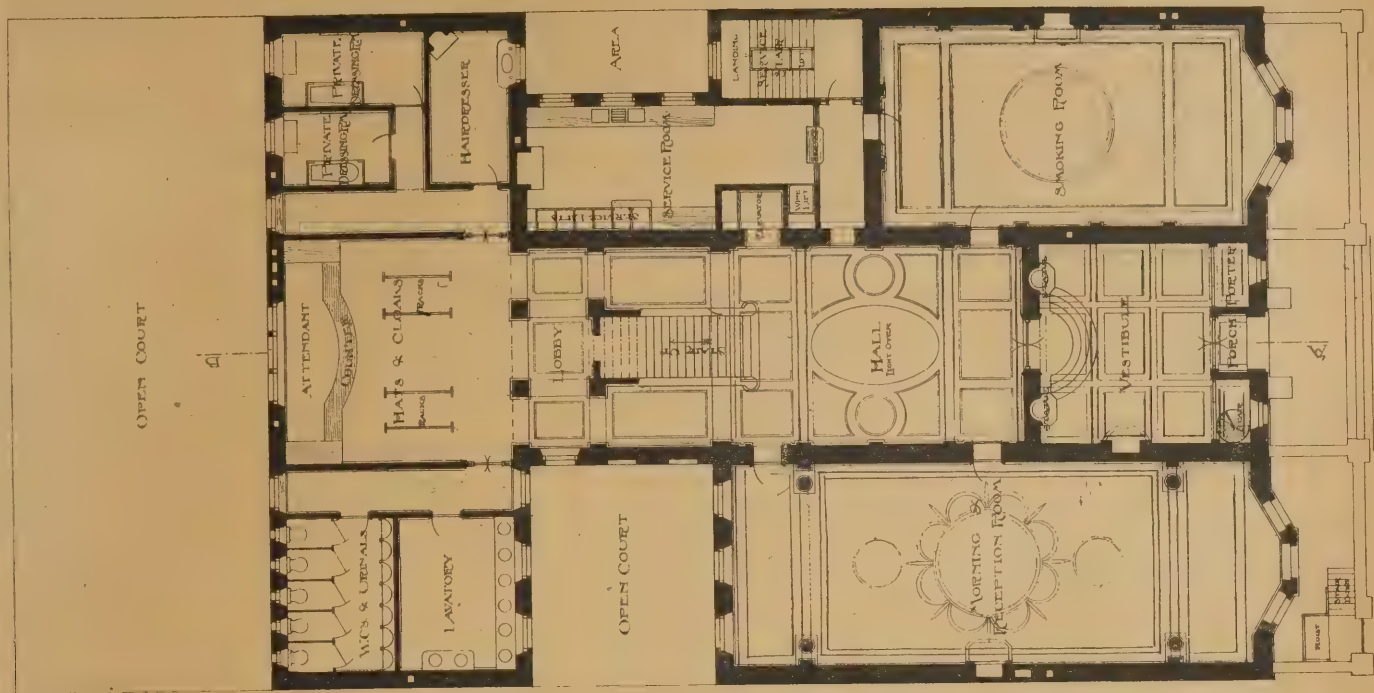
LIBRARY  
OF THE  
UNIVERSITY OF MICHIGAN



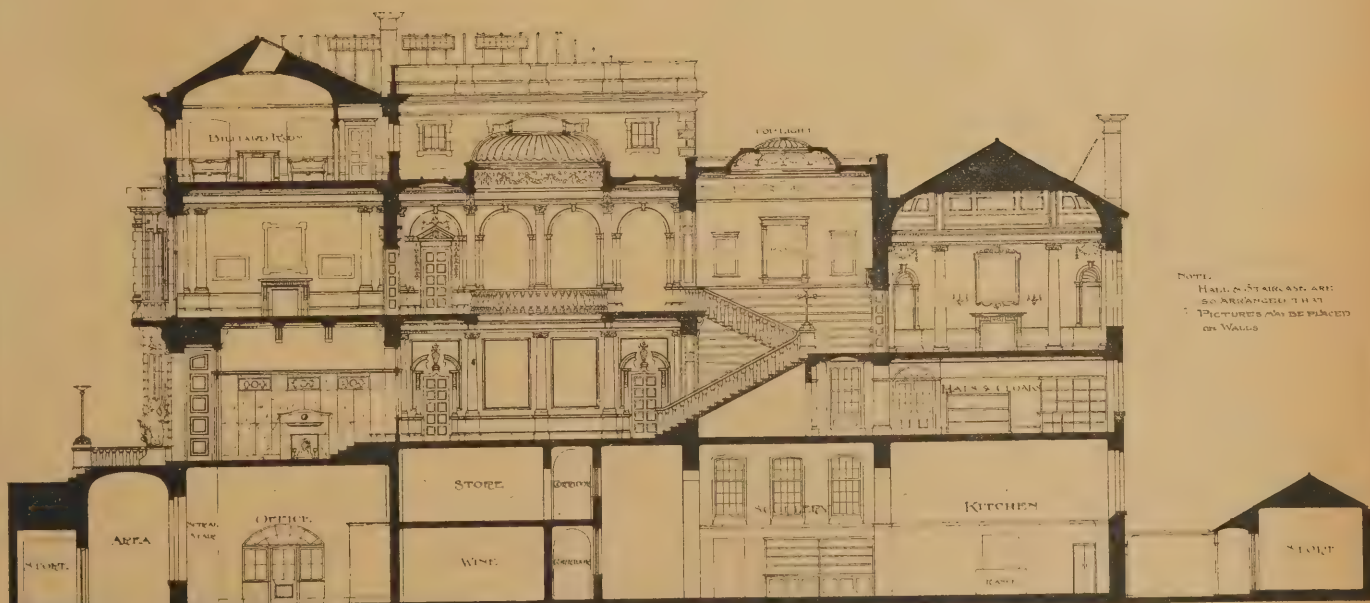


DESIGN FOR A CLUB OF ARTS





PLAN of  
GROUND  
FLOOR



NOTE.  
HALL & SMOKING ROOM  
AS ARRANGED THAT  
PICTURES MAY BE PLACED  
ON WALLS

SCALE 1/4" = 1'-0"

LONGITUDINAL SECTION ON LINE A B OF PLAN.



LIBRARY  
OF THE  
UNIVERSITY OF ALBANY



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
March 31st, 1897.

*"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."*—JOHN RUSKIN.

THE forecast made in our columns a few weeks since as to the course the Government would probably take on the question of the sites available for public offices is being fulfilled to the letter. With the same terms of reference as those of last year a Committee of the House of Commons has been re-appointed to inquire into, and report upon, the manner in which the sites available for the erection of the new buildings required for Government offices may best be appropriated for that purpose, and will resume its sittings very shortly. And within the last few days the promised bill for the acquisition of the Carrington House site, Whitehall, has been introduced in the Commons and read a first time. It sets forth that all the land proposed to be acquired under the Act is vested in Her Majesty as part of the hereditary land revenues of the Crown subject to certain outstanding leases, estates, and interests; and it proposes to authorise the issue, out of the Consolidated Fund, of such sums not exceeding in the whole £500,000 as may be required for the payment of the consideration payable for the Crown lands in question, and for the purchase and acquisition of the leases, estates, and interests; authority being given to the Treasury to extend the payment or the repayment of the sum required over a period of not exceeding fifty years, so that the burden on the taxpayer will be comparatively light. Power to build on the site so obtained is also conferred upon the Commissioners of Works.

IMMEDIATELY after Easter another colony of working-class dwellings will be commenced on the vacant space in the rear of the new Picture Gallery at Pimlico. So far as the number of people to be provided for is concerned, this is nearly as important as the great Boundary Street Scheme, to which allusion was recently made in this column. The ground at Westminster is only eight acres, as compared with fifteen at Spitalfields, but it will eventually house 4300 people, as against about 4700 on the larger space. It is intended here also to set up a model laundry, the Council having unanimously recognised its desirability. They were a good deal divided on this project when the Boundary Street plans were laid. There were no dissentients at all when this feature was proposed for Pimlico.

THE hand of the renovator is at present engaged in removing the traces of a past age on a building in the Vault, Dundee, to which tradition has attached some historic interest. The building is situated on the west side of the Vault, and the first floor is at present being converted into a hall. The dwelling-houses above are reached by a staircase from the back, which still retains traces of former elegance in the shape of carved woodwork, and it is wider and airier than is usually found in old tenement houses. The remains of panelling are still present in the rooms, and paintings of Sir Walter Scott and Robert Burns decorate the doors of two old cupboards. The place was used as an inn during the latter

part of last century and the earlier part of the present one, and there are lingering traditions of distinguished men having lived in it. There is a story to the effect that Burns spent a night there while on a visit to his patron and friend Robert Graham, of Fintry; and Sir Walter Scott, Dr. Johnson, and even Boswell, are said to have put up there. The piece of ground now occupied by the Vault was, as is well known, at one time the churchyard surrounding St. Clement's Kirk, the oldest Church in Dundee. In Queen Mary's time this was the only burying-place in Dundee, and it was in consequence of the danger to the health of the inhabitants that that Sovereign in 1567 granted the orchard that had formerly belonged to Greyfriars' Monastery (then destroyed) as a burial place. St. Clement's Church was in a ruinous state prior to the Reformation, and, when the revenues that had been attached to it were secularised, the property in the immediate neighbourhood of the Church came into the possession of several of the leading merchants of the day. The existing building has been so frequently altered and extended that its exact date cannot readily be fixed, but the principal portion dates back to at least the beginning of the seventeenth century.

At a general meeting of the Building Trades Exchange recently held in Glasgow, a paper was read by Mr. William Oliphant on the subject "Why is Scotland Fifty Years behind in Heating and Ventilating?" Mr. Oliphant said he was not prepared to prove Scotland was really so far behind, but maintained the country was seriously behind. He had travelled extensively, and could speak from sixteen years' experience in America, where he was in the position of Consulting Engineer. All the principal establishments in America devoted to heating appliances were managed by Scotchmen, and all the inventions by Scotchmen were widely adopted. The best of the appliances were the inventions of Scotsmen. How was it, then, that Scotland should be so far behind when her own sons knew no superiors in the field of useful invention? Simply because the capitalists were slow to take a good thing when it was offered them. "Wait till to-morrow" was their cry, and to-morrow never came; whereas the Americans offered the clever Scots with brains and merchantable ideas every scope, every facility to capital, and encouragement of every kind. Consequently America to-day enjoyed what was beyond question the best heating, ventilating, and cooking appliances in the civilised world, and is indebted to her gifted Scottish citizens for most of them. Mr. Oliphant strongly advocated the adoption in Scotland of the American system of cooking and plumbing apparatus. He strongly advocated the American system of ranges for cooking on account of their cleanliness, facility for working, and economy of fuel. In America the greenhouse system of heating by a series of pipes had been abolished, and radiators were now generally adopted.

LAST week the Heath Memorial Convalescent Home at Llanfairfechan was formally opened and handed over to a committee. The site of the Home is on the Penmaenmawr Road, and about a quarter of a mile from Llanfairfechan Railway Station. The building, which is of local stone, with dressed stone facings and lined with bricks, comprises a three storied block, with a frontage of about 140ft. It contains day rooms and dormitories for the accommodation of fifty patients, with suitable offices and servants' rooms, and convenient suite of rooms for the matron. Advantage has been taken of the quick fall of the ground towards the sea to construct a basement floor, which contains a bagatelle room, the dining hall, lavatory, kitchen, scullery, larders, boot room, &c. The contents given to the dormitories vary from 750 to 1000 cubic feet for each patient, and special attention has been devoted to provide ample light and ventilation in all parts. The rooms are provided with open fireplaces, and the corridors and principal rooms are heated by low pressure hot water pipes. Hot and cold water is laid

on all over the building, bath rooms are provided on each floor, and the sanitary fittings are of most modern and approved design throughout. A gate lodge, with a wash-house and laundry connected to it by a covered way, has been built adjacent to the building. Mr. Thomas Bower, of Nantwich, Cheshire, is the Architect; and Mr. John Gallimore, of Newcastle, Staffs., the builder. The heating, ventilating, and fire appliances, have been carried out by Hadden and Sons, of Trowbridge.

THE new St. Paul's Parish Institute, Cambridge, is a substantial building with a red brick front. The plans were prepared by Mr. John Morley, Architect, and the work has been carried out by Messrs. Kerridge and Shaw at an estimated cost of some £1300. The coffee room is to the left as one enters, behind it being the kitchen, and the small hall lies to the right. The large hall is behind, communicating with the small hall by sliding doors. The jumble storeroom is entered from the large hall, or by a passage passing round the building. The class rooms and caretaker's rooms are over this front block. All the ground floor rooms are match-boarded with pitch pine, and are illuminated with incandescent light.

PROFESSOR A. S. BICKMORE, in a recent lecture on "Upper Egypt—Karnak," said the Nile harmonised the ancient world with the world of to-day. In the Temple of Luxor the columns were overburdened with their wealth of ornamentation, all of which were originally coloured, but the tints had been blurred by the smoke from the torches of guides and the camp-fires of tourists. In the rear of the temple was placed the sanctuary of the god. The avenue, formed by obelisks, sphinxes, columns, and statues, led up to this sacred spot. In the Temple of Luxor was found the famous statue of Ramses II., thought to be the finest work of Egyptian Art. It was cut from red Assuan granite. The temple at Denderah owed much of its fame to the fact that on its walls were the statues of the Cleopatra of Cæsar and Anthony, and her son, Cæsarion. It was dedicated to Hathor, the Egyptian Venus, hence Cleopatra chose it as the preserver of her own image. The Temple of Karnak was similar to that of Luxor, only on a grander scale. In front of the gate stood a pylon, or outer wall or arch. Here was the world-famous avenue of sphinxes. The temple was dedicated to Ammon-Ra, and was by far the grandest religious structure of the globe. The Cathedral of Notre Dame, Paris, could be placed in its inner court, and the area of the temple was three times as great as that of St Peter's, Rome. Homer called it "the hundred-gated Thebes," and the accuracy of the description was proved by the majestic ruins. A single obelisk remained, and it bore the statement that it was erected by Queen Hatshepsut, in the space of seven months. It was dedicated to Ammon-Ra, and was covered with gold, so that when the sun rose the rays of light were reflected for miles, and kept in memory the name and power of the god. On one of the walls was the inscription of Sheshenk, or Shishak, who conquered Palestine in the time of Rehoboam; and a full description in pictures of the ancient processional of the priests of Ammon. At Thebes had been found a picture which threw a flood of light upon the past. In a procession were shown several negroes bearing ivory and leading a dog-ape. The date of the carving is not later than 1500 B.C., and showed that the differences between the races of man were as great nearly 4000 years ago as to-day.

THE new building of the Central Savings Bank has a considerable frontage in Carter-lane and in Addle-hill. It is situated in the midst of narrow lanes, and is so shut in by lofty warehouses that it is almost impossible to obtain a satisfactory view of the building as a whole. Like the original building in Queen-Victoria-street, it is unpretentious in style, but it bears the stamp of having been designed for use and not for ornament, and the most noticeable feature from the outside is the large size



of the numerous windows, which would lead one to expect bright and airy rooms. Although, however, the lower floors are inevitably somewhat darkened by the narrowness of the streets from which the light has to be derived, the upper stories are splendidly lighted, whilst the top floor is also provided with large skylights. The building consists of four upper stories, the ground floor, and the basement. Ascending by means of a lift to the top of the building, the first rooms to claim attention are the dining-rooms provided for the staff. The rest of the fourth floor is occupied by a portion of the correspondence department. The third floor is divided into two equal portions, one of which is taken up by the remainder of the correspondence branch. The other half of the third floor and the whole of the second floor are given up to the ledger branch. The first floor is occupied by the general correspondence branch, one portion of which is devoted to correspondence with postmasters only. On this floor there is also the annuity and insurance department, a branch of the savings bank which, owing to various causes, has never increased like the other departments. The ground floor contains the department connected with the friendly and charitable societies that use the savings bank, and the warrant inquiry branch. The kitchens for the boy messengers and porters are situated in the basement, as is also a small room, which contains the lending library of the boy messengers. The electrical plant (which consists of four large dynamos), the hot water apparatus, and the engines for working the dynamos are placed in another portion of the basement.

LAURENCE POUNTNEY HILL still maintains somewhat of the air of quietude which it enjoyed when, in the bygone days, it was regarded as a fashionable residential quarter. Turning from the bustle of Cannon Street, and the huge modern erections there, one is at once confronted with several old houses, whose history, if it could be unearthed, would doubtless be rich in ancient associations. The old churchyard of St. Laurence Pountney still remains, and in summer is one of those little green spots amidst a sea of bricks and mortar that afford to the eye a sense of rest. The carving of the doorways of several of the houses is still preserved intact. Over the doorway of No. 2 there appears the date, 1703, giving evidence that the houses were most likely built after the fire. The interior of two of these houses—they are now used as offices, and, consequently, are considerably altered—affords a sense of roominess and comfort that is rarely met with in the houses of to-day. The staircases are wide, the banisters being very perfect specimens of twisted oak, and here and there are pieces of old carving. It was very near these old places that Sir Laurence Pountney, one of London's Lord Mayors, resided. In the contiguous lane, named after the Duke of Suffolk, and near which that nobleman lived, are several other mansions which still preserve their old-world appearance, and close adjoining is the site on which Merchant Taylors' School once stood—now covered by a block of modern warehouses.

THE definite scheme for the decoration of the streets through which the royal procession will pass on June 22nd has been still further worked out in detail. The arch to be erected in King William Street is to be emblematic of the African colonies, and will consist of a gold and ivory structure, ornamented with horns, ostrich feathers, &c. The design for the decoration of London Bridge itself consists in the erection of a number of poops of old vessels on the piers on either side of the bridge, which will at night be lighted up with ships' lamps. The arches spanning the roadway over the bridge will be outlined at night by means of rows of small electric lamps, and the approaches will be brilliantly illuminated with large electric arc lamps placed at intervals.

IN Edinburgh the problem of finding a site for the new hall for meetings and concerts, towards which a patriotic citizen has offered a gift of £100,000, is still awaiting solution. A

proposal has just been carried in a sub-committee of the Town Council to remove for this purpose a portion, or the whole, of the houses on the north side of Charlotte Square. As this square is an acknowledged masterpiece by Robert Adam, and one of the best and most complete specimens of domestic Architecture in the neo-classic style in Great Britain, the proposal is encountering a very warm opposition.

THE Church in which Dr. Johnson used to worship, St. Clement Dane's, in the Strand, is in need of repair, and it is proposed to appeal for funds on the strength of the doctor's name, and the repairs are to be called a "Johnson Memorial." The old organ requires renovating, the marble table needs polishing and patching, and some windows which have long been closed are to be filled with stained glass and opened. It will cost between £2000 and £3000.

A CORRESPONDENT writes:—"The Lord Mayor was rather unfortunate in his reference, on the occasion of the opening of the Building Trades Exhibition, to the Crystal Palace as an instance of the triumph of the building trades. If he had enquired of Professor Banister Fletcher, he would have probably informed him that the Crystal Palace owes its origin primarily to a sketch on a piece of blotting paper by the then Duke of Devonshire's gardener, from which a design was worked out by Sir Charles Barry (who suggested the dome) and an engineer, Sir Charles Fox, who prepared the details. The only building trades engaged in the construction of the building were carpenters, glaziers, and painters. The building was a success as a temporary structure, but can scarcely be considered as a triumph of Craftsmanship, it being rather of the nature of engineering work. The public are apt to be led away by the size of a building, and are apt to consider that a work of Art is to be valued in proportion to its bulk rather than its quality. The choragic monument of Demosthenes, which is not much bigger than Aldgate pump, is a more remarkable work than the Pyramids themselves, for all their size.

THE great telescope of the Berlin Exhibition last year is being erected at the Observatory of Grünwald for the observation of the stars. This remarkable instrument is a novelty, and resembles a long cannon on its carriage. The tube is over 60ft. in length, and is moved by an electric motor. It has two object glasses, one for the eye, the other for the spectroscope and photography. The telescope will give an image of the sun nearly two feet in diameter, and will not be protected from the weather by a cupola, which would be very expensive, owing to its dimensions.

A WEEK hence one of the oldest ecclesiastical buildings in France, the Church of St. Pierre, which crowns the height of Montmartre, will be closed to public worship, and the structure will be pulled down to prevent its falling to pieces of its own accord. The site is believed to have been occupied by a Roman temple, which was converted to Christian uses in the Merovingian era. This the Normans swept away, and Louis VII., to please his consort Alix, raised, towards the middle of the twelfth century, the beautiful specimen of Architecture which is still represented by the apse known as Le Chœur des Dames. Upon its summit the revolutionary authorities set up a semaphore which was visible from almost every quarter of the city. To this day may be seen the stout beam of oak which carried the moving arms. Later generations stuck a hideous façade and a yet more incongruous steeple on to the exquisite work of the Norman masons.

AT Brighton the old road along the edge of the cliff to Rottingdean has been declared to be dangerous at a point near Black Rock, and has been closed. This result, which has long been foreseen, has been brought about by recent falls of the cliff, caused partly by the disintegration of the chalk by the weather, and partly by the action of the sea, which at high water washes against the base of the cliff. Whilst

Brighton and the places westward have spent vast sums upon sea defences, little or nothing has been done to protect the foreshore eastwards between Brighton and Rottingdean, the property owners being apparently disinclined to incur the heavy expense entailed by such defensive measures. Year after year vast masses of the tall cliffs have been detached and sunk into the sea, the edge of the cliffs being brought gradually inland. About a couple of years ago the disappearance of a huge portion of the cliff made it necessary that carriage traffic should be stopped, and a new loop road was constructed about a quarter of a mile inland. The alteration in the aspect of the cliffs during the past twenty years, more particularly during the more recent years, has been of a most marked character. Some coast-guard cottages stand close to the portion of the road now closed, and these, it would seem, will ere long be imperilled if the denudation of the cliff continues. The most serious falls of cliff have occurred not far from a part well known to geologists as the elephant bed, where a darker stratum in the chalk marks where, in some far-off period, the remains of that animal was carried down by glacial action or otherwise towards what is now the Channel, but which in those days presumably was the continuous bed of chalk that joined this country to the Continent.

An exhibition of studies, with a few completed drawings, by Mr. John M. Swan, A.R.A., is now open at the galleries of the Fine Art Society in New Bond Street. The majority of the hundred and more productions on view are in black and white chalk and coloured pastels, on tinted paper, chiefly grey and blue. It is astonishing what vigour and solidity Mr. Swan can indicate with a few bold strokes; and, in dealing with the lion and lioness, the leopard, the tiger, the jaguar, the Polar bear, and the rest, he not only represents their points of strength, but everything in the way of grace or suppleness that can be discovered in their attitudes and movements. The limppness of repose is as finely delineated as the energy of action.

THE work that is in progress for the Battenberg Memorial Chapel at Whippingham will be completed by July. It may be interesting to state that a sarcophagus is being prepared from the designs of Mr. A. Y. Nutt, Her Majesty's resident Architect at Windsor Castle. He is also having an altar table made for the Princess Henry. Three painted windows with figure subjects are being made by Mr. Ion Pace, and these works, in conjunction with Mr. Gilbert's really fine screen of hammered metal, will make the Memorial Chapel one of the choicest pieces of funerary Art of our time. There is now no intention of putting up any monument to the late Prince, except, perhaps, a marble bust, in the Mausoleum and Frogmore, and no progress has been made with the projected memorial for St. George's Chapel, Windsor.

THE Kremlin is the most interesting part of a picturesque and beautiful city, says Mr. J. D. Ross, writing of a visit to Moscow. It is situated in the very heart of Moscow, on a hill of about a 100ft. in height, and in the dim and distant twelfth century it was a fortified camp surrounded by palisades, when it was the stronghold of Ioury Vladimirovitch Dolgorouki. The Kremlin of to-day is an antiquated fortress surrounded with immense crenelated walls of a height of some 70ft., and over a mile and a half in circuit, pierced by five gates, and protected by 18 towers. Within the Kremlin walls there is an immense assemblage of cathedrals, palaces, and barracks, which strikingly illustrate the union of Church and State in Holy Russia. Great pains have been taken to preserve the ancient buildings of the Kremlin in their original condition, so far as it has been possible to do so. The palace of the "Tchérem" still contains the quaint old banqueting hall in which the Czars of bygone days held high revel with their boyards, while their women looked on from a gallery above, carefully screened from the gaze of the indiscreet. The timeworn beds



and chairs of those remote days still furnish the queer ill-lighted rooms in which those fearsome autocrats lived, and the dread shade of Ivan the Terrible still seems to haunt the venerable structures amid which he spent so many years of his atrocious life. Every stone of the buildings within the Kremlin walls seems to have its history, and to have been the mute witness either of some superb imperial pageant or of some blood-stained tragedy, some dark and nameless crime in which human wickedness and cruelty have found their utmost expression. How little is really known of the Kremlin may be realised by the fact that when the foundations were being sunk for the splendid monument to the memory of Alexander II., which has just been completed, the Architects came upon a whole system of subterranean passages, prisons, and torture-chambers, of which no living man had any idea. A real history of the Kremlin would prove to be one of the most absorbing and instructive books ever written by man. The modern palaces of the Kremlin are of great size and magnificence, the vast salons of the "Great Palace," named after St. George, St. Alexander, and St. Andrew, are superbly decorated with the insignia of these orders of knighthood. Beautiful pictures, mirrors, and gilding are lavished everywhere.

WHILE workmen were engaged recently making a track for new water pipes at Cullen, they came upon two urns. In breaking off the end of a rough, unshapen block of gneiss that projected into the track, and removing the earth, the side of one urn was removed along with it. The greater part of the urn remained in its original position, covered by the heavy block of stone, and above the stone, strange to say, there was growing a tree of considerable size. It was found to be a cinerary urn, 11½ in. in height and 9 in. in width at the mouth. As usual, the upper part was ornamented with markings. On a shapely, oblong slab of mica-schist the burned bones rested in a heap, and over them was placed the urn, with the mouth, as usual, downwards, resting on the slab, and around the mouth clay appeared to have been placed to exclude the air. About 2 ft. farther on the track, and at a depth of 12 in. from the surface, the workmen came upon a smaller urn of food-vessel type, 5½ in. in height, 2½ in. in diameter at the base, and 4½ in. at the mouth, and with no ornamentation. It lay mouth upwards, with no protecting stones, and contained a considerable quantity of burned bones.

A SICILIAN peasant's house consists of one room with a kind of attic above, roughly roofed with tiles, through the imperfect jointings of which the rain drips in wet weather. In this single room are huddled together parents and children, the mule or ass, the pig, and the fowls. An ancient table, a mattress, a few straw-bottomed chairs, and a chest or two comprises the furniture. By the hearth hangs a small sack filled with all kinds of wooden spoons; on a shelf stand the terra-cotta lamp and a few pots and pans. In some houses there is also an old-fashioned weaver's loom. In the attic the hay and corn are stored, and if it be roomy it serves also for the children's bedroom; if not, the parents endeavour, by hanging clothes on a rope, or by a paper screen, to separate their own resting-place from that of the elder children.

A MOSAIC of unusual interest has been discovered by the secretary of the Greek Patriarch of Jerusalem. It purports to be a map of Palestine and Lower Egypt, illustrated with picturesque details, such as trees of different species, fish swimming in the Jordan and Nile, and boats on the Dead Sea. The towns are represented by groups of houses, Churches, fountains, etc. The mosaic dates from the Justinian era, and has formed part of the floor of a basilica discovered at Madaba, beyond the Jordan.

PROFESSOR FABRE has just made a most surprising discovery in the archives of Amsterdam of some very old maps, made between 1705 and 1719, showing the regions in Central

Africa, which have in modern times been rediscovered by Livingstone and Stanley. The maps were based on information furnished by Portuguese traders, and according to Professor Fabre are, on the whole, accurate. The course of the Congo under another name is laid down. In addition to the maps, Professor Fabre found several documents giving information derived from the blacks of the great lakes which form the source of the Nile, and which Livingstone and Stanley named Victoria Nyanza. It is curious that all modern explorations should have been made without any knowledge of the fact that this territory had to some extent been explored and mapped nearly two centuries before. The Zambesi territory was better known to the Portuguese in 1700 than it is even now to modern discoverers. They had considerable settlements at the mouth of the Zambesi river, traces of which are still to be seen.

A PANEL of Mortlake tapestry made for Charles I., when Prince of Wales, was recently sold at Christie's, and brought £380. It measured 15 ft. by 18 ft., the subject being "The Rape of Helen," in a rich border with allegorical figures in medallions, and various masks, arabesques, and scrolls in brilliant colours, and the letter C interlaced at the sides and surmounted by a crown. Above is the Prince of Wales's plume with a crown, and beneath a trophy of sceptres and a motto in Latin. A pair of old Brussels panels fetched £100, and a suite of Louis XVI. carved and gilt wood furniture, with old French tapestry backs and seats illustrating La Fontaine's fables, was knocked down at £210. A large cylindrical Chinese vase, famille verte porcelain, richly enamelled with a river scene and figures, and another vase with nearly similar decoration, realised £650; an old Dresden service painted with bouquets and sprays of flowers on white ground, 66gs.; a pair of famille verte figures of kylin, on square pedestals, 17 in. high, £68; and an old Nankin vase, embellished with landscapes, figures, &c., 115gs.

It is proposed to widen the southern end of Little Trinity Lane. The thoroughfare is one of the numerous and narrow streets which lead from Queen Victoria Street into Upper Thames Street. The greater part of the street is of a uniform width, the upper portion being widened soon after the opening of the Mansion House Railway Station, and there is room for two vans to pass. At the foot of the street, however, the premises and pavement on the left-hand side project out into the street, rendering it only possible for one van to pass in or out at a time. A public-house next door was recently set back so as to conform to the line of frontage, but the premises at the corner remain in their original position, and create an obstruction which might, apparently, be easily and cheaply set back also.

At the last meeting of the Strand Board of Works the Works Committee's report, which stated that the estimated cost of paving certain streets in the district during the ensuing year was £2265, was adopted. The Committee also recommended that a new sewer should be laid in Church Street, Soho, at an estimated expense of £1426, and that an additional sum of £1000 should be allocated for the general repairs of the sewers. The resolution was carried. It was agreed that the sum of £2000 should be provided for general paving repairs in different parts of the district, the work to be carried out by the Improved Wood Pavement Company upon the terms of their existing contracts as to laying and maintenance.

THE full-length bronze statue of the late Sir Richard Owen, upon which Mr. Thomas Brock, R.A., has for some time been engaged, has now been placed in the Central Hall of the Natural History Museum at South Kensington, in a prominent position, facing the late Sir Edgar Boehm's statue of Charles Darwin. Owen is represented wearing the gown of a professor of the Royal College of Surgeons, and holding in his left hand a fossil bone of an extinct New Zealand bird. The

statue is the outcome of the movement started in 1893, after Owen's death, for the promotion of a national memorial to commemorate the great palaeontologist's eminent services to science.

### THE NEW FIRE-ENGINE STATION AT ABERDEEN.

MR. A. H. L. MACKINNON has secured the first premium for the new fire-engine station. Mr. J. A. Ogg Allan is placed second and Mr. John Rust third. The assessor was Mr. Muntz, of Belfast, who will submit his full report to the committee at an early date. The site of the new Fire Brigade Station, Weights and Measures, and Lighting Departments, all of which are comprehended in the plans, is on the east side of King Street, and lies directly south of the Great North of Scotland Railway. The entire space has a frontage to King Street of 200 ft., with an average depth of about equal amount, but, as a portion of about 90 ft. square in the north-west corner is reserved for future extensions, the frontage of the new establishment to King Street will be a little over a hundred feet. Mr. Mackinnon's design is externally of a plain and substantial character, utility being the main feature aimed at throughout. The main structure on the plans is a large main building, fronting King Street, accommodating the Fire Department proper. The building is two stories in height and about 70 ft. long, built, like all the buildings, of granite. The front is pierced on the ground floor by four segmental arched doorways leading into the engine-house. Here accommodation is provided for four engines. The stables are directly behind the engine-house, the doors opening inwards from the latter. There is accommodation for six horses. A staircase leads from the engine-room to the first floor, in which is the dormitory for the unmarried members of the fire brigade, with accommodation for six men; and a large recreation room, with bathroom, lavatories, and all efficient furnishings. The staircase is not meant for descent, however, in the case of the brigade being called out. Ample arrangements are made for the ventilation of the building. The heating is to be by hot-water coils, the heating apparatus being placed in the basement part of the tower. This tower, which is intended for the drying of the hose, stands at the north-east corner of the main building. It rises to a height of about 75 ft., a handsome structure of granite, finished with a curved slated top. Arrangements are made for the drying of the firemen's clothes, and for other emergencies incidental to the brigade work. At the north end of the main building, and separated from it by a passage way, stands the firemaster's house—a two-story structure, with the gable towards King Street. Stretching backward from the south end of the main building is a line of one-story erections, containing the harness-room, coach-house, store-rooms, &c., connected with the fire brigade. Then across the rear of the site runs a line of two-story buildings, comprising the assistant firemaster's house and the married firemen's quarters, accommodation being provided for four of the latter. The central area behind the main building and the married firemen's quarters will be utilised as the brigade drill-yard. The Weights and Measures Department are to be located in a line of one-story buildings to the north of the married firemen's quarters; and at the extreme northern side of the ground, running alongside the railway, are to be erected the line of buildings for the Lighting Department. Mr. Allan's design, which has been awarded second place, is, so far as regards the general arrangement of the various departments, very similar to that of Mr. Mackinnon. Mr. Mackinnon's estimate is £10,400, and Mr. Allan's £11,000.

A NEW Unitarian church is to be erected at Small Heath, Birmingham. The trustees of the Church of the Saviour have promised £850 from the proceeds of the sale of their premises. The total cost is expected to reach £3000.



## HERALDRY OF THE RENAISSANCE IN ENGLAND.\*

By J. ALFRED GOTCH, F.S.A.

IN dealing with the subject of Heraldry before an audience of Architects—or chiefly Architects—I propose to approach it from the decorative side, not from the scientific; for Architects are not likely to be called upon to grant arms to their clients, or even to marshal them for them, whereas it is not at all improbable that they may have to draw them; and to do this successfully it is essential to know something of decorative heraldry. During the latter half of the sixteenth century and the earlier half of the seventeenth, there was a general desire to make much of the antiquity and respectability of one's family, and one method of doing this was to display one's arms. There were many upstarts in Elizabeth's days; some of the proudest of our historic families emerged from obscurity into the dazzling light of her splendour, and presently afterwards fell to peopling that obscurity with ancestors whom it was no one's concern to challenge, but who, if they had been challenged, would have been as elusive as the ghost of Hamlet's father. The rearing not only of a large family, but also of a large ancestry, was characteristic of the times. It is astonishing how, in the grants of

### ARMS OF THE PERIOD,

it appears that the Merchant Taylor, let us say, though of long descent, has forgotten what his ancestors' arms were, and how he requests the herald to search in the registers and records of his office; how the herald, impressed with the antiquity of the tailor's descent, cannot refuse to do so, with the result of happily discovering what those ancient arms were, and of confirming the grant of them to the tailor. When the posthumous granting of arms to persons who could have had no concern with them is considered, we can realise how far heraldry had travelled from its original starting-point three centuries before. From being matters of daily, practical use, armorial bearings had come to be what certain rudimentary organs of many animals are, a mere indication of particular ancestry; and so by implication a mark of gentility. Being no longer part of everybody's daily life, it had become necessary to write the history and science of them, and, like other things in this world, from being matters of popular knowledge, they came at length to be mysteries in the keeping of

### A KIND OF PRIESTHOOD.

The next inevitable stage was crystallisation. Rules were laid down which shared the fate of many other rules if blindly adhered to: instead of being guides they became goals; instead of fostering individuality they produced monotony. The origin of armorial bearings being forgotten, the application of them tended to become illogical, and heraldry gradually declined both as a science and as a Decorative Art. The drawing became too realistic, and lost its proper conventional treatment; the bearings were depicted in the round instead of the flat. Draughtsmen were too well instructed in general matters; they had got to know what live lions really looked like, they were familiar with many animals and things which their ancestors knew chiefly by conjecture, and they utilised their knowledge to the detriment of their design. The eighteenth century squires gradually fell out of their forefathers' habit of adorning their houses with heraldry. Shenstone says, in one of his essays: "Antiquity of family and distinctions of gentry have, perhaps, less weight in this age than they had ever before; the bent dexter or sinister, the chief, the canton, or the chevron, are greatly out of date. The heralds are at length discovered to have no legal authority." Heraldry, indeed, became little more than

### A MATTER OF BOOK-PLATES,

and even these were threatened with extinction, since arms were granted which defied

depiction, such as those mentioned by Boutell, in which one of the thirteen charges was "a book duly clasped and ornamented, having on it a silver penny, upon which is written the Lord's Prayer." Another cause of deterioration in heraldic drawing arose directly from the change in the object of heraldry—namely, its becoming an indication of ancient descent; for one of the marks of ancient descent, and of great alliances, was to have many quarters to one's shield. If a man married an heiress his son inherited not only his mother's possessions, but also her paternal arms. This multiplication of quarterings not only tended to make the shield look fussy and confused, but it so reduced the scale of each coat as to render spirited drawing impossible. There is in the hall at Fawsley, in Northamptonshire, an achievement of the Knightleys, containing 334 quarters, which is 330 too many for decorative effect. But although the heraldry of the Renaissance contained within itself

### THE GERMS OF ITS OWN DECAY,

it flourished vigorously enough. The designers of the time loved to avail themselves of it in all materials and in all connections. There is hardly a building of the period of Elizabeth and James that has not its owner's arms carved conspicuously upon it. The joiner and plasterer were not behind the mason in using such excellent decorative motifs as heraldry afforded. Hundreds of elaborate chimney-pieces exhibited as the focus of their splendour the owner's arms. The intricacies of a hundred ceilings encompassed the same proud object. Scores of windows glowed with the colours of his achievement. As he gazed into the fire the flames lit up the same inspiring theme on the fireback, and the embers warmed at once his feet and his arms. The book which lay upon his knee bore on its leather cover still the same device, stamped in gold, or else inside, printed on a book-plate. The family animal surveyed mankind from the

### LOFTY PINNACLES OF THE ROOF,

or mounted guard on the newels of the staircase, or stood rampant in the ascending panels of its balustrade. In the payments on account of the Royal houses in the sixteenth century a charge is often made for carving the "king's beasts." To all uses, great and small, was the device of the family put, even to the most insignificant, as at Farleigh Castle, where the garb (or sheaf) and sickles of the Hungerfords form the escutcheon of a lock. But in no connection was heraldry more freely used than in tombs and monuments to the dead, and we can imagine how much it must have mitigated the grief at the loss of a parent to be able to display all his heraldic magnificence over his grave. Apart altogether from its decorative aspect, heraldry is most useful in historical research. Many a clue is afforded by the presence of a shield or a badge in a building which has outlived its story, and

### MANY A SIDE LIGHT

is thrown on the process of research. Take, for instance, Rushton Hall. There we find two gables alike in design, but bearing different shields, one with the trefoils of Tresham, the other with the cocks of Cockayne. How much does that difference imply? It means the downfall of the first family through complicity in Gunpowder Plot, and the succession of the second to the house and estate, and not only its succession but its taking up and continuing the enlargement of the house in the old spirit and on the old lines of design. There are, of course, certain rules and regulations which have to be observed, but, within their limits, the more freedom the better; in fact, freedom is essential to decorative effect. For instance, the rule was that a bend must occupy one-fifth of the field. But the width of the bend ought to depend upon the space occupied by the charges on either side of it, and on the fact of its being itself charged or not, always bearing in mind that it must not be so narrow as to become a bendlet. Another rule was that the chief must occupy one-third of the field; but here also the depth must depend upon the charges in the field. So, too, in the drawing of charges themselves. The

characteristic charge that distinguishes the coat must be preserved, but within that limit it may be treated according to the taste of the designer. For instance, a lion rampant must always be made a lion rampant, but there is no need to have his head and his four legs in precisely the same relation to each other, nor need his tail

### ALWAYS TAKE THE SAME CURVES.

These things may be varied according to the space to be filled. Broadly speaking, the treatment may be as free as possible, so long as no new idea is introduced. Thus the lion rampant is one idea; the lion salient (or about to spring) is another. The lion rampant always looks in the direction in which he is going; but if you change the idea and make him look towards the spectator, he becomes a lion rampant gardant. A lion rampant, if he has to fill a tall, narrow space, will be thin and long, and very upright; if he has to fill a comparatively square space, he will be thin, it is true, but less thin, shorter, and not so perpendicular in attitude; but in both cases he will be rampant. If the heraldry of the sixteenth and even seventeenth century is compared with that of the eighteenth or early nineteenth, it will be at once apparent how the draughtmanship deteriorated, and

### HOW COMMONPLACE THE DRAWING BECAME.

Under such treatment the poetry evaporated, and an additional excuse was furnished for the contempt into which the whole subject fell. Heraldic drawing is not an easy matter; if it is to be revived, it must be done not by a mere copying of old examples and a departed style. The designer must be a skilful draughtsman, combining vigour of pencil with a strong feeling for anatomy; so that if an animal has to be drawn its particular characteristics may be presented in a truthful though conventional way, with as few strokes as possible. The designer, too, must steep himself in the subject, so that he has its rationale at his fingers' ends—not necessarily a long or tedious thing to do. But when he is properly equipped he will find

### FEW FIELDS OF DESIGN MORE ATTRACTIVE,

or lending themselves in a greater degree to pure enjoyment of making lines express beauty, and fancy, and force. A lengthy series of illustrations, showing great vigour of design, followed the paper, after which Mr. J. M. Brydon, in proposing a vote of thanks to Mr. Gotch, remarked that the paper had settled a very vexed question for them—whether Architecture was a profession or an Art. It seemed to be neither. It was a mechanical contrivance; and he was quite ready to accept the dictum and become a craftsman. As craftsmen, heraldry must appeal to them from two aspects—the one historical, and the other decorative—and the speaker proceeded to enlarge on both these points, commending Mr. Gotch for having given instruction of such great use and importance to students of Architecture who, in their practice, were constantly using arms.—Mr. St. John Hope seconded the vote of thanks, agreeing with Mr. Gotch as to the disrepute of heraldry through it being brought into a crystallised condition. He also deprecated the multiplying of quarters as destructive of a great deal of the artistic beauty of ancient heraldry. There was no doubt that to draw heraldry properly they must become soaked in the subject, and one of the best sources from which heraldry might be learnt was that of shields. It was unfortunate that the places where shields were to be found were rather difficult of access; and in his opinion there ought to be a collection of casts at South Kensington, so as to enable them to institute useful comparisons from period to period, or from year to year.—Mr. H. H. Statham agreed that in a retrospective sense heraldry was a most valuable study, but it seemed to him that in the present day it was only to be regarded as a kind of pastime—a picturesque one certainly. He thought there was a wide field for a new species of heraldic animals, and commented upon the increased Architectural effect obtained when heraldry and Architecture were worked out together.—The vote of thanks was carried and acknowledged by Mr. Gotch.

\* Extracts of paper read on Monday night before the Royal Institute of British Architects.



## Professional Items.

**ABERDEEN.**—The new Church in Rosemount Viaduct for the St. Paul's U.P. congregation has been opened to the public. The building is a commodious structure with accommodation for 650 worshippers. The internal furnishings are all of selected pitch pine, light stained. A gallery runs right round the Church, that portion behind the pulpit at the east-end being set apart for the choir. The pulpit itself is of a semi-platform design, access being obtained by a staircase at each side. The building is heated throughout by steam, and fitted with the electric light. In the basement are three halls, the largest capable of accommodating about 250 persons, but should necessity arise it can be enlarged by the addition of one of the adjoining halls, so as to accommodate about a hundred more. A house for the Church officer is also provided in the basement. The contractors for the Church, which will cost between £5000 and £6000, were: Mason work, Leslie Smith; joiner, Hendry and Keith; painter, William Philip; plasterer, W. Ross; plumber, John Thom; heating apparatus and electric light installation, Shirras, Laing, and Co. The Architects are Messrs. Ellis and Wilson.

At the last meeting of the Plans Committee of the Aberdeen Town Council, plans were submitted of fifteen new buildings, all dwelling-houses, proposed to be erected in different parts of the city. The value of the new property is between £9000 and £10,000.

**ARBROATH.**—The Postal Authorities are now advertising for a site for a new Post Office in Arbroath, their intention being apparently to build in place of leasing a property. The site wanted must be within 100 yards of the High Street; and, as showing that the intention of the authorities seems to be to put up a building of some Architectural pretensions, it may be mentioned that it is specified that the site must contain not less than 600 square yards, with a frontage of not less than 60ft. A good many people seem to think that the site occupied by the west-most portion of the market buildings would form a most central and suitable place for a Post Office. These buildings have for years past been practically a "white elephant," and could probably be disposed of at a low figure to the Post Office Authorities.

**BANGOR.**—The memorial stone of the county school for girls, which is being erected in Upper Bangor from the designs of Mr. Phillips, was laid on the 20th inst.

**BRADFORD.**—A meeting of the Bradford School Board was held last week. The Sites and Buildings Committee recommended that a resolution, adopted at the last ordinary meeting, to use mechanical ventilation, fire-proof flooring, and wood-block flooring in the construction of the Carlton Street Higher Girls' School and the Junior Teachers' Central Classes be cancelled. After several amendments had been put and lost the recommendation was adopted.

**BRECHIN, N.B.**—The Parish Council some time ago resolved to erect offices wholly for their own use, and at the Committee's usual monthly meeting plans from various Architects were under consideration. After discussing the respective merits of the plans, those prepared by Mr. D. Wishart Galloway, of Brechin, were adopted. The building comprises a Council Chamber measuring 28ft. by 18ft. by 16ft. ceiling; Clerk's room, 24ft. by 19ft. by 14ft., with separate spaces for the public when registering and paying assessments. The Inspector's private room is situated at the rear of the building, and is so arranged that the Inspector has direct communication with the Council Chamber and public office. A private entrance from the vestibule is also provided to the Inspector's room. The style of Architecture adopted is what may be termed a free or

nineteenth century treatment of Scotch Renaissance characteristic of the district.

**COVENTRY.**—Coventry is to have a second theatre, built on the site of the oldest one in the city, in Smithford Street, and having a frontage to that important thoroughfare.

**DEWSBURY.**—A new club-house has been opened in Boothroyd Lane, Dewsbury, which has been erected from designs by Messrs. D. and W. Thornton, Architects, of Dewsbury. The structure stands upon the site of the old club-house, but occupies more ground, and is both substantial and commodious.

**DUNDEE.**—The building and allied trades of Dundee are at the present time in a flourishing condition. The winter has been fairly open, and building operations have suffered comparatively little interruption from frost and snow. There has also been abundance of work on hand, and prospects are equally satisfactory. All branches of the trade have, therefore, been in full swing, there having even been a scarcity of men in some departments, for the briskness has not been confined to Dundee, but is general throughout the country. Two of the largest of the buildings at present in course of erection are now wearing on towards completion. The mason work of the new Post-office will be finished early this spring, while the new offices of the Prudential Assurance Company will be ready for occupancy in May. Fortunately, however, for the trade there has been quite a crop of large "jobs" launched since the year began. In addition to the new block for the Pearl Assurance Company, there are in prospect the Royal Bank buildings in High Street, large wine and spirit stores in Seagate for Messrs. John Robertson and Son, Limited, and Mr. George Willsher, the Roman Catholic House of Mercy and Convalescent Home, the Caird Hospital for Women, and a number of other and smaller undertakings, while there is also a fair amount of tenement, terrace, and villa property in prospect.

**DUMFRIES.**—Plans have been accepted by the Dumfries Burgh School Board for a new elementary school. The new school will occupy a situation fronting George Street and also overlooking the Nith. The plan selected is by Mr. A. B. Crombie, Architect, and is chosen from several competitive Designs. The building is fully furnished with all modern improvements and equipments. It is partly of two stories, and the whole of the class rooms for the various standards in the upper school are arranged round a commodious central hall on the ground floor level. The entrances for boys and girls are placed at each side of the front two-story block, with cloak rooms and separate staircases. The central hall is amply lighted by a large lantern on the roof, the lights of which are vertical, and fitted with iron rod adjustments for opening and closing, similar to those used in conservatories. The cost of the school is estimated at under £6000.

**EVESHAM.**—The Buildings Committee has made enquiry into the existing accommodation at the workhouse. It decided that more accommodation was urgently required, and that by building a new workhouse on the present site a much better and more economical arrangement could be made than by alterations, and the proposal has been unanimously adopted, and the services of Mr. G. H. Hunt, as Architect, have been secured.

**GLASGOW.**—At the recent meeting of the Glasgow Dean of Guild Court plans of a large number of new buildings were approved. The Corporation were authorised to make certain additions at the Cattle Market; the erection of tenements of shops and dwelling-houses in Main Street, Bridgeton, Garscube Road, and Alexandra Parade was approved; the necessary permission was given for the formation of a new private street on the lands of Gairbraid, Maryhill; and the trustees of Victoria Place Baptist Church were authorised to erect a new Church at the corner of

Langside Road and Butterbiggins Road. The extensive block at the north-east corner of Sauchiehall Street and Cambridge Street is to be taken down, and a large building erected on the site.

The pile of buildings in West Regent Street, Glasgow, which forms a fine suite of Masonic premises, was opened on the 20th inst. The building has been erected from designs by Mr. J. L. Cowan, Architect, Glasgow. It is four stories in height, and the style may be classed as a free treatment of old English Renaissance. There are practically two buildings on the ground, one to the front and the other behind, the one section being devoted to Masonic purposes, and the other let as writers' offices and for commercial purposes generally. The chief feature is a grand hall suitable for lectures and concerts, 64ft. long and 38ft. wide, seated for 400 persons. It has a platform at one end, on which there is a divided pneumatic organ by Messrs. Brindley and Forster, Sheffield. Something approaching £16,000 has been expended on the ground, buildings, and furnishings.

**GOBOWEN.**—The new church which has been erected for the Wesleyan Methodists at Gobowen was opened last week. The building, which adjoins the old chapel, long felt to be much too small, has a frontage to the Holyhead road, is 37ft. long by 26½ft. wide, and will seat some 120 persons. Ruabon red pressed bricks have been used, with white bricks for the window coigns, and the front is relieved with Grinshill stonework and brickwork combined. The interior, which has a light and bright appearance, is fitted up with pitch pine work, and Boyle's ventilating system has been adopted. A porch and vestry are provided, and the old chapel will now serve the purpose of a schoolroom. The work has been carried out by Messrs. Griffiths and Son, builders, Ellesmere and Knockin, from plans and specifications prepared by the Rev. S. H. Terrill, of Oswestry.

**HARROGATE.**—For some time past the North-Eastern Railway Company has been carrying out extensive improvements at the Harrogate Railway Station. Considerable advance has latterly been made with the structural alterations in the station proper, the main entrance on the west side having been enlarged and new and more complete offices erected. Immediately in front of the entrance an ornamental iron portico has been erected, and this it is intended to cover with glass. An entirely new entrance to the up-line platform has been constructed on the south side, two large villas in Grosvenor Terrace having been demolished to make room for the roadway and approach. A new and much larger bridge is being constructed in Station Road, and in the centre of the station a double bridge is nearing completion. One side is intended to be used for passengers and the other for luggage, the latter being conveyed to and from the up and down platforms by a hydraulic lift. The new goods and coal depôts on the line side on the Dragon estate are assuming extensive proportions, and, when completed, will relieve the traffic at the present time conducted in these departments at Starbeck.

**HULL.**—The Corporation proposes to purchase the Park Street Orphan Home as a site for the Technical School for the sum of £6500, and to borrow a sum not exceeding £15,000 for such purpose and making the necessary alterations.

**INVERNESS.**—A new block of buildings is to be erected in Academy Street, Inverness, to cost £7000, and will have a frontage of 70ft. to Academy Street and a frontage of 50ft. to the railway thoroughfare. On the ground floor of the building, which is to be four stories in height, there will be four large shops, with cellars underneath, fronting Academy Street. Designed in the classic style of Architecture, both elevations will be faced in red sandstone from Ayrshire. The Architect is Mr. William Mackintosh, Union Street. The successful contractors are: Mason, Mr. Alexander, jun.; carpenter, Mr. Peter Cameron; slaters, Messrs.



James Gray and Son; plumber, Mr. A. J. Russell; plasterers, Fowler and Kennedy; painter, Mr. John Munro; and blacksmiths, the Rose Street Foundry Company, Inverness.

LIVERPOOL.—The new offices of the White Star Line, in James Street, are gradually approaching completion, and they form a striking object as viewed from the landing-stage and the Cheshire shores of the Mersey. Architecturally, the structure has good features, and although it has been built upon a lower foundation, it already towers above nearly every other building in the neighbourhood.

MONTROSE, N.B.—The new hall erected for the accommodation of the Montrose detachment of the 2nd V.B.G.H. was opened by Colonel Wavell, commanding the 42nd Regimental District, on the 20th inst. The Montrose corps has had a spacious drill hall for many years situated in Mill Street, but there was no armoury, recreation-room, or house for the drill-instructor. It was therefore resolved to erect the new hall on the vacant ground at the south side of the old one. Plans were prepared by Mr. John Sims, C.E., who has aimed more at the efficiency of the internal arrangements than any mere external decoration; but the front elevation to Mill Street, from its substantial mason work and size, has an imposing appearance nevertheless. The main hall is 77ft. by 58ft., the roof being in one span. It is 23ft. high to the wall beam, and 30ft. to the crown of roof. At the end of the hall fronting the street an armoury, clothing store, lavatory, &c., have been provided, while the Instructor's house occupies the floor above that. The contractors were: Masons, Messrs. Ford and Son; joiner, Mr. John Davidson; plumber, Mr. A. Taylor; plasterer, Mr. Burness; all of Montrose. The contracts amounted to a total of £2300.

MOUNTSOREL.—A new Primitive Methodist Chapel has been opened, and has cost about £1300. The front elevation is in late Gothic style, built of pressed red bricks, with Derbyshire stone dressings. There is a Gothic window of Cathedral tinted glass with tracings, and also two smaller windows of a similar character. The chapel is 40ft. in length and 30ft. in width, and will seat about 230, while the choir chamber will accommodate about twenty persons. The building is lofty, and the roof is constructed of pitch pine principals, supported by carved stone corbels. The aisles are paved with patent wood blocks. Adjoining are two vestries or class-rooms and a schoolroom, which will accommodate about 200 children. Mr. E. W. Dakin, of Barrow, was the Architect, and Mr. A. Feulks, of Loughborough, was the contractor.

OLDHAM.—The building trade in Oldham is good at the present time, and many of the principal contractors are booked up almost the year out. This has been exemplified by the response made to the public advertisements of the Corporation for tenders for the construction of the underground lavatories at Rhodes Bank. Several firms intimated that owing to pressure of work they could not undertake the contract, and only two actually sent in tenders. One of these was conditional on an extension of the time limit, and both were in excess of the estimated price at a fair figure. The Surveyors Committee, after considering the tenders submitted, together with the estimates of the Borough Surveyor, decided, in face of the strong opposition of the two practical members of the committee—an Architect and a contractor—to decline both tenders, and to entrust the work to the Borough Surveyor. This decision was based upon the estimated saving that would be effected if the cost comes out in accordance with the Surveyor's figures. Considering the experience the Corporation has had in other departments in relying upon official estimates as to the cost of work, the present experiment will be watched with considerable interest.

ST. HELENS.—In consequence of the receipt of an order from the Educational Department stating that school accommodation for 350

more children must be provided with reasonable promptitude, a scheme for complying with the wishes of the Department is to be prepared. It is probable that an additional story will be added to the existing schools, and land near thereto has been acquired for further extensions. It is estimated that the total cost will be about £3000.

ST. IVES.—The Wesleyan Chapel was reopened last week after entire renovation, costing about £2000. The huge and unsightly pillars which stood in the centre of the chapel have been removed, and an iron roof now spans the entire building. The body of the chapel has been refloored, and comfortable new pitch pine seats have been fixed throughout. The gallery has also been re-seated with pews similar to those below, and the floors have been re-arranged. Instead of demolishing the old gallery front, a new framework has been placed against the old with good effect. Mr. O. Caldwell, of Penzance, is the Architect, and Mr. W. J. Winn, of Helston, the contractor.

SHEFFIELD.—At the Town Hall an electrolier, intended to illuminate the grand marble staircase which is entered from the principal door in Pinstone Street, has been recently completed. The electrolier is suspended from the ceiling by a chain of brass, manufactured in an intricate and novel design. It hangs at a considerable height above the ground floor, and all the lamps of the electrolier are equal to more than 400 candles. Mr. Mountford, the Architect of the Town Hall designed the electrolier, and Mr. Pomeroy, who did the sculpture work, has been the modeller. The casting of the electrolier was done by Messrs. Longden and Co., of the Phoenix Foundry, Sheffield.

SUNDERLAND.—The plans for the erection of workmen's dwellings at the East End of Sunderland, by the Corporation, have been amended, in order that cheaper rents may be charged. By the present scheme it is proposed to charge 3s. for two rooms, and 3s. 6d. for three rooms, which is estimated will result in a profit to the ratepayers. The amended plans have not yet been definitely adopted.

TAUNTON.—New premises which have just been erected, to replace the old Sunday school buildings, have been opened by the Mayoress. The old school was very confined in its dimensions, and the need of new and more capacious premises has been felt for many years. Four cottages which adjoined the chapel have been taken down, and on the site has been erected a schoolroom capable of seating 250 persons, with the necessary class-rooms, and preacher's vestry. The total cost has been £600.

TUNBRIDGE WELLS.—A syndicate has been formed to erect a new theatre at Tunbridge Wells. Mr. John P. Briggs, of Effingham House, Arundel Street, has received the appointment as Architect.

It is proposed to erect a new Town Hall at Nottingham. Several liberal contributions have been promised towards the cost.

A MEETING of ratepayers of Ilkley has passed a resolution condemning the purchase of the Town Hall site, and opposing the completion of the scheme.

MESSRS. MAPLE AND Co. have been entrusted with the structural alteration and improvement of the Great Northern Station Hotel, Leeds. To enable the alterations to be carried out the hotel will be closed until July 17th.

At a recent meeting of the Hereford Town Council the General Purposes Committee reported that it had had laid before it, by the Free Library Committee, a general scheme for the enlargement of the library premises by the erection of a lecture-hall, class-rooms, and other accommodation at the back of the present reading-room; and it was recommended that this be accepted by the Council as a memorial for the Diamond Jubilee year, provided that the expenditure be limited to £2000

## Trade and Craft.

### A BUILDER'S CLAIM.

In a case recently tried, the plaintiff, Mr. A. G. Rossiter, builder, Beech Street, Barbican, sued the defendant, Mr. A. Watson, printer, 128 and 129, Minories, who traded as Watson Brothers, to recover £18, being the balance of account for work and labour done. The defendant counter-claimed for a sum of £16 3s., which he said was due to him by reason of the plaintiff's negligent workmanship.—The plaintiff said that in September, 1895, he was requested to do some builders' work to certain premises in Church Street, Minories. This work was carried on under the superintendence of the local authorities. He had given the defendant a verbal estimate for the work required to be done, which amounted to £150, and the account for the work came out at £135 10s. He had received various sums on account, leaving the balance now sued for. The first complaint he received from the defendant as to bad workmanship was about nine months after completion.—The defendant was called, and said he had complained to the plaintiff several times of the way in which he had done the work. Had the plaintiff made good the defective work, he (defendant) was willing to settle the account. He contended he was entitled to have an allowance of £16 3s. made to him by the plaintiff for defective work. He also complained of an overcharge of £2, in respect of workmen's time.—The jury found a verdict for the plaintiff for the amount claimed, £18, and also on the counterclaim.

### AN ELECTRIC RAILWAY CARRIAGE.

At the Gloucester Railway Carriage and Wagon Company Limited's Works the lightning express railway carriage (Behr's patent), which has been constructed for working at the forthcoming Brussels International Exhibition, was recently inspected. The carriage, which is self-contained and propelled by electricity, runs on one rail; the passenger compartment is about 60ft. long, and will seat 100 persons. It is constructed in a continuous length, so that while the under-carriage, being in two parts, is free to take the curves, the top carriage is always straight, and the ends are pointed to lessen air resistance. The floor of the carriage is about 6ft. above ground, and the carriage is divided into four compartments, and lighted by electricity. There is a patent air-brake, as well as a hand-brake, and the driver has these and the switch immediately under hand. It is proposed to run the carriage at first at the rate of 120 miles per hour, but it is said that a much higher speed can be attained.

### NOTTINGHAM RAILWAY WORKS.

The schemes of both the Manchester, Sheffield, and Lincolnshire, and the Great Northern Railway Companies, so far as they affect Nottingham, are progressing rapidly. Just at present the area between Cairns Street and Charlotte Street, which is to form a portion of the yard of the new central station, is being excavated by means of a steam navvy, and the earth is taken through the Mansfield Road and Sherwood Rise tunnels out to the valley of the Day Brook, there to be utilised for the purpose of the connection between the Great Northern Company's Derby line, and the M., S., and L.'s extension to London. The huge piece of ground lying south of York and Charlotte Streets will shortly be treated similarly, for a depth varying from 58ft. to 27ft. has to be reached ere the station platforms can be built, and the permanent way laid. The commencement of the work which is necessary to connect the station site with the covered way in Thurland Street—a heavy task—is postponed for the present, but from the latter thoroughfare it will in a few days become possible to lay a contractor's road out on to the viaduct, and thence to the Meadows, where the goods yard and sidings are to be situated. Most of the steel work in that stretch is completed. Close to the banks of the Trent the contractors' labourers have during this week started to



excavate for the foundations of a large engine-shed. The Great Northern Company's work is being pushed on with rare vigour. Much of the brickwork has been put in between Narrow Marsh and London Road, but no progress has as yet been made between Popham Street and Leen Side. The viaduct which will connect with the M., S., and L. at Middle Hill, is on a very sharp curve. South of London Road, to Meadow Lane, where much heavy engineering work, in the fixing of girders and cylinders, awaits the contractors, nothing has at present been done, the reason being that the Company's Bill, authorising alterations in the original plan, has not received the Royal assent yet.

#### IMPROVED METHOD OF PAVING.

Messrs. London and Hobbs have patented an improved method of granite-paving with the object of lessening or deadening the sound. Instead of the ordinary plan of setting the granite blocks on a solid and rigid foundation, and filling the spaces between each stone with hard and unyielding gravel, the inventors use any suitable and inexpensive fibrous material, such as peat moss, jute, manilla, flax waste, spent bark from tanneries, or the like, and lay this on the foundation and between each stone. The paving is laid on about two inches of fibre, and a small quantity of bitumen is poured into the spaces to steady the blocks for ramming. After this process, which compresses the padding material to about one inch in thickness, fibre is swept in between the blocks, and more bitumen poured in to complete the filling. Each stone is thus surrounded with a non-conductor of sound, entirely preventing that reverberation which is so inconvenient and annoying in relation to the usual method. Part of a street in New-castle-on-Tyne (the Pilgrim Street end of High Bridge) has been laid by the city Surveyor, and is said to be quite effective. Mr. Boulnois, city engineer of Liverpool, in his work on the construction of carriageways, describes the many advantages of granite set pavement, but he is obliged to add that the noise is undoubtedly very excessive. Now that this difficulty is to a great extent overcome, this invention should be welcomed by surveyors, as it enables them to use more freely a material which has the longest life of any pavement yet discovered. Peat is the fibre most preferred, because it is not liable to decay, and is not injuriously affected if any moisture finds its way between the blocks. The patentees point out that the invention is further applicable to railway purposes, as, for instance, for deadening the sound of railway trains over, under, or alongside public streets or thoroughfares; in which case it is proposed to insert the material either between the rail-chairs and the sleepers, or on the under side of the sleepers (to which it may be cemented), or at some point underneath the sleepers in the ballasting of the line, so as to intercept and neutralise the conduction of noise caused by trains, besides causing the motion to be much smoother owing to the absence of concussion, the wear and tear being thus lessened.

#### CARPENTERS' AND JOINERS' UNION.

The General Union of Carpenters and Joiners has recently been showing activity in the Manchester district. According to the monthly report of Mr. C. Matkin, the organiser, there are fifteen lodges of this union in the Manchester, and three in the Stockport districts. During February 129 members joined this Society, Lancashire heading the list with 53, against 31 for London, only three for Yorkshire, and 16 for Warwickshire. A correspondent says he cannot imagine what the non-union joiners are thinking about. "Here is a revival of trade, and wages are going up all round, and yet they will not take the one means of improving their position."

#### A BUILDING CASE.

At the Manchester County Court, Frederick Rowbottom, builder and contractor, 21, Nelson-street, Lower Broughton, claimed £41 odd from a Mrs. Fletcher, of Wigan, for work done and goods supplied.—It appeared that the defen-

dant, who keeps a public-house in Wigan, engaged the plaintiff in May of last year to build a wall and put up some stone pillars opposite a row of cottages at Walthew-lane belonging to her. The contract was a verbal one, to the effect that plaintiff should put in "the best stone that money could buy," and that the wall was to be built with bricks of good quality. Plaintiff was to "clear up" after he had finished, and was to receive £52 for the job when it was completed. He commenced upon the work, and was getting well on with it when in unloading one of the pillars fell and was broken. The defendant upon this suggested that the stone being used was not of the character being contracted for, and stopped the job. Negotiations in the matter coming to nothing, plaintiff eventually sent in his bill for the amount claimed.—The plaintiff did not contend that the stone was "as good as money could buy." That was not contracted for. The stone, however, was of a good class, and suitable for the work.—Plaintiff said no particular quarry was specified; he ordered it from a well-known firm of builders' merchants. They were "York posts" of medium quality, not very hard or soft. A piece of granite of the size might have broken had it been dropped. He told defendant there were hundreds of houses of a better class than hers fitted with the same stone.—Mr. Beaumont, a Manchester Architect, said he would not have passed it as the best York stone, but it was fit for the work.—The judge said he was satisfied that plaintiff had contracted to supply the best stone, and had not done so. Judgment was therefore entertained for the defendant with costs.

#### EMPLOYER'S LIABILITY: UNSUCCESSFUL CLAIM AGAINST BUILDERS.

At the Brompton County Court last week, Walter Bell, a Kilburn bricklayer, sued Messrs. Langdale, Hallett, and Co., builders, of 122, Brompton Road, S.W., for £55 damages for injuries received whilst in their employ. The action was brought under the Employer's Liability Act.—Mr. H. T. Kemp, for plaintiff, said the accident occurred on August 17, at the Coburg Hotel, Mount Street. Plaintiff was on a plank cutting a hole in the ceiling at the basement of the hotel. The plank rested at one end on a pair of steps, whilst the other end was inserted in the noose end of a rope attached to a pipe in the ceiling. Suddenly the plank collapsed, and plaintiff fell a distance of 6ft. His injuries debarred him from work for ten weeks, for which he claimed £20, the doctor's bill amounting to £10 10s., and the balance of the claim was for pain and suffering.—Plaintiff corroborated the statement of counsel, and Dr. Evans, of Kilburn, gave evidence as to plaintiff's injuries.—For the defendants, Mr. Salter contended that his clients were not responsible. The scaffold in question was erected by Messrs. Fenn, who were putting in speaking tubes, and plaintiff received his orders from Messrs. Fenn's foreman.—Arthur Storey, foreman to Messrs. Fenn, said the plank in question was only put up to support some pipes. There was a scaffold close by to work on. Witness did not tell Bell to work on the plank. He did not see him on the plank, but it was possible for him to have one foot on the proper scaffold and one on the plank.—Daniel Wallace, defendants' foreman, said that he gave plaintiff instructions to assist Messrs. Fenn's men, and he would have to do as they told him.—The jury gave a verdict for defendants and judgment was entered accordingly.

#### JOHN P. WHITE.

We have just received from Mr. John P. White, of the Pyghtle Works, Bedford, a copy of his latest catalogue, containing illustrations of some very strikingly artistic Designs in wood chimney pieces. Their wealth may be well understood when we state that such Artists as C. F. A. Voysey, C. B. Quennell, and George Jacks have worked out the Designs. The catalogue contains two or three illustrations of Voysey's work, and includes a mantel designed for covering the whole of the chimney breast, with the shelf returning round

angle up to the wall, with a top centre panel well adapted for taking a mirror, a chimney piece in pine, with carving of St. George and the Dragon omitted, and which can be rearranged to suit any house, and, lastly, a very simple but effective Design in oak, with the carving of frieze from the full-size drawing of the designer. Mr. C. B. Quennell's Designs include a very elaborate chimney piece, which can be made in any wood, and painted any colour to suit character of residence, and which, with a 24in. brass interior, white and blue Dutch tiles, and Cipallino marble slips, is very beautiful, and a chimney piece the side jambs of which can be made to open, and used as a small cupboard, shelved all the way up, left open, with shelves at either front or side, or boxed solidly. Two notable Designs by Mr. Jack are illustrated, G. Le Morris and W. R. Lethaby being among other designers whose work is so beautifully interpreted by Mr. White. A speciality turned out from the Pyghtle Works is the "Portcullis" fire screen and blower, which has been brought out to supply the need of an arrangement for masking a fireplace when not in use. It serves that end admirably.

#### KEYSTONES.

The building of a chapel on a site purchased in 1894 in Ann's Road, Heeley, has been vigorously pushed forward. The cost of the scheme when completed will be £5000.

The Links and Parks Committee of Aberdeen Town Council has decided to recommend that the bathing station be considerably extended. The cost of the additions is estimated at £6000.

The opening of the new fire station at Chester Street, Aston, took place on the 22nd inst. The new buildings provide double the former accommodation, and the whole of the engines and other appliances are under cover. The total cost of the alterations has been £1000.

The Markets Committee of the Wolverhampton Town Council is considering proposals to rearrange the stalls in the Market Hall, and carry out much needed improvements in the Cattle Market. It is estimated that this will involve an expenditure of between £7000 and £8000, and the committee has practically decided to ask the Council to sanction the expenditure.

A NOVELTY in railway carriages will shortly be placed on the Belgian lines. This is a wagon-hospital, fitted up, as its name implies, for invalids, and containing twenty-four beds upon wire springs, and various surgical and medical appliances. An unusual feature is a little chapel attached to the carriage, where special permission has been obtained from the Pope to celebrate mass.

The Engineers of the Northern Lighthouses Commissioners are at present engaged in surveying the ground at Blackhead, three-miles north of Portpatrick Harbour, where it is proposed to erect a new lighthouse and fog-signal station for the Irish Channel to serve as an intermediate light between Corsewall Point and the Mull of Galloway, the lighthouses of which are twenty-five miles apart.

A NEW Royal train of six carriages is now in course of construction at Swindon, and its elaborate internal and external decoration is engrossing the attention of some of the most expert artists employed by the Great Western Railway. The only wood used throughout is mahogany of the finest quality, and the doors of the Queen's carriage are so contrived as to allow of the entrance of two attendants, one at either side of her Majesty.

WHILST workmen in the employ of the Chatham Corporation were engaged in excavation work recently, they discovered two human skeletons and some Roman pottery. The remains are believed by Archaeological experts to belong to a date early in the period of the Roman occupation of this part of Britain. The pottery found includes urns and a number of beautifully-shaped earthenware bottles. One is a bright red with white enamel spots, while another is ornamented with white scroll-work.



## SOCIETY MEETINGS.

**Devon and Exeter Architectural Society.**—A lecture was recently given in the Athenæum by Mr. Charles Cole (President of the Exeter Camera Club) on Architectural Photography. A preliminary description of the camera was given, with hints upon its manipulation, especially with regard to the lines and planes of buildings. The lecturer advocated making photography at once a handmaid of Architecture as well as a companion, for it gives the Architect immense facilities for studying the buildings of other countries, and delineates faithfully examples of both ancient and modern work. Also that not only the old buildings would be kept in mind for those who follow us—and surely this is legitimate work for the Architect—but that we should hand down pictures of how we live and what our streets look like now, together with the dress of the people and street trades and sights. The use of the camera in cases of easement was shown. In regard to sketching and kindred matters, he did not think the camera should take the place of sketch blocks and pencil; but they might be used in conjunction. To sketch well is for Architects a necessity; there is no doubt that some possess the faculty more than others, and every Architect amongst his other requirements should have an intuitive love for and a knowledge of where to look for the beautiful. He claimed for photography if used aright, and with an earnest desire to turn out good work, the operator will naturally turn to picture making, and herein is a great field of learning. He must possess and train the faculty of Artistic sight, and pictures are to be found in everything and amidst most unpromising surroundings.—A large number of lantern slides were shown on the screen. These had been made by the lecturer, several of them being from negatives taken for the photographic survey of Exeter, which was begun some time ago. In addition to photographs of buildings, the slides showed some very beautiful pictures of wood and water, also cloud effects, as well as records of the blizzard.

**British Archæological Association.**—The eighth meeting of the session was held on March 17th, at the rooms in Sackville Street, Mr. C. H. Compton, V.P., in the chair. The Hon. Sec. announced that it had been decided to hold the Congress this year at Conway upon the invitation of the Mayor and Corporation. Mrs Collier read an interesting paper upon the church and painted glass at Bowness on Windermere, which edifice she said, appeared not to have received as much notice from antiquaries as it deserved. The church is dedicated to St. Martin but the actual date of its erection is not recorded. It is a very ancient structure, and some of the materials employed in its construction have been traced to Roman origin, and were probably brought from a Roman station which is known to have been established in the neighbourhood. Like most of the churches in the Lake district, it is simple and rudimentary in construction, consisting, until the recent additions of a nave and aisles, of a chancel and a low square embattled tower at the west end. The principal entrance is by a porch in the south aisle, but there is a narrow arched door at the east end of the same aisle, and a similar one at the west end of the north aisle. The East window is of late perpendicular work, without tracery or other enrichment, and the arches, capitals, and bases of the columns are equally devoid of all ornamentation, and until recently were covered with successive coats of whitewash. St. Martin's was anciently a chapelry in the Parish of Kendal some miles distant, and though now a separate parish, the Rector of Bowness stills pays a pension of 13s. 4d. to the Vicar of Kendal in token of submission to the Mother Church. In the year 1864, some curious inscriptions and texts were accidentally discovered painted on the walls beneath the coats of whitewash. They consist of quotations from Robert Openshaws Catechism, and relate to the Sacraments of Baptism and the Lords Supper, and belong to the age of James I. The chief feature of

interest in the church is the painted glass in the East window, which was brought into prominent notice during the progress of restoration in 1873. This glass is considered by competent authorities to date from about the year 1480, and to have been originally in the Priory of Cartmell near Grange, whence it was removed to Bowness about 1523. A second paper was read by Mr. Geo. Patrick, Hon. Sec. in the absence of the author, Mr. H. Syer Cuming upon "Mead and Mead Vessels." The author traced the origin of the beverage known as Mead or Metheglin, so much appreciated by the Britannie tribes and the Teutonic nations, from the Hydromel of the classic age, and brought its history down to the latter part of the last century. Pliny knew it and called it a lime made solely of honey and water, rain water after being kept for five years being best for the purpose, though some he says, boiled down fresh rain to one third of the quantity gathered, to which they added one third in quantity of old honey and kept the mixture exposed to the rays of a hot sun for forty days after the raising of the dog star. Sometimes it was raked off in the course of ten days and preserved in vessels tightly stopped. The vessels in which the Metheglin was stored, and in which it was brought to table were particularly described, and drawings illustrative of examples of Mead cups and pots, several of which are in the author's collection were exhibited. These vessels are reported to have been in early ages amongst the Celtic chieftains of gold and silver, and jewelled, as well as of glass, but those which have come down to our days are made of various wood, wrought out of single blocks of beech, oak, elm, pine, walnut, willow, sycamore, and yew, sometimes ornamented with incised lines and some bearing dates and initials. They were called Meadars or Methars, and the author considered that the famous Dunvegan cup in the Isle of Skye, was only an oaken methar of bizarre design mounted on four silver legs, and he believed its antiquity must be brought down from the tenth century to the end of the fifteenth century. Both the papers were illustrated and elicited much discussion.

**The Institution of Naval Architects.**—At the annual spring meeting of the Institution of Naval Architects twelve papers will be read, the number being divided equally between four sittings. The meeting commences, as usual, on the Wednesday of the week preceding Easter. On the second day, Thursday, the 8th April, there will be both a morning and evening sitting, but on the Friday there will only be a morning sitting. Water-tube boilers hold the place of honour in the agenda; both Admiral Fitzgerald and the Engineer-in-Chief to the Royal Navy contributing on this subject. Lord Charles Beresford, on the Thursday morning, will read a paper on the value of the older iron-clads, if re-armed. The following paper is to be contributed by the Hon. Charles A. Parsons, and will deal with the application of the compound steam turbine to marine propulsion. Mr. Macfarlane Gray has two papers down for the Thursday evening, and may be trusted to give interest even to such subjects as "the Accelerity Diagram" and the "Geometry of Stability." Professor Lewes supplies the remaining item in the programme, a paper on "Acetylene Afloat." "Nickel steel for boiler sheets and forgings," by Mr. William Beardmore; a paper on "Stability," and another on the "Use of the mean water-line in design," by Mr. A. G. Ramage, and a paper on "Electrical transmission of power," by Herr von Kodolitsch, are the remaining contributions.

**National Registration of Plumbers.**—Under the auspices of the District Council for Edinburgh and the East of Scotland of the National Registration of Plumbers, a lecture on "Water Hammer in Pipes" was recently delivered by Professor Stanfield in Heriot-Watt College, Edinburgh. He began by defining potential and kinetic energy, and showed that water might possess one or both of these kinds of energy. A mass of water moving with a certain velocity possessed a definite amount of kinetic energy, and to reduce this to rest required the application of force. The degree of force depended upon the time occupied in bringing it to rest. He showed that in a steam pipe a

mass of water might possess such a large quantity of energy as to produce a force sufficient to fracture the pipe. The same sort of action might take place in pipes supplying mines with high pressure water. The useful application of the kinetic energy of water was shown in the hydraulic ram, which was capable of raising water to a higher level than that from which the water flowed. The lecture was explained throughout by illustrations and experiments, showing the principle of the hydraulic ram and the effect of the water hammer in pipes.

Forty-four persons have given £1000 each to the building fund of the new Catholic Cathedral at Westminster.

A new school-chapel has been opened at Bury. The building, which will accommodate 485 adults, has been erected at a cost of £1350.

The Glasgow citizens have agreed to commemorate the Queen's reign by largely reconstructing the Glasgow Royal Infirmary. The Lord Provost announces that subscriptions amounting to £15,000 have been promised.

## CONTRACTS OPEN.

## THE URBAN DISTRICT COUNCIL OF WOKING, SURREY.

## MAIN DRAINAGE, CONTRACT No. 1.

The Council are prepared to receive TENDERS for the CONSTRUCTION OF WORKS, consisting of 29 miles or thereabouts of SEWERS of CAST-IRON, CONCRETE and STONEWARE, ranging in diameter from 30in. to 8in.; also of 473 MANHOLES, LAMPPOLES, and FLUSHING TANKS upon the lines of Sewers; also of 5 miles of CAST-IRON POWER MAINS of 3in., 4in., and 5in. diameter; also of FOUR AUTOMATIC PUMPING STATIONS; also of the SETTLING TANKS, MAIN PUMPING STATION, ROADS, FENCING, and other WORKS at the proposed Outfall at Woking Park.

Plans and sections of the undertaking may be inspected at the Offices of the Engineers, Messrs. JOHN TAYLOR, SONS, and SANTO CRIMP, 27, Great George-street, Westminster, from whom copies of the specification and bill of quantities may be obtained upon the deposit of Five Guineas (cheque only), which will be returned upon the receipt of a bona-fide Tender.

Sealed Tenders, endorsed, "Main Drainage," and addressed to the Clerk to the Urban District Council of Woking, must be delivered at the Offices of the said Council before NOON on THURSDAY, the 22nd day of APRIL, 1897.

The Council does not bind itself to accept the lowest or any Tender.

Woking,

ROBERT MOSSOP, Clerk.

March 13, 1897.

## TO BUILDERS.

The Commissioners of H.M. Works and Public Buildings are prepared to receive TENDERS for the ERECTION of a NEW POST OFFICE at West Hartlepool.

Drawings, specification, and a copy of the conditions and form of contract may be seen on application to the Postmaster.

Bills of quantities have been prepared for the use of builders by Mr. F. H. A. HARDCASTLE, of 5, Old Queen-street, Westminster, and, together with forms of Tender, may be obtained at the undermentioned office on payment of One Guinea.

The sums so paid will be returned to those persons who send in Tenders in conformity with the conditions specified below.

The Commissioners do not hold themselves responsible for the accuracy of the quantities, nor do they bind themselves to accept the lowest or any Tender.

Tenders are to be delivered before TWELVE o'clock noon, on FRIDAY, 2nd APRIL, addressed to the Secretary, H.M. Office of Works, &c., 12, Whitehall-place, London, S.W., and endorsed, "Tender for West Hartlepool New P.O."

RÉGINALD B. BRETT,

H.M. Office of Works, &c.,

Secretary.

March 10th, 1897.

## TO BUILDERS.

The Commissioners of H.M. Works and Public Buildings are prepared to receive TENDERS for the ERECTION of a NEW POSTMEN'S OFFICE at Walworth, S.E.

Drawings, specification, and a copy of the conditions and form of contract may be seen on application to Mr. H. TANNER, No. 15, Whitehall-place, S.W.

Bills of quantities have been prepared for the use of Builders by Mr. C. W. STEPHENSON, of 38, Parliament-street, S.W., and, together with forms of Tender, may be obtained at the undermentioned Office on payment of One Guinea. The sums so paid will be returned to those persons who send in Tenders in conformity with the conditions specified below.

The Commissioners do not hold themselves responsible for the accuracy of the quantities, nor do they bind themselves to accept the lowest or any Tender.

Tenders are to be delivered before TWELVE o'clock noon on TUESDAY, 6th APRIL, addressed to the Secretary, H.M. Office of Works, &c., 12, Whitehall-place, London, S.W., and endorsed "Tender for Walworth Postmen's Office."

RÉGINALD B. BRETT,

Secretary.

H.M. Office of Works, &c.,

March 17th, 1897.



# INDEX OF ILLUSTRATIONS AND CONTENTS.

ILLUSTRATIONS.	PAGE	ILLUSTRATIONS.	PAGE	ILLUSTRATIONS.	PAGE
Supplement: Design for a Club of Arts and Letters. By John Watson, A.R.I.B.A.		Architectural Photography	102	Professional Items	113
Doorway to Cloisters of S. Gregorio, Venice	101	Setting Out Problems	102	Trade and Craft.—A Builder's Claim—An Electric	
Capital Medallion Pazzi Chapel, Florence	103	Italian Renaissance Architecture	103	Railway Carriage—Nottingham Railway Works	
Door in Cloister of Santa Croce, Florence	103	New Chapel at Leeds	104	Improved Method of Paving—Carpenters' and	
Pal Rucellai, Florence	103	"Eighteenth Century Work." By J. A. Gotch	105	Joiners' Union—A Building Case—Employers'	
Pal Albergati, Bologna	104	The Domus or Villa at Whitton	106	Liability—John P. White	114, 115
		"London Church Architecture of the Victorian		Society Meetings	116
		Era," by T. Francis Bumpus	106		
CONTENTS.		Bricks and Mortar	109-111	SURVEYING AND SANITARY SUPPLEMENT:	
Gesso Duro as a Decorative Artist	101	The New Fire-Engine Station at Aberdeen	111	Workhouse Planning. By George H. Bibby,	
Doorway to Cloisters of S. Gregorio, Venice	102	Heraldry of the Renaissance in England	112	F.R.I.B.A.	xxv
				The Building Trades Exhibition (2nd Notice)	xxvii-xxxii

## "THE BUILDERS' JOURNAL" ADVERTISERS.

Names and Addresses with the page on which their Announcements Appear.

Adams & Co.	vi	Couzens, G. and F., Cardiff	—	Hope, Henry, Birmingham	xi	Rogers, S.E., London	x
Adams, Robert, London	vi	Cox, Sons, Buckley & Co., London	—	Hyde & Co., G., London	viii	Safety Tread Syndicate, Ltd.	xi
Adams, T., & Sons, Ltd., Birmingham	xi	Dennis, Henry, Ruabon	—	Itter, A. W., Peterborough	—	St. Paneras Ironwork Co., London	—
Albion Clay Co., Ltd., London	—	De Ridder, R. P., Liverpool	—	Jones & Attwood, Stourbridge	i	Self-Lock Roofing Tile Co., Ltd.	—
Allday, J. L., Birmingham	vii	Doulton & Co., Lambeth	—	Jones and Willis, London	—	Skidmore, Thos., & Son	—
Anaglypta, Darwen	—	Easton, Anderson & Goolden, Ltd.	iv	Kaye, Joseph, & Sons, Ltd., London	—	Sly Brothers, Oxford	xi
Architectural Association	i	Eastwood & Co., London	x	King, John, Liverpool	—	Smokeless Fire Co., Ltd., London	—
"Architectural Review"	xii	Ellis, Partridge & Co., Leicester	—	Lewis, J., London	v	Stanley Bros., Ltd., Nuneaton	xi
Ball, H. A.	—	Elsley, Thomas, London	—	London Hoist and Chain Co.	vii	Stiff & Sons, London	iii
Barnett, Edward, Walsall	—	Emley & Sons, Newcastle-on-Tyne	i	London Plate-Glass Insurance Co.,	—	Strode & Co., London	i
Barrows & Co., Ltd., Banbury	—	Etridge, J. J., Junr., London	—	Ltd.	—	Szerelmey & Co., London	—
Bath Stone Firms, Ltd., Bath	—	Ewart & Sons, London	—	Lux Patent Venetian Blind Limited	—	Talbot Co., Leeds	—
Batchelar, J., & Co., London	viii	Farmiloe, G., & Sons, London	—	McNeill, F., & Co., London	ix	Thornton-Pickard Mfg. Co.	x
Batsford, B. T., High Holborn	—	Farrar, E., & Co., London	—	Maw & Co., Ltd., Jackfield	—	Twyford, Ltd., Hanley	vii
Bayliss, Jones & Bayliss	—	Fawcett, M., & Co., London	—	Measures Bros., Ltd., London	v	Ward, B., & Co., London	vii
Bell, R., & Co., London	xi	Gibbs Bros., Loughborough	xi	Medway, M. T., & Co.	—	Warings, Ltd., London	—
Blackman Ventilating Co., Ltd.	xi	Glover, F. A., & Co., London	—	Mellows & Co., Sheffield	vii	Waygood, E., & Co., Ltd., London	—
Blundell, Spence & Co., Hull	—	Godwin, W., & Son, Withington	x	Minton, Hollins & Co.	—	Webb & Co., London	i
Boote, Ltd., T. & R., Burslem	—	Gooding, W., London	—	N. A. P. Window Co., London	iii	Wilkinson, W. B., & Co., Ltd.	—
Brady, G., Manchester	—	Granite Siliceous Plaster Co.	—	Oates & Green, Ltd., Halifax	vi	Williams, G. A., & Son	ix
Briggs, W., Dundee	x	Gregory, Thomas, & Co., London	viii	Parker, Robert, & Co., Liverpool	—	Wilson & Co., London	—
Builders' Clerks Benevolent Inst.	i	Grundy, John, Ltd., London	—	Patterson, J. & H., Manchester	i	Wooliams, Wm., & Co., London	viii
Burnantofts, Leeds	—	Hamilton & Co., London	—	Perkins, A. M. & Sons, Ltd., London	—	Wragge, Geo., Manchester	—
Candy & Co., Ltd., London	—	Hartley and Sugden, Ltd., Halifax	xi	Pilkinson Tile and Pottery Co.	x	Wright, G., & Co., Rotherham	ii
Charteris & Longley, London	i	Hentschel, C., & Co., London	i	Roberts, Adlard & Co.	—	Young & Marten, Stratford	—
Claridge's Asphalt Co., Ltd.	—	Homan & Rodgers, London	vi	Robson & Co., Sunderland	—	Young & Co., J., London	vii

ADCOCK, Mr. W. J., Builder, Dover.

"I have proved your invention easy of application. Both my joiners and apprentices could fix the apparatus without difficulty after having inspected a model."

CRICKMAY & SONS, Messrs., F.R.I.B.A., London, S.W.

"The Patent Windows supplied for Sir Edward Walters' house at Salisbury gave us every satisfaction. We shall continue to use them."

JONES, Mr. PETER, Sloane Sq., London.

"I am glad to be able to bear testimony to the great utility and general usefulness of the N.A.P. Sliding Windows. I am very pleased with them, and should be sorry to be without them."

LUCAS & AIRD, Messrs., Contractors, London.

"Cheap, simple, and effective. We are using some 1200 sets of your fittings on these exceptionally tall buildings."

MORGAN, ISTD & MORGAN, Messrs., Contractors, Southampton.

"A very clever arrangement, and one which will certainly come into daily use."

PERRY & READ, Messrs., F.R.I.B.A., London.

"It is with pleasure that we are able to inform you of our entire satisfaction with the 'N.A.P. Windows,' we shall continue to

specify them."

Write for Full Particulars to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.



## STIFF & SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

For Illustrated Price Lists apply to

JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
April 1	Storrys. Millife Bridge, near Brighouse...	Clifton Mills	Joseph F. Wa'sh, Architect, Lancashire and Yorkshire, Bank-chambers, Halifax.
" 1	Bridlington Quay. Alterations, &c., to, Glasmoor, Victoria-road.	Mr. N. H. Jones	J. Earnshaw, Architect, Wellington-road.
" 1	Bucknall (Staffs.). Hospital Works, &c.	Hanley, Stoke, and Fenton Joint Hospital Board.	Elijah Jones, Architect, Albion-street, Hanley.
" 1	London, W. Erection of Greenhouse	Paddington Burial Board	Superintendent, Paddington Cemetery, Kilburn, N.W.
" 1	London, S.W. Repairs and Painting Tat's Library	Lambeth Libraries Commissioners	Librarian, Tate Central Library, Brixton Oval.
" 1	Nairn and Pitlochry (Scotland). Waiting-Rooms, &c.	Highland Railway Company	Mr. William Roberts, Engineer, Inverness.
" 1	Tudhor (Bishop Auckland). Partitions	School Board	Mr. Sam Adams, Clerk, Bishop Auckland.
" 2	West Hartlepool. Post Office	Commissioners H.M. Works	12, Whitehall-place, S.W.
" 2	West Hartlepool. New Post-Office	Commissioners H.M. Works	F. H. A. Hardcastle, 5, Old Queen-street, Westminster.
" 2	Sandbach. Shop, The Hill	Industrial Co-operative Society	A. Price, Architect, Elworth, Sandbach.
" 2	Old Hill (Staffs.) Schools and other Works	Rev. H. G. Button	Caretaker, Primitive Methodist Tabernacle, Old Hill.
" 2	London, S.W. Additions to Westminster Union	Guardians	J. Waldram and Sons, Surveyors, 17, Buckingham-street, Charing Cross, W.C.
" 2	Dublin. Erection of New Class-rooms, Technical Schools	Board of Governors	City Architect, Municipal-buildings, Cork-hill.
" 2	London, W. New Room, Asphalte Paving, &c.	Guardians of Westminster Union	Messrs. John Waldram and Son, Surveyors, 17, Buckingham-street, Charing Cross.
" 2	Morley. Eight Houses	Mr. P. Buckley	36, Cliffe-view, Bruntcliffe, near Leeds.
" 2	Ovenden (Yorks.). Six Stables		E. C. Morley, Architect and Engineer, Fountain-st., Halifax
" 2	Rawtenstall. Villa Residence	Miss A. A. Heyworth	F. J. Hobson, Victoria-buildings, Rawtenstall.
" 3	Sheffield. Roof, &c., for Retort House	United Gas Company	F. W. Stevenson, Company's Engineer.
" 3	Accrington. Museum Cases, &c.	Parks Committee	W. J. Newton, Town Hall, Accrington.
" 3	Whitehill, Ballinamallard (Ireland). New School		Presbytery, Whitehill.
" 3	Cork. New Shop-front, &c., to 6, Patrick-street	Messrs. Wm. Clarke and Son	Robert Walker, P.S.A., South-mall, Cork.
" 3	Pontypridd. New School	School Board	A. O. Evans, Post Office-chambers, Pontypridd.
" 3	Southam (Warwickshire). Enlarging Church, &c.		A. J. Sinnet, London House, Southam.
" 3	South Moor (Durham). Twelve Cottages in John-street	Messrs. Foster J. Errington	J. Errington, Ox Inn, Oxhill.
" 3	Triangle (near Halifax). Engine House, &c.	Messrs. W. Morris and Sons, Limited	W. Clement Williams, F.R.I.B.A., Architect, 29, Southgate, Halifax.
" 3	Walsall. House, Workshops, and Offices	Corporation	Town Clerk's Office, Bridge-street, Walsall.
" 3-7	Grade (Cornwall). New Cattle and Root House, St. Ruan Farm.		
" 5	Bradford. Reconstructing Warehouses		Messrs. Milnes and France, Architects, Bradford.
" 5	Brandon (Suffolk). Alterations, &c., to High-street Board Schools.	Brandon School Board	Messrs. Edw. Boardman and Son, Queen-street, Norwich.
" 5	Bristol. Rebuilding Warehouse, Temple-gate	Messrs. Todd and Co.	Henry Williams, Architect, 24, Clare-street, Bristol.
" 5	Wakefield. Electric Lighting Sub-station	Corporation	R. Porter, City Surveyor, Town Hall, Wakefield.
" 5	Hebden Bridge. Catholic Institute Assembly Hall, &c.		W. Wrigley, M.S.A., Architect and Surveyor, Crossley-terrace, Hebden Bridge.
" 5	Middlesbrough. Six Houses	Mr. Hollings	Messrs. R. Lofthouse and Sons, Architects, Middlesbrough.
" 6	Mansfield (Notts.) Additions to Cattle Market	Corporation	R. Frank Vallance, Architect, Mansfield.
" 6	London, S.E. New Postmen's Office, Walworth	Official	H. Tanner, 15, Whitehall-place, S.W.
" 6	Heybridge Basin (near Maldon, Essex). Two pairs of Cottages.	Mr. Chaney	P. M. Beaumont, A.M.I.C.E., Maldon.
" 6	Llanhilleth. New Police Station	Standing Joint Committee	Mr. William Tanner, County Surveyor.
" 6	London, S.E. New Postmen's Office at Walworth, S.E.	The Commissioners of H.M. Works and Public Buildings	Mr. H. Tanner, 15, Whitehall-place, S.W.
" 8	Penzance. New Shed for Pig Market	Town Clerk	Borough Surveyor's Office, Public-buildings.
" 10	Bushmills, co. Antrim. Enlargement of Church	Rev. J. B. Bristow	D. Douglas, Bushmills.
" 12	Monmouth. Buildings, &c.	Town Council	Messrs. Bramwell and Harris, Engineers, 5, Great George-street, Westminster, S.W.
" 12	Mountain Ash (Wales). Workman's Hall, &c.	Mount Ash Reading-Rooms Committee	Secretary Alderman William Jones, Oakwood, Aberffwd-rd.
" 13	Pontypridd. School	School Board	A. O. Evans, Architect, Post Office-chambers, Pontypridd.
" 13	West Ham. Buildings at Abbey Wharf, Stratford	West Ham County Council	Lewis Angell, Engineer, Town Hall, Stratford, E.
" 13	Ipswich. Alterations to Tower House	Ipswich School Board	J. S. Corder, Architect, Tower-street, Ipswich.
" 14	Redruth. Infirmary		Mr. Sampson Hill (Board's Architect), Redruth.
" 15	Llanwonno (Wales). Rebuilding St. David's Church, Gyeillon	Rev. Ll. Lloyd Davies	Mr. E. M. Bruce Vaughan, F.R.I.B.A., Architect, Cardiff.
" 15	Oban (Scotland). New Municipal Buildings		Mr. Alexander Shairp, Architect, Oban.
" 26	Chatham. Town Hall and Municipal Buildings	Corporation	G. E. Bond, Architect, High-street, Rochester.
" 30	Newquay. New Headland Hotel		Mr. Silvanus Trevel, F.R.I.B.A., Truro.
May 3	Cairo. Prison and Police Barracks	Egyptian Government	Service Administrative Offices, Cairo.
<b>ENGINEERING—</b>			
April 1	Torphins (Aberdeen). Waterworks, Pipes, &c.	Torphins Water Supply	Messrs. Jenkins and Marr, C.E., Architects, 16, Bridge street, Aberdeen.
" 3	Hythe (Kent). Footbridge	Town Council	Edwin Hulme, Engineer, 47, Victoria-street, Westminster.
" 5	King's Lynn. Covered Service Reservoir	Corporation	E. J. Silcock, Borough Engineer, King's Lynn.
" 5	Guildford. Turbine Plant and Pump	Corporation	Town Clerk, Guildford.
" 5	London, E.C. Supply of Caissons	Bengal-Nagpur Railway Company	132, Gresham House, Old Broad-street, E.C.
" 5	Ruabon. Refort Bench Alterations, &c.	Rhos Gas Company	Company's Office, Ruabon.
" 6	Edinburgh. Boilers, &c.	Magistrates and Council	W. N. Colam and John Cooper, Engineers, 1, Parliament-square, Edinburgh.
" 6	India Office, S.W. Boilers, &c.		Director-General of Stores, India Office, Whitehall.
" 7	Leigh (Lancs.). Boiler, Engine, &c.	Leigh Joint Hospital Board	Messrs. Banks, Fairclough, and Stephen, Architects, Leigh.
" 7	Easington (Durham). Hot-water Apparatus	Easington Rural District Council	G. Phelps, Surveyor, Haswell, via Sunderland.
" 7	Birkenhead. Sinking Borehole	West Cheshire Water Company	G. Miller, Secretary, 9, Hamilton-square, Birkenhead.
" 7	Bristol. Condensing Plant, &c.	Corporation	H. Faraday Proctor, Engineer, Town Hall, Bristol.
" 13	Harbour Work Extensions at Ostende	Provincial Administration	Brussels, 17, Rue des Augustins.
" 14	Lerwick (Scotland). Waterworks	Commissioners	J. A. Leslie & Reid, Engineers, 72a, George-st., Edinburgh.
" 14	Edinburgh. Reservoir on the Talla Water	Water Trustees	J. Wilson, Engineer, 72a, George-street, Edinburgh.
" 17	Ronford. 20-h.p. Steam Engine, &c.	Urban District Council	E. Winmill, Engineer, Britton's Farm, Hornchurch.
" 14	Ashton-upon-Lyne. Construction of Embankment, &c.	Joint Committee	G. H. Hill and Sons, 3, Victoria-street, Westminster.
" 24	Redruth. Winding Engine	Basset Mines, Limited	Nicholas Trestrail, C.E., Redruth.

## EASTON, ANDERSON &amp; GOOLDEN, LIMITED,

BROAD SANCTUARY CHAMBERS,

BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."

Telephone—3695.

**ELECTRIC & HYDRAULIC LIFTS & CRANES,**  
**PUMPS, RAMS,**  
**WATER SUPPLIES, ENGINES AND BOILERS,**  
**ELECTRIC LIGHT AND POWER.**



MAKERS OF THE MERSEY TUNNEL LIFTS, THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>IRON AND STEEL—</b>			
April 1	Bethnal Green, London, E. Lamp Columns and Gally Gratings.	Vestry of St. Matthew	J. W. Barratt, Surveyor, Vestry Hall, Church-row, Bethnal Green.
" 1	Stavenger. Gas, Water, and Drain Pipes.	Municipality of Stavenger	Stavenger State Engineer's Office.
" 3	Dundee. Cast iron Pipes	Dundee Gas Commissioners	Engineer at Dundee Gasworks.
" 3	Margate. Hurdles (140yds. lineal) of Wrought-iron	Town Council	Albert Latham, M.I.C.E., Borough Engineer, 15, Cecil-square, Margate.
" 12	Faversham. 876yds. of 3in. Cast-iron Gas Mains	Boughton Blean Gas and Coke Co., Ltd.	F. W. Fuller, Secretary, 20, West-street, Faversham.
" 15	Bucharest. Rails (2665 tons)	Direction of Roumanian State Railway	Rue Chateaudun, 28, Paris.
<b>ROADS—</b>			
April 1	Aylesbury. Sewering, Metalling, and Paving, &c.	Urban District Council	J. H. Bradford, Surveyor, 2, Rickford's-hill, Aylesbury.
" 1	Pontefract. Materials, 1 year, to March 31, 1898	Rural District Council	J. Dickson Smith, Assistant Clerk, Pontefract.
" 1	Slough. Granite (500 tons)	Highways Committee	W. White Cooper, Surveyor, 1, Mackenzie-street, Slough.
" 2	Oxendon (Market Harborough). Granite	Rural District Council	C. Burgoine, Corn Exchange, Market Harborough.
" 2	Wanstead (Essex). Tar Paving	District Council	Surveyor, Council Offices, Wanstead.
" 2	Marborough (near Rotherham). New Street, &c.	Masborough Equitable Pioneers' Society,	Y. Platts, Architect, Rotherham.
" 2	Wanstead (Essex). Tar Paving, &c.	Urban District Council	Office of the Council (Surveyors' Department).
" 3	Cockermouth. Road Repairs, 1 Year, to March 31, 1898	Rural District Council	J. Wilson, Surveyor, Cockermouth.
" 3	Chesterfield. Team Labour	Rural District Council	T. A. Busbridge, Surveyor, Eckington.
" 3	Lanchester. Limestone, &c.	Lanchester Rural District Council	William Cumming, Surveyor, Lanchester.
" 3	Maldon (Essex). Material, 1 year, to March 31, 1898	Rural District Council	A. Sims, District Surveyor, Southminster.
" 3	Normanton. Street Works, &c.	Urban District Council	Council Offices, Normanton.
" 5	Batley. Levelling, Paving, Channelling, &c., St. James-st.	Town Council	O. J. Kirby, Surveyor, Market-place, Batley.
" 5	Hounslow. Making-up and Sewering	Heston and Isleworth Urban District Council	W. A. Davies, Surveyor, Town Hall, Hounslow.
" 5	Hounslow. Paving and Kerbing, &c.	Heston and Isleworth Urban District Council	W. A. Davies, Engineer and Surveyor, Council Town Hall, Hounslow.
" 5	East Dereham. Granite (300 tons)	Council	H. G. Himson, Surveyor, Theatre-street, East Dereham.
" 5	Belfast. 3400 tons of Square Setts, &c.	Belfast Harbour Commissioners	Harbour Engineer, Harbour Office, Belfast.
" 6	Mansfield (Notts). Sewering, Levelling, &c.	Corporation	F. Vallance, Borough Surveyor, Mansfield.
" 6	Windsor. Making up	Town Council	Borough Surveyor, Helena-road, Windsor.
" 6	London, W. Materials, Granite, Gravel, &c.	Acton District Council	D. J. Ebbetts, Surveyor, 272, High-street, Acton.
" 6	Prestwich (Lancs.) Paving, Kerbing, Flagging, &c.	Urban District Council	Thomas Nuttall, Surveyor, 20, Market-street, Bury.
" 6	Sharlow. Materials, &c., 1 Year, March 25, 1898	Rural District Council	Walter J. Briggs, Surveyor, Alvaston, near Derby.
" 6	Windsor. Making-up, &c.	Town Council	Borough Surveyor, Helena-road, Windsor.
" 7	London, S.W. Cartage of Granite and Gravel	Middlesex County Council	J. H. Pownall, Surveyor, Guildhall, Westminster, S.W.
" 8	Lutterworth. Granite, 1 Year, to March 31, 1898	Monks Kirby Rural District Council	J. C. Coates, Surveyor, Bitteswell, Lutterworth.
" 8	Long Sutton (Lincs.) Granite and Slag	Long Sutton Urban District Council	Samuel S. Mossop, Clerk, Long Sutton.
" 8	Oxford. Materials for 2 years	Corporation	W. H. White, City Engineer, Oxford.
" 9	Mold (Flints). Materials, &c., 1 year, to March 31, 1898	Main Roads Committee of Flintshire County Council	Robert Lloyd, Inspector, Bryn Derwen, Mold.
" 10	Newark. Carting	Claypole Rural District Council	C. D. M. Frinder, Brant Broughton, Newark.
" 12	Rugby Cattle Market Extension	Urban District Council	D. G. Macdonald, A.M.I.C.E., Surveyor.
" 17	Pocklington (Yorks.) Stone, Repairing Roads for 1 year	Pocklington Rural District Council	Thomas Robson, Clerk, Pocklington.
" 27	Leyland (Chorley, Lancs.) Carting, &c., 1 year	Leyland Hundred Highway Board	Clerk, District Surveyor, or any of the Waywardens.
<b>SANITARY—</b>			
April 1	Sunbury-on-Thames. Main Drainage Works	Urban District Council	J. Anstie, 17, Victoria-street, S.W.
" 2	Bardon (Leicestershire). Main Drainage	Ashby-de-la-Zouch Rural District Council	J. B. Everard, Engineer, 6, Millstone-lane, Leicester.
" 2	Ashby-de-la-Zouch. Main Drainage Works	Urban District Council	J. B. Everard, 6, Millstone-lane, Leicester.
" 2	East Molesey. Removal of Dust and Refuse, 1 Year, to March 31, 1898	Urban District Council	Surveyor's Office, Walton-road, East Molesey.
" 3	Doverham (Somerset). Drains, &c.	Williton Rural District Council	Messrs. Ponsford, Joyce & Davis, 24, The Avenue, Minehead.
" 5	Nuneaton. Sewers (500yds. of 9in. sewer pipes, &c.)	Nuneaton and Chilvers, Coton Urban District Council	J. S. Pickering, Council Offices, Nuneaton.
" 5	Stowmarket. Sewage and Disposal Works	Urban District Council	Pollard and Tingle, Engineers, 31, Old Queen-street, Westminster, S.W.
" 6	Colchester. Removal of Refuse, &c.	Lexden and Winstree Rural District Council	Chas. H. Thompson, Clerk, Victoria Chambers, Colchester.
" 8	Rugby. Sewer (about 300yds. in length)	Urban District Council	D. G. Macdonald, Surveyor.
" 12	Greenock. New Sewer	Greenock Board of Police	Office of Public Works.
" 12	Monmouth. Sewage Disposal and Lighting Works	Town Council	Bramwell and Harris, Engineers, 5, Great George-street, Westminster, S.W.
" 13	Southampton. Brick and Concrete Sewers	Corporation	W. B. G. Bennett, Municipal Office, Southampton.
" 14	London, W.C. Materials and Jobbing Works	Strand Board of Works	5, Tavistock-street, Covent Garden.
" 22	Woking. Drainage Works	Urban District Council	J. Taylor, Sons, and Santo Crimp, 27, Great George-street, Westminster, S.W.
July 31	Oporto, Portugal. Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.

TELEGRAMS:  
"WEATHERVANE, LONDON."**J. LEWIS,** 5 & 6, Great Winchester Street, LONDON, E.C.**LIGHTNING CONDUCTORS.**

ELECTRICAL EXHIBITION CRYSTAL PALACE AWARD, 1892.

"LEWIS LINK," The only EFFICIENT COUPLING for Conductors. PATENT No. 16,641.

SEE SECTION Fig. 2.

VILLAS,  
MANSIONS,  
SCHOOLS,  
CHURCHES,  
FACORIES.  
CHIMNEY  
SHAFTS, &c.**MEASURES BROTHERS, LTD.**  
**LONDON.**

SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

**MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.**

Have now in their Town Stock 6,500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &amp;c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &amp;c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.  
Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.



# "OPALINE"

The New Sanitary  
Slab Work for Wall  
Linings, Urinals, etc.

SEE ALSO

**ADAMS & CO.'S**  
... SANITARY CATALOGUE ...

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

**ROBT. ADAMS, 67, Newington Causeway, London, S.E.**

These marvellous  
Double and Single  
Action, Silent,  
Adjustable, and  
Self Compensating

**SPRING  
HINGES**

Guaranteed to last  
longer and work better  
than any hitherto  
made.

CAN BE FITTED TO ANY  
DOOR.

Fig. 1 (Silent).

A Double-Action  
Spring Hinge

which opens to and  
closes from the angle  
of 135°.

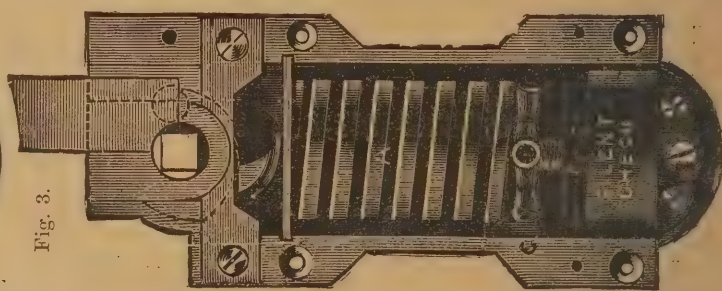
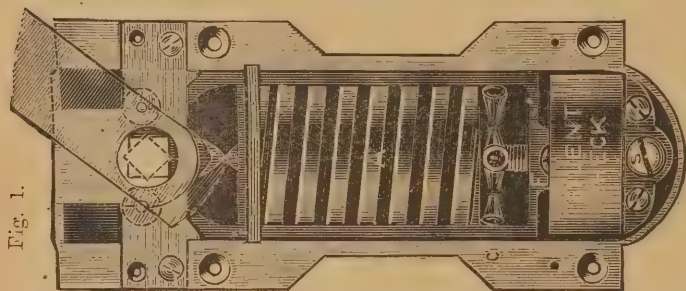
Fig. 3 is the new

Single Action Spring.

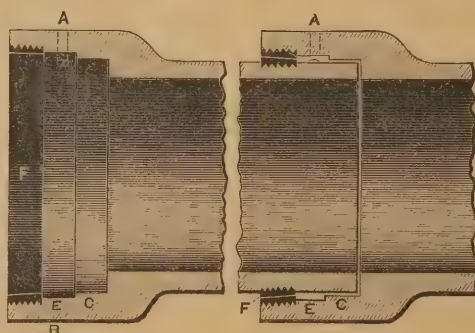
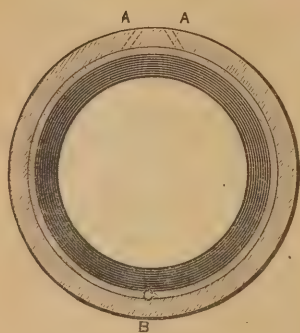
It opens to and closes  
from the angle of 180°,  
i.e., "wide back."

THE FIRST

SPRINGS EVER  
PRODUCED WITH  
THESE GREAT  
ADVANTAGES.



## GREEN'S PATENT TRUINVERT PIPE.



AA—Holes for pouring in cement or composition.  
—Strengthened and Lengthened Socket.

CC—Inner Socket and Rest.  
EE—Chamber for cement or composition.  
FF—Stanford Joint in new position.

This pipe secures TRUE ALIGNMENT OF INVERT, INCREASED STRENGTH IN THE SOCKET, THREE GAS AND WATERTIGHT CONNECTIONS AT EVERY JOINT, and while allowing for a slight settlement when first laid, forms an ABSOLUTELY RIGID JOINT directly the cement sets.

### POINTS.

- 1.—GAS AND WATER-TIGHT JOINTS EASILY MADE UNDER WATER.
- 2.—TRUE ALIGNMENT OF INVERT.
- 3.—SOCKET THE STRONGEST PART OF THE PIPE.
- 4.—NO SPECIAL JUNCTIONS REQUIRED.

OATES & GREEN, Ltd., Halifax.

## HOMAN & RODGERS,

ORIGINAL PATENTEES OF ALL GIRDERS

**ENGINEERS.**

FORMED OF JOISTS AND PLATES

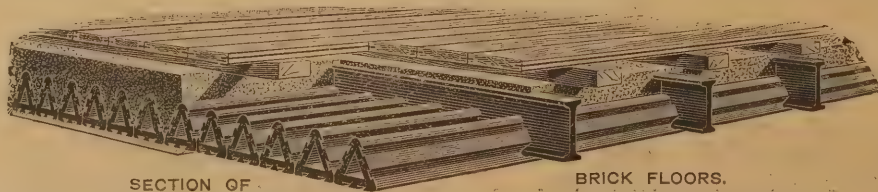
CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS,  
USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES

PIERS,



GRANITIC

PAVING STEPS,

ASPHALTE.

LONDON { OFFICES: 17, GRACECHURCH STREET, E.C.  
{ WORKS: NINE ELMS LANE, S.W.

Telegraphic Address: "HOMAN RODGERS, LONDON."

Telephone No. 1026, Avenue.

MANCHESTER { OFFICES: 10, MARSDEN STREET.  
{ WORKS: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER."

Telephone No. 637.

**FIRECLAY BRICK WORKS, PARKSTONE, DORSET**



# HACKNEY UNION.

REPAIRS to the CHIMNEY STACKS and VENTILATING FLUES.

The Guardians of this Union invite TENDERS for REPAIRING the CHIMNEY STACKS and VENTILATING FLUES of the Old Pavilion at the Hackney Union Infirmary, situate at Homerton, in the County of London.

Persons desirous of Tendering may obtain an order to inspect the premises, see the conditions of contract, and obtain specification and the form of Tender, by applying to me, between the hours of TEN and TWELVE in the forenoon. No quantities.

The contractor will be required to give approved security for the due performance of the contract.

Sealed Tenders, endorsed "Chimney Stacks and Ventilators," must be delivered at my Office not later than HALF PAST TWO p.m. on WEDNESDAY, the 31st day of MARCH, 1897.

The Guardians do not bind themselves to accept the lowest or any Tender.

By order,

FRANK R. COLES,

Clerk to the Guardians.

Clerk's Office, Hackney Union,  
Homerton, N.E.

March 15th, 1897.

# COUNTY BOROUGH OF WEST HAM.

TO BUILDERS AND CONTRACTORS.

The Council hereby invite TENDERS for the ERECTION of SEWAGE PUMPING ENGINE and BOILER HOUSES and ELECTRIC LIGHTING BUILDINGS, at the Abbey Wharf, Stratford, London, E.

Plans may be seen, and specification, form of Tender, and further particulars obtained at the Office of

# BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal

Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS,  
BIRMINGHAM.



# HOISTING APPLIANCES

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

# WESTON

AND OTHER

# Pulley Blocks

in Stock, with any  
length of

# CHAINS.

Chain Maker on Premises  
for Repairs, &c.

# LONDON HOIST

AND CHAIN CO.

32, Norton Folgate, E.C.

Mr. LEWIS ANGELL, Engineer to the Corporation, Town Hall, Stratford, E., on the deposit of a £5 Bank of England Note, which will be returned on the receipt of a bona-fide Tender.

Tenders, endorsed "Tender for Buildings," to be sent to my Office not later than FOUR o'clock on TUESDAY, APRIL 13th, 1897.

The Council do not bind themselves to accept the lowest or any Tender.

The contractor will be required to enter into a bond, with two sureties, for the due performance of the contract, and no work will be ordered under the contract until such bond has been duly executed.

The contractor whose Tender is accepted, and with whom a contract is entered into, will be required to pay to the whole of his workmen such rate of wages and observe such hours of labour as are recognised by the workmen's trades unions and in force at the time of signing the contract.

In the event of any breach of such agreement the Council will enforce the penalty clause in its entirety.

By order of the Council,

FRED. E. HILLEARY,

Town Hall,

West Ham, E.

March 9th, 1897.

Town Clerk.

# TO CONTRACTORS.

Persons desirous of TENDERING for the ERECTION of a CHURCH, VICARAGE HOUSE, and STABLES at Newport, near Howden, East Yorks., can send in their names to us, and deposit £1 15s. at our Offices.

Bills of Quantities and further particulars will be sent to such depositors only, and the deposit returned on receipt of a bona fide whole Tender.

The lowest or any Tender not necessarily accepted.

SMITH, BRODRICK, AND LOWTHER,  
York Chambers,  
77, Lowgate, Hull.

Architects.

# TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ALDENSHAW.—For sewerage and branch draining Ashton Hill-lane. Mr. J. H. Burton, Surveyor, 2, Guide-lane, Hooley Hill:—

Washington Hurst, Droylsden	£115	3	7
Lockyer and Cooper do.	143	6	2
Robert Fish, Ashton-under-Lyne	145	3	4
Surveyor's estimate	114	18	8
Worthington and Pownall, Manchester	159	4	0
Henry Kinder, Hooley Hill (accepted)	159	8	4
Underwood and Brother, Dukinfield	167	8	0

ALDENSHAW.—For paving, flagging, and kerbing Ashton Hill-lane. Mr. J. H. Burton, Surveyor, 2, Guide-lane, Hooley Hill:—

Henry Kinder, Hooley Hill (accepted)	£925	7	7
Underwood and Brother, Dukinfield	944	1	7
Surveyor's estimate	961	8	2
Washington Hurst, Droylsden	984	2	6
Worthington and Pownall, Manchester	1,044	11	0
Robert Fish, Ashton-under-Lyne	1,061	3	2
Lockyer and Cooper, Droylsden	1,079	9	3

ALLERTON (Yorks.).—Accepted for the erection of a villa residence, &c., Pearson-lane. Messrs. Fairbank and Wall, Architects, Craven Bank Chambers, Bradford. Quantities by the Architects:—

Masonry.—T. Haigh, Allerton, Bradford	£1,175	0
Joinery.—W. G. Bogg, Manningham, Bradford	468	0
Plumbing.—T. and K. Pratt, Daisy Hill, Bradford	258	0
Plastering.—J. Thorp, Great Horton, Bradford	149	0
Slating.—J. Smithies, Great Horton, Bradford	98	10
Painting.—Simpson, Cockcroft, Allerton, Bradford	35	0

# "ECLIPSE" PATENT GLAZING.

THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.

Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

MELLOWES & CO. Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
Telegraphic Addresses—"SHEFFIELD," "

GUARANTEE sent with each Basin.



Recommended and Specified by Architects & Sanitary Engineers.

Perfect Sanitation, Healthy Houses

OBTAINED BY ADOPTING THE

# "TWYCLIFFE" Patent Pedestal Syphon W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.	Practically noiseless in action.
Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.	Simple in construction, reliable in action.
	No complicated mechanism to get out of order.
	Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.

# ECONOMY IN BUILDING.



# B. WARD & CO.,

15, Gt. George St., London, S.W.

And at CARDIFF, etc.

PATENT STABLE PAVING.  
PAVING.

FIREPROOF STAIRCASES.  
ARTIFICIAL STONEWORKS.

FIREPROOF FLOORS.

WOOD BLOCK AND MOSAIC PAVING.

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others



**AMMANFORD.**—For building a doctor's house, for Dr. Arthur Hughes. Mr. David Jenkins, Architect, Llandilo:—  
Jones and Davies... £1,180  
D. Jenkins... 1,150  
\*Accepted.

**ASHTON-UNDER-LYNE.**—For erecting the Waterloo and Taunton Liberal Club. Mr. J. H. Burton, Architect, 2, Guide-lane, Hooley Hill:—

For all trades except plumbing and glazing.

J. W. Williamson... £953 15  
Thos. Dean... 946 0  
Edwin Marshall... 936 10  
C. Keswick... 917 15  
Fitton and Bowness... 915 0

E. Kirby... £893 10  
John Robinson... 835 15  
Jabez Gibson and Son... 870 0  
Dukinfield\*... Accepted.

**Plumbing and glazing.**

G. H. Coop... £48 10  
G. Burrows and Co... 48 0  
Alfred Heald... 47 10

Peter Mills... £45 0  
H. C. Hobson, Ashton-under-Lyne\*... 40 18  
\*Accepted.

**BANGOR.**—For alterations to the "Alma Vaults," High-street, Bangor, for Messrs. Greenall, Whitley, and Co., Limited, Warrington. Mr. Richard Hall, Architect, High-street, Bangor, N. Wales:—

Owen Morris... £799 0  
J. and R. Williams... 745 0

Jones and Williams... £690 0  
Watkin Jones, Bangor\*... 668 10  
\*Accepted.

**BOSTON (Lines).**—For the supply of 12,290 tons broken granite, 1110 tons slag, &c., for the Holland (Lincolnshire) County Council:—

Tons.  
L. Sommerfield, King's Lynn... 1,500  
Groby Granite Company... 8,870  
Ellis and Everard, Tollington, near Stamford... 470  
Bardon Hill Granite... 1,450  
Mountsorrel Granite Company... 1,110  
Slag ex Welling-boro' furnaces.

BRISTOL.—For alterations and additions to 18, Old Market, for Mr. R. Bromhead. Mr. Walter Andrew, Architect, Parkstone:—

J. Perkins... £496  
W. Cowlin and Son... 483  
Hughes and Weeks... 445  
Wm. Church... 447

Clarke... £245  
E. Love and Co... 419  
G. H. Wilkins... 387

**BRANKSOME (Dorset).**—Accepted for erection of three shops on the Upper Bourne Estate, Branksome, for Mr. A. T. Frampton. Mr. Walter Andrew, Architect, Parkstone:—

H. W. Lovell... £1,500

**BRANKSOME (Dorset).**—For alterations to off-license premises, Ashley-road, Branksome, for Messrs. Hall and Woodhouse. Mr. Walter Andrews, Architect, Parkstone:—

Burt and Vick... £18 0  
L. Abbott... £17 10

**LONDON.**—Exterior painting and interior cleaning, Chatham Gardens Schools, for the School Board for London. T. J. Bailey, Architect:—

F. Britton... £439 17 6  
W. Shurmer... 297 0 0  
McCormick & Sons... 271 0 0  
W. Lawrence... 251 9 0

W. Silk and Son... £248 10 0  
J. T. Robey... 240 0 0  
S. H. Corfield... 224 0 0  
G. Barker (accepted)... 219 10 0

**BUCKFASTLEIGH.**—For the erection of Young Men's Christian Association premises and masonic hall. Messrs. Norman G. Bridgman and Walter H. Bridgman, Architects, Torquay, Paignton, and Teignmouth. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—  
R. Tozer and Son... £1,086 0 0  
E. Pike... 997 17 6  
S. Blatchford... 898 14 0  
A. Wakeham... 873 5 0

Jackson and Son... £215 10 0  
G. Arscott... 811 15 0  
G. Arscott\*... 827 9 4  
\* Revised tender accepted.

**BUCKNALL.**—For the provision and laying of the pipe sewers, the laying of the iron mains, construction of manholes and lamp-pipes, &c. Bucknall Sewerage Scheme, for the Stoke Rural District Council. Mr. Larnier Sugden, Engineer, Miles Bank Chambers, Hanley. Quantities by the Engineer:—

Doultons' Clayed Joints.

W. Johnson... £7,012 5 9  
S. Warburton... 6,303 14 8  
Joseph Young... 4,645 0 0  
C. Cornes... 4,500 0 0  
Thomas Grace... 4,428 0 0  
F. Burke... 4,118 0 0  
Smith and Taylor... 4,052 0 0  
W. Moss and Son, Loughborough (accepted)... 3,970 0 0

Clayed Joints.  
£6,743 15 6  
5,630 19 8  
4,610 0 0  
4,050 0 0  
3,840 0 0  
3,427 2 6  
3,376 0 0  
3,232 12 0

**CARNARVON.**—For the erection of school buildings, for the School Board. Mr. R. Lloyd Jones, Architect, 14, Market-street, Carnarvon:—

D. Williams and Son... £5,757  
Rd. Jones... 5,499  
Hughes and Stirling... 5,394

Geo. F. Williams & Co... £5,287  
Owen Morris, Carnarvon\*... £5,219  
\*Accepted.

**COLCHESTER.**—For the erection of a pair of semi-detached villa residences, Croftfield Road. Mr. J. W. Start, Architect, Colchester. Quantities by Architect:—

Cook... £1,634 0 0  
E. West... 1,514 0 0  
Girling and Coe... 1,495 0 0  
Saunders... 1,483 0 0

F. Dupont... £1,479 0 0  
W. Chambers... 1,465 0 0  
R. Beaumont... 1,395 0 0  
Appleton and Smith... 1,356 10 0

**Amended Tenders.**

Dupont... £1,319 9  
W. Chambers... 1,276 0  
Appleton and Smith... 1,232 0

R. Beaumont, Lex\*... £1,215 0  
\*Accepted.

**COOKHAM DEAN.**—For the erection of three pair of semi-detached cottages. Mr. J. H. Deacon, Architect, Marlow:—

H. Harris... £297 0  
C. W. Cox and Son... 865 5

W. Harding\*... £255 0  
\*Accepted.

**CROYDON.**—For the erection of superstructure of block of five business premises, George Street, for Mr. F. R. Docking. Mr. A. Broad, Architect, 3, High-street, Croydon. Quantities by the Architect:—

Edwards and Medway... £5,900  
A. Hood... 5,669  
Chessum and Son... 5,659  
E. J. Saunders... 5,650  
E. P. Bulled and Co... 5,628  
S. Hart... 5,600

W. Smith and Son... £5,545  
A. Bullock... 5,540  
J. Horrocks... 5,495  
S. Page... 5,475  
W. H. Lorden and Son... 5,383  
D. W. Barker\*... 5,345

\*Accepted.

**CUMBERLAND.**—Accepted tenders for farmhouse at Colt Close, near Ivegill, Cumberland, for Mr. J. W. Nelson. George Watson and Son, Architects, 3, St. Andrew's-place, Penrith:—

Contract No. 1. Masonry, &c.—Mr. T. Low-thian... £517 16 9

No. 2. Joinery, &c.—Messrs. J. Richardson and Son... 264 7 3

No. 3. Slating.—Mr. J. Bailey... 65 8 6

No. 4. Plumbing, &c.—Mr. J. Jackson... 115 18 8

£2963 11 2

**CYMMER (Wales).**—For the erection of offices, for the Glyncoffwg Urban District Council. Messrs. Lambert and Rees, Architects, Bridgend. Quantities by Architects:—

J. Davies... £1,050  
T. Roberts... 896  
E. Davies and Sons... 895  
Rattary and Jenkins... 892

D. Lloyd, Cymmer, R.S.O., near Port Talbot (accepted)... £890

[Architects estimate, £283 15s.]

**DUNSTABLE.**—For erecting shop, &c., Church-street, Dunstable, Beds., for Mr. L. Hoen. Mr. A. Wilkinson, Architect, Luton:—

T. Tompkins... £235  
W. Goode... £250

**GLANAMMAN.**—Accepted for building a manager's house, for the Raven Tinplate Company. Mr. David Jenkins, Architect, Llandilo:—

Lewis Davies, Penryn, Llandilo... £532

[Lowest of three tenders.]

**GLASS HOUGHTON (Yorks).**—For the erection of school buildings, to accommodate 330 scholars, Cutske, for the School Board. Mr. Geo. F. Pennington, Architect, Bridge-street, Castleford:—

For the whole of the work.

Jackson Bros., Boothferry-road, Gouls... £2,548

**HASTINGS.**—For the restoration of No. 38, White Rock, for Mr. P. Arnold. Mr. Wm. Cooper, Architect, 21, Havlock-road, Hastings. Quantities by the Architect:—

C. Vigor and Company... £1,339  
W. E. Warman... 1,247  
J. Lester... 1,217  
H. E. Cruttenden... 1,200  
C. Harman... 1,160  
F. G. Hutton... 1,152

Eldridge and Crutten-den... £1,140  
Padgham and Hutchinson... 1,119  
J. Simmonds and Company, Hastings\*... 1,096

\*Amended tender accepted.

**HENDON.**—Accepted for alterations to stables, Belle Vue-road, Hendon, Middlesex. Mr. George Hornblower, Architect, 20, Fitzroy-street, W.:—

Wm. Tout, Hendon... £382

**HULL.**—For the supply of c.i. pipes, &c., North Ferryby, for the Seuloates Rural District Council. Mr. W. H. Wellsted, Engineer, Prince's Dock-chambers, Hull:—

Fisher and Young... £174 13 8  
J. Sangwin... 138 10 0  
A. H. Atkinson, 175, Walton-street, Hull\*... 135 11 0

\*Accepted.

**ISLEWORTH.**—For the erection of a joint isolation hospital at Mogden, for the Corporation of Richmond and

## GEORGE WRAGGE

DECORATIVE METAL WORK  
GAS & ELECTRIC LIGHT FITTINGS

WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.

## METALWORK CASEMENTS & SASHES

### ILLUMINATION BUCKETS IN ALL COLOURS.

Commemorating the 60th year of Her Majesty's Reign.

SEND YOUR ORDERS EARLY

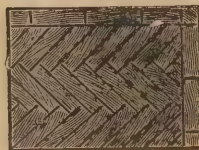
To **J. YOUNG & CO.,** Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.

Telephone No 4712 (Hop).

Telegrams:—"YOUNGS, KENNINGTON CROSS."

### WIRE DEVICES, With Patent Wire Clips, to hold Bucket Lamps, in Crowns, Monograms, Letters, Feathers, and Window Blinds.

WRITE FOR DRAWINGS AND PRICES.



### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

**THOS. GREGORY & CO.,**

WOOD PAVING AND STEAM JOINERY WORKS,

Clapham Junction, S.W.

### FOR PLUMBING, SANITARY AND DRAINAGE GOODS. Builders' Ironmongery, &c.

Telephone No. 77 (Hon)

### LADDERS, BARROWS, STEPS, TRESTLES, SCAFFOLDING, For Sale or Hire.

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

Reading Cases may be had on application to the Manager. Price 1s. 9d. each.

DO YOU WANT TO BUY RIGHT?

# GEORGE & CO

173 & 175, KENNINGTON CROSS, LONDON, S.E.

DO YOU WANT SPEEDY DELIVERY?



the District Council of Heston and Isleworth. Mr. W. J. Ancell, Architect. Quantities by Mr. T. J. Carless:—

	No. 1	No. 2	Total
Buildings	213,700	2,413	216,113
Roads and	12,330	2,534	14,864
Sewers	11,878	2,647	14,525
F. and H. Higgs	11,915	2,490	14,405
Foord and Sons	13,160	2,130	15,290
T. W. Brooking	11,800	2,369	14,169
F. Hiscock	11,663	2,220	13,883
Soole	11,953	1,891	13,844
Chessman	11,708	2,008	13,716
W. S. Sorden	11,693	1,995	13,688
John Ham and Son	11,699	1,899	13,598
Patman & Fotheringham			
W. Wallis			
Messum			
Godson & Sons, Kilburn-lane*			

LINGFIELD.—For alterations and additions to Ford Manor, Lingfield, Surrey, for Mr. R. Spender Clay. Mr. A. William West, Architect, 44, Maddox-street, London, W.—A. Bush, 23, 279 J. Longley and Co., Crawley (accepted). £2,789

LONDON.—Accepted for alterations for additions to 2, Devonshire-terrace, Portland-place, W. Mr. George Hornblower, Architect, 20, Fitzroy-street, W.—Wm. Tout, Hendon. £1,326

LONDON.—Accepted for sanitary works at Montrell-road and Franco-croft-road, Streatham, S.W. Mr. George Hornblower, Architect, 20, Fitzroy-street, W.—F. Stripp, 62, Metbrough-street, Peckham. £210 13

LONDON.—For the erection of additional coal bunkers, at Creek Bridge Wharf, Greenwich, for Messrs. William Dowell and Co. Mr. Benaiah W. Adkin, Architect, 14, Queen-street, Cheapside, E.C. Quantities by the Architect:—Deduction if flat-bottomed bunkers.

Chafen and Newman	£5,994	£190
J. Mowlem and Co.	4,899	114
T. Dower and Son	4,005	150
Clarke and Bracey	3,988	118
T. Gregory and Co.	3,986	104
Kirk and Randall	3,966	112
Holloway Bros.	3,780	120
Harris and Wardrop	3,517	96
F. and H. Higgs, Station Works, Loughborough Junction, S.W. (accepted)	3,390	100

LONDON.—Accepted for alterations and additions, 16, Clifford-street, W., for Messrs. McKivker and Middleton. Messrs. Bartlett and Sons, Architects. Quantities by Messrs. Stoner and Sons.

N. Lidstone, Finsbury Park. £2,335  
LONDON.—For the completion of two houses, Telford Park, Streatham Hill, for Mr. Lees Knowles, D.L., M.P. Mr. F. H. Harvey, Architect, 183, Lavender-hill, S.W.—E. Jones, 2200 0 0 G. A. Rowley, £125 1 6  
F. Crawford, 194 15 0 W. and H. Castle, 120 0 0  
Newmans, Limited, 150 0 0 W. E. Holmes, 115 0 0  
H. Brown, 135 0 0

LONDON.—For building Nos. 416, 418, and 420, Holloway-road, for Messrs. Hart and Co. Mr. Wm. Eve and Son, Architects, of 10, Union-court, Old Broad-street:—Johnson and Co., £4,848 Godfrey and Son, £4,540  
Cox, 4,812 Ward and Lambie, 4,487  
Patman & Fotheringham, 4,751 Holliday & Greenwood, 4,281  
Harris and Co., 4,697

LONDON.—For the erection of new housekeeper's rooms in Havill-street, for the Camberwell Vestry. Mr. D. S. Brown, Surveyor:—

H. H. Castle	£11,177	C. Ansell	£980
H. Ham and Son	1,097	W. Smith	855
R. W. Galbraith	1,025	(Surveyor's estimate, 2670)	

LONDON.—For repairs to the "Trafalgar," Merion-road, for Hodgson's Kingston Brewery Company, Limited, Messrs. Yetts, Sturdy, and Usher, Architects, 44, Finsbury-pavement, E.C.—

Hall, Bedal, and Co.	£170	Petty and Son	£141
Battley and Co.	157	John Ham and Son*	118

LONDON.—Rebuilding offices, Southampton-street schools, for the School Board for London. T. J. Bailey, Architect:—

Lathey Bros.	£919	W. V. Good	£864
J. Garrett and Son	898	Holliday and Green-wood	893
G. Parker	883	W. and H. Castle*	861
Johnson and Company	883		790

LONDON.—Providing and fixing complete low-pressure hot-water apparatus and Trentham boiler, Sigdon-road Schools, for the School Board for London. T. J. Bailey, Architect:—

J. C. and J. S. Ellis, Limited	£2975 0	G. Davis	£576 0
H. C. Price Lea and Company	665 0	Strode and Company	498 0
Maguire and Gatchell, Limited	647 5	Richardson and Company	468 15
		J. F. Clarke and Son*	460 0

\* Recommended for acceptance.  
LONDON.—For erecting junior mixed school, &c., Highway Schools. For the School Board for London. T. J. Bailey, Architect:—

J. Allen and Sons	£2,005	£150
W. Gregar and Son	7,956	130
Dove Bros.	7,670	150
Killy and Gayford	7,596	149
G. S. S. Williams and Son	7,560	145
J. and M. Patrick	7,390	114
W. Shurmur	7,257	110
Treasure and Son	7,166	110
E. Lawrence and Sons	7,111	110
C. Cox	7,025	110
Stimpson and Co. (accepted)	6,980	146

LONDON.—Erecting cookery and laundry centres, and science-room, &c., Millfields-road Schools. For the School Board for London. T. J. Bailey, Architect:—

Dove Bros.	£3,100	£85
J. Grover and Son	3,081	83
T. Boyce	2,754	85
E. Lawrence and Sons	2,772	30
W. Shurmur	2,709	72
G. S. S. Williams and Son	2,668	41
J. and M. Patrick	2,569	27
C. Cox (accepted)	2,469	27

LONDON.—Interior painting, Winstanley-road School, for the School Board for London. T. J. Bailey, Architect:—

R. E. Williams & Sons	£360 0	J. Garrett and Son	£313 0
Rice and Son	351 0	Maxwell Bros. Ltd.	303 0
Lathey Bros.	339 0	G. Foxley	254 10
E. B. Tucker	338 10	E. Flood	269 9
B. E. Nightingale	327 0	E. Triggs (accepted)	247 0

LONDON.—Interior painting, Wolverley-street Schools, for the School Board for London. T. J. Bailey, Architect:—

Marchant and Hirst	£481 10	A. W. Derby	£326 0
T. Nicholson	416 0	J. Kybett	311 0
W. Shurmur	396 0	G. Barker*	305 0
J. T. Robey	342 0		283 0

Gas Comers for Schoolkeepers.  
H. S. Timpon, each £1 10 6  
J. C. and J. S. Ellis, Limited, " 1 7 0  
Robinson, Drew, and Co., " 1 3 6  
Smallbone and Sutton, " 1 1 0  
O'Brien, Thomas and Co., " 0 19 3  
R. H. and J. Pearson, Limited, " 0 19 0

Trolleys.  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0  
4ft. 6in. by 2ft. 6in., each £17 10 0

Rack Cupboards.  
Hillingworth, Ingram, and Co., each £4 19 0  
H. Bouneau, " 4 17 6  
H. Bouneau, " 4 9 0  
J. Garvie and Sons, " 4 8 9  
C. M. Hammer and Co., " 4 7 6  
H. Addison and Co., " 4 5 0

Screens for Ironing-Stoves.  
O'Brien, Thomas, and Co., each £0 17 2  
H. S. Timpon, " 0 15 6  
R. H. and J. Pearson, Limited, " 0 10 6  
H. and C. Davies and Co., " 0 7 3  
J. C. and J. S. Ellis, Limited, " 0 7 0

\* Recommended for acceptance.

LONDON.—Erecting new schools, Windsor-road, for the School Board for London. T. J. Bailey, Architect:—

W. C. Tyrie	£30,099	3 2	£286 13
J. Longley and Company	25,366	0 0	410 0
J. Allen and Sons	25,338	0 0	410 0
R. A. Yerbury and Sons	25,153	0 0	391 0
D. Charteris	24,450	0 0	425 0
Killy and Gayford	24,446	0 0	410 0
J. Grover and Son	24,312	0 0	391 0
W. Shurmur	24,290	0 0	390 0
W. Gregar and Son	24,150	0 0	390 0
E. Lawrence and Sons	24,093	0 0	390 0
G. S. S. Williams and Sons	24,040	0 0	415 0
Treasure and Son	23,980	0 0	385 0
C. Cox	23,795	0 0	394 0
J. and M. Patrick (accepted)	23,561	0 0	390 0
	23,337	0 0	280 0

LONDON.—For alterations to the "Glasshouse Stores," Piccadilly-circus, for the Winchester Brewery Company, Limited. Mr. W. T. Moss, Architect, 7, Gray's Inn-place:—

Irwin, £980 Drew and Cadman, £219  
Lascelles and Co., 928 Ham and Son (accepted), 755

LONDON.—Accepted for decorations, &c., at "Cadeleigh," Herne Hill, for Mr. Edward Lovell. Messrs. Yetts, Sturdy, and Usher, Architects:—

Messrs. J. Ham and Son. £127  
LONDON.—Refitting closets and offices, Glengall-road Schools, for the School Board for London. T. J. Bailey, Architect:—

G. Parker	£1,956	J. Willmott and Sons	£1,720
W. Downs	1,855	E. Lawrence and Sons	1,690
Dove Bros.	1,835	J. T. Robey	1,650
E. Triggs	1,729	J. Shillitoe and Son	1,650
J. and C. Bowyer	1,728	G. Munday and Son*	1,581

LONDON.—Facing up tank walls and providing buttresses, water-closets, &c., Haggerston-road Schools, for the School Board for London. T. J. Bailey, Architect:—

R. E. Clarke	£263 0	McCormick and Sons	£460 0
W. Irwin	632 0	J. Kiddle and Son	458 10
W. Gregar and Son	572 0	J. T. Robey	457 0
F. Britton	510 0	Staines and Son*	449 0

MORLEY (Yorks).—Accepted for the erection of business premises, for the Industrial Co-operative Society, Limited. Mr. G. B. Clegg, Architect, 2, Peel-street, Morley:—

Masonry.—James Clegg and Sons, Morley  
Joinery.—John Clegg and Sons, Morley  
Slatting.—John Atkinson and Son, Leeds  
Ironfoundry.—J. Rhodes and Sons, Morley, £5147 2 2  
Concreting.—S. McFarlane, Leeds  
Plumbing.—A. Fawcett, Morley  
Plastering.—W. Broadbent, Morley

MORLEY (Yorks).—For the erection of mill premises, for Mr. A. Glover. Mr. T. A. Buttery, Architect, Queen-street, Morley:—

Masonry.—Pearson and Ainsworth, Morley (labour only), £1,200 0 0  
Joinery.—G. Elliott, Hanging Heaton, 1,337 0 0  
Plumbing.—G. A. Firth, Morley, 195 0 0  
Plastering and Concreting.—W. Broadbent, Morley, 270 17 10  
Slatting.—J. Atkinson and Son, Leeds, 390 0 0  
Ironfoundry.—J. Rhodes and Son, Morley, 420 0 0

MARLOW.—Accepted for the erection of a shop at Bourne End. Mr. J. H. Deacon, Architect, Great Marlow:—

H. Harris, £375  
MARLOW.—For brewery extension for Messrs. Thomas Wethered and Sons. Mr. J. H. Deacon, Architect, Great Marlow:—

H. Harris	£395	J. Carter	£375
N. J. Lovell	380	W. and T. Sellman*	315

[Steel girders by Moorland and Son, London, E.C.]  
MAIDENHEAD.—Accepted for alterations and additions to the "Swan Hotel" Maidenhead. Mr. J. H. Deacon, Architect, Great Marlow:—

C. W. Cox and Son, £197  
MIDDLESBROUGH.—For the erection of a large block of buildings, Newport-road, for Messrs. J. and T. Saver. Mr. W. G. Roberts, Architect, 61, Albert-road, Middlesbrough. Quantities not supplied:—

J. Lord	£395 15 0	R. Doughty	£235 0 0
Brays Bros.	510 0 0		

# M'NEILL'S FELTS (Roofing, Inodoros, Sarking, Dry Hair, Damp Course, etc.) M'NEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

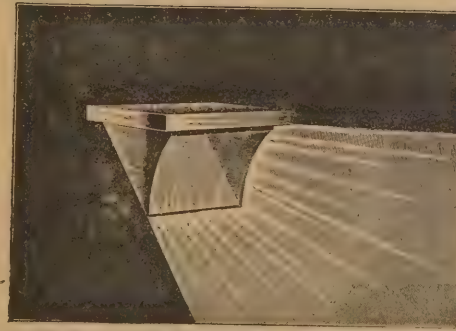
F. M'NEILL & CO., Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

## WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF BASEMENTS, AREAS, CORRIDORS, &c.

THE MOST EFFICIENT AND ECONOMICAL FOR TRANSMITTING DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT INCREASED COST.



"DRIPLESS" LIGHTS. So constructed as to Prevent the Condensation falling on anything which happens to be below.

WILSON'S "SAFETY" PAVEMENT LIGHTS. These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



X

Do. and Plastering of Three Houses and Shop.	£574 6 0
R. Doughty .....	£574 6 0
Brickwork, &c., and Joinery. Warehouse only.	£732 0 0
Perks and Son, Stockton-on-Tees* .....	£732 0 0
Do. Three Houses and Shop.	£798 0 0
Perks and Son, Stockton-on-Tees* .....	£798 0 0
Joinery only. Warehouse and Three Houses and Shop.	£871 0 0
W. Dale .....	£871 0 0
W. Thompson .....	£871 0 0
Stating do. .....	£153 15 0
J. Harrison, Middlesbrough* .....	£153 15 0
J. and R. Masall .....	£153 15 0
Plumbing, Glazing, and Garfitting do.	£143 0 0
Walton and Garthwaite, Middlesbrough* .....	£143 0 0
Curtis and Bowman .....	£143 0 0
Baker Bros. .....	£143 0 0
Plastering. Three Houses and Shop only.	£113 6 6
F. Tomlinson, Middlesbrough* .....	£113 6 6
W. Tarran .....	£125 0 0
(Total, exclusive of painting, £1,940 1s. 6d.)	
Painting. Warehouse and Three Houses and Shop.	£35 10 0
Liversedge, Middlesbrough .....	£35 10 0
* Accepted.	

**NEW BROMPTON (Kent).**—Accepted for the erection of four houses in Station-road. Mr. F. Smith, Architect, Bank Chambers, New Brompton, Kent. — £680

**H. Harris**  
**NORTHAMPTON.**—For new cemetery, chapel, and lodge, to be erected at New Cemetery, Towcester-road, Northampton, for the Corporation of Northampton. Mr. Herbert Norman, Architect, Northampton. — £2,343 11 6  
 J. B. Clarke .. £2,545 0 0 R. Cosford .. £2,343 11 6  
 W. Beardsmore .. 2,460 0 0 J. T. Wingrove .. 2,338 0 0  
 J. Dunckley .. 2,413 16 0 Messrs. Wilford .. 2,322 12 0  
 A. P. Hawtin .. 2,376 0 0 E. Archer .. 2,295 0 0  
 G. Branson and Son .. 2,567 0 0 G. Fisher\* .. 2,180 0 0  
 \* Accepted.

[Architect's estimate, £2,250.]  
**OXENHOPE (Yorks.).**—Accepted for the erection of store premises and seven houses, Station-road, for the Uppertown Industrial Co-operative Society, Limited. Mr. John Haggas, Architect, North-street, Keighley. — £1,800

**Masonry.**—Jonas and John Crabtree, Crummock, Oxenhope  
**Joinery.**—Heston Whitaker, Uppertown, Oxenhope  
**Stating.**—Hill and Nelson, Bradford  
**Plastering.**—Geo. Edmondson, Lees, Keighley  
**Plumbing.**—Frank Raw, Station-road, Oxenhope

**PARKSTONE (Dorset).**—For alterations to premises, Station-road, Parkstone, for Mr. A. J. Haynes. Mr. Walter Andrew, Architect, Parkstone. — £280  
 Jenkins and Sons .. £443 J. H. Wilson (accepted) £280  
 Burt and Vick .. 315

**PENRITH.**—For erecting two cottages at Clifton, near Penrith, for Mr. R. Todd. Messrs. G. Watson and Son, Architects, 3, St. Andrew's-place, Penrith. — £305 0 9

**Masonry.**—Davidson and Hope £379 13 5 Dixon and Gardiner, Penrith\* .. £305 0 9  
**Joinery.**—J. Sarginson, Eamont Bridge (accepted) .. £171 0 11  
**Stating.**—J. Lowthian .. £41 3 3 J. Bailey, Penrith\* .. £38 2 0

**Plumbing, &c.**—J. Jackson .. £65 15 6 G. Carruthers .. £60 0 0  
 J. Purdie .. £64 9 0 G. Smiley, Penrith\* .. £59 0 0  
 \* Accepted.

**Contract Nos. 1, 3, and 4.** .. £493 9 2  
**G. Dixon, Penrith**  
**PENRITH.**—For the erection of a farmhouse at Colt-croft, near Ivergill, for Mr. J. W. Nelson. Messrs. G. Watson and Son, Architects, 3, St. Andrew's-place, Penrith. — £575 0 0

**Masonry, Walling, &c.**—W. F. Pickering .. £500 0 0 T. Lowthian, Plumpton\* .. £575 0 0  
**Dixon and Gardiner** .. 663 7 9  
 \* Accepted.

**Joinery.**—Park Bros. .. £500 0 0 J. Richardson .. £236 10  
 W. F. Pickering .. 449 0 0 J. Moore and Son .. 329 12  
 J. Brown .. 412 0 0 J. Richardson and Son, Penrith\* .. 315 0  
 G. Foxcroft .. 378 0 0  
 J. Longrigg .. 350 0 0  
 \* Accepted.

## BRICKS. LIME. CEMENT.

**EASTWOOD & Co., Limited,**  
 47, BELVEDERE ROAD, S.E.

**WOOD BLOCK FLOORING.**  
**MASTIC** for laying above supplied in any quantity.  
**W. BRIGGS, Chemical Works, DUNDEE,**  
 SOLE MAKER OF

**"Tenax" Building Rock Composition**  
 For Wall Cavities.

**PILKINGTON'S**

**WORKS: CLIFTON JUNCTION, NEAR MANCHESTER.**  
**MANUFACTURERS OF HIGH CLASS TILES.**  
 For Floors, Halls, Hearths, Grates and Furniture.  
 EVERY VARIETY OF TILE WORK FOR  
**CHURCHES, PUBLIC BUILDINGS AND PRIVATE RESIDENCES.**

London Show Rooms:  
 Lyric Chambers, 45, Whitcomb Street W.C.  
 Manchester Show Rooms  
 37, Cross Street

**Slating.**  
 T. Lowthian .. £82 10 0 J. Lowthian .. £76 19 4  
 W. F. Pickering .. 81 15 0 J. Bailey, Penrith\* .. 72 6 0  
 J. F. Kellet .. 81 0 0 \* Accepted.

**Plumbing, &c.**  
 C. McDonald .. £182 0 0 J. Purdie .. £130 18 2  
 G. Smiley .. 170 0 0 J. Jackson, Penrith\* .. 121 9 11  
 G. Carruthers .. 140 10 0  
 \* Accepted.

**Masonry and Slating.** .. £724 16  
**G. Dixon, Penrith**  
**ROCHDALE.**—For the erection of three houses, Howarth Cross-street, Halifax-road, for Mr. Kershaw. Mr. H. S. Nicholl, Architect, 1A, Mount-street, Rochdale. —

**Joinery.**—Bussy and Lord .. £132 15  
 T. Marshall, Halifax .. £468 15  
 Endersby and Mutch .. 142 10 0 Schofield and Jones .. 102 0 0

**Plumbing.**  
 A. Holroyd .. £22 10 0 Hewerdine and Dawson .. £19 10 0  
 J. Marsden .. 21 0 0 T. Barker .. 19 2 6

**Bricklaying.**—Cropper and Howarth .. £220 10  
**Masonry and Contracting.**—Samuel Nicholl .. 114 0 0  
**Stating.**—Alfred Haigh .. 35 0 0  
**Plastering.**—W. Airey .. 24 0 0  
 \* Accepted for the whole of the works.

**SOUTHAMPTON.**—For taking down and rebuilding 137 and 138, St. Mary-street, Southampton. Mr. Walter Andrew, Architect, Parkstone, Dorset. Quantities by Mr. H. J. Weston, Surveyor, Southampton. — £1,170  
 Exors. of Franklin .. £1,478 Dyer and Son .. £1,170  
 T. Rashley .. 1,260 F. Osman .. 1,146  
 Burt and Vick .. 1,175 Jenkins and Sons\* .. 1,118  
 Wright and Son .. 1,172  
 \* Accepted.

**SURBITON.**—Accepted for the erection of a detached residence in Lovelace-gardens, exclusive of internal decorations. Mr. R. Lano Pearce, Architect, of 100C, Queen Victoria-street, E.C., and at Surbiton. — £1,192  
 George Burrage, Sutton

**SWINDON.**—For the erection of small pox hospital and caretaker's house, Gorse Hill, for the Hospital Board. Mr. William Drew, Architect, 22, Victoria-street, Swindon. — £1,192  
 Extra for Broseley Tiles.

J. Hatherley .. £1,053 0 0 233 0 0  
 T. Barrett .. 910 0 0 12 10 0  
 J. Williams .. 882 0 0 10 5 0  
 Flewelling & Hucksott .. 852 15 6 6 0 0  
 A. J. Colborne .. 769 15 6 7 10 6  
 \* Accepted.

**SWINDON.**—For the erection of new club buildings, in Fleet-street, New Swindon, for the North Wilts Conservative and Liberal Unionist Club. Mr. William Drew, Architect, Victoria-street, Swindon. Quantities by the Architect. — £2,850 0  
 Benfield and Loxley £3,133 0 W. Jones .. £2,850 0  
 Flewelling & Hucksott .. 3,060 0 C. Williams, New Swindon\* .. 2,627 0  
 T. Barrett .. 2,888 0  
 T. Colborne and Son .. 2,867 5  
 \* Accepted.

**WORKINGHAM.**—For new offices, &c., for Messrs. Gadd and Company, Limited, of Workingham. Mr. A. E. Sidford, Architect. Quantities by Mr. A. J. Foster. — £448  
 H. Clark .. £450 J. B. Seward .. £448  
 [Architect's estimate £450.]  
 [Bricks supplied and delivered free on site by employers.]

**BROMLEY, KENT.—BUILDING LAND,**  
 under thirty minutes of the City by S.E. and L.C. and D. Railways, near to the Town, Churches, Chapels, Post and Telegraph Offices, in this most lovely and improving district, which offers an exceptional chance to Speculative Builders, Creators of Ground Rents, and others. The land will be SOLD. Freehold or Building Leases will be granted. If desired, advances will be made to Builders. Apply to BAXTER, PAYNE and LEPPER, Land Agents, Bromley, Kent, and 69, King William-street, E.C.

Price 3s. 6d.  
**GLOSSARY OF TECHNICAL TERMS**  
 used in Architecture and the Building Trades.  
 By GAVIN JAMES BURNS, B.Sc., F.S.I.  
 Contains explanations of over 2000 terms.  
 London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**  
 —Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**ASSISTANT SURVEYORS, R.E. CIVIL STAFF EXAMINATION ANNOUNCED.** For terms for tuition, apply to Mr. G. A. T. MIDDLETON, A.R.I.B.A., 56, Dafforne-road, Upper Tooting, S.W. First place on three occasions.

**R.I.B.A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

**PRACTICE OF ARCHITECT and SURVEYOR FOR SALE,** South of England. Established 14 years. Income £250 to £350 per annum. Good reason for selling.—Address, VENDOR, care of Advertising Offices, 10, High Holborn, W.C.

**TECHNOLOGICAL EXAMINATIONS,** 1897.

**CITY AND GUILDS OF LONDON INSTITUTE.** The Institute's EXAMINATIONS in TECHNOLOGY will be held on APRIL 24th, MAY 1st, 3rd, 4th, 5th, 6th, 7th, and 8th.

All applications for examination in Technology must be forwarded to the Institute on or before MARCH 29th. Only in exceptional cases, and by payment of an additional fee, can applications be received from Local Secretaries after that date.

Candidates on Technology, not attending any registered class, should apply not later than MARCH 19th to the Secretary of the nearest local centre.

Applications from individual candidates for examination at the offices of the Institute should be made not later than APRIL 17th, addressed City Guilds Institute, Examinations Department, Exhibition-road, S.W., and should be accompanied by a postal order for the amount of the fee.

## APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**LONDON COUNTY ASYLUM, Horton, SURREY.**

A CLERK OF WORKS is REQUIRED to supervise the construction of the foundations of this Asylum. Salary, £4 4s. per week.

Persons desirous of applying must write to the undersigned for a form of application.

Applications to be addressed to the Clerk of the Asylums Committee, 21, Whitehall-place, S.W., endorsed "Clerk of Works," and delivered by or before NINE o'clock a.m. on MONDAY, APRIL 5th, 1897.

No personal canvassing permitted. Selected candidates will be written to.

R. W. PARTRIDGE,  
 Clerk of the Asylums Committee.  
 London Asylums Committee Office,  
 No. 21, Whitehall-place, S.W.  
 March 23rd, 1897.

**GODWIN'S TILES**  
 For PAVEMENTS  
 WALLS HEARTHES &c.  
 AS USED BY THE  
 Leading Architects & Builders  
 13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.  
 Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LANCASHIRE WORKS, WITHINGTON,**  
 Patronised by Royalty. | Established 1843. | Near HEREFORD.



**THE THORNTON-PICKARD**  
 SIMPLEST AND BEST.  
**CAMERAS AND SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.



20,000 yards  
**FLOOR TILES**  
 in Stock.  
 Quick Supply!  
 Best Quality!  
 Low Price!



# Surveying and Sanitary SUPPLEMENT.

MARCH 31ST, 1897.

## WORKHOUSE PLANNING.

By GEORGE H. BIBBY, F.R.I.B.A.

### III.—VAGRANTS' WARD.

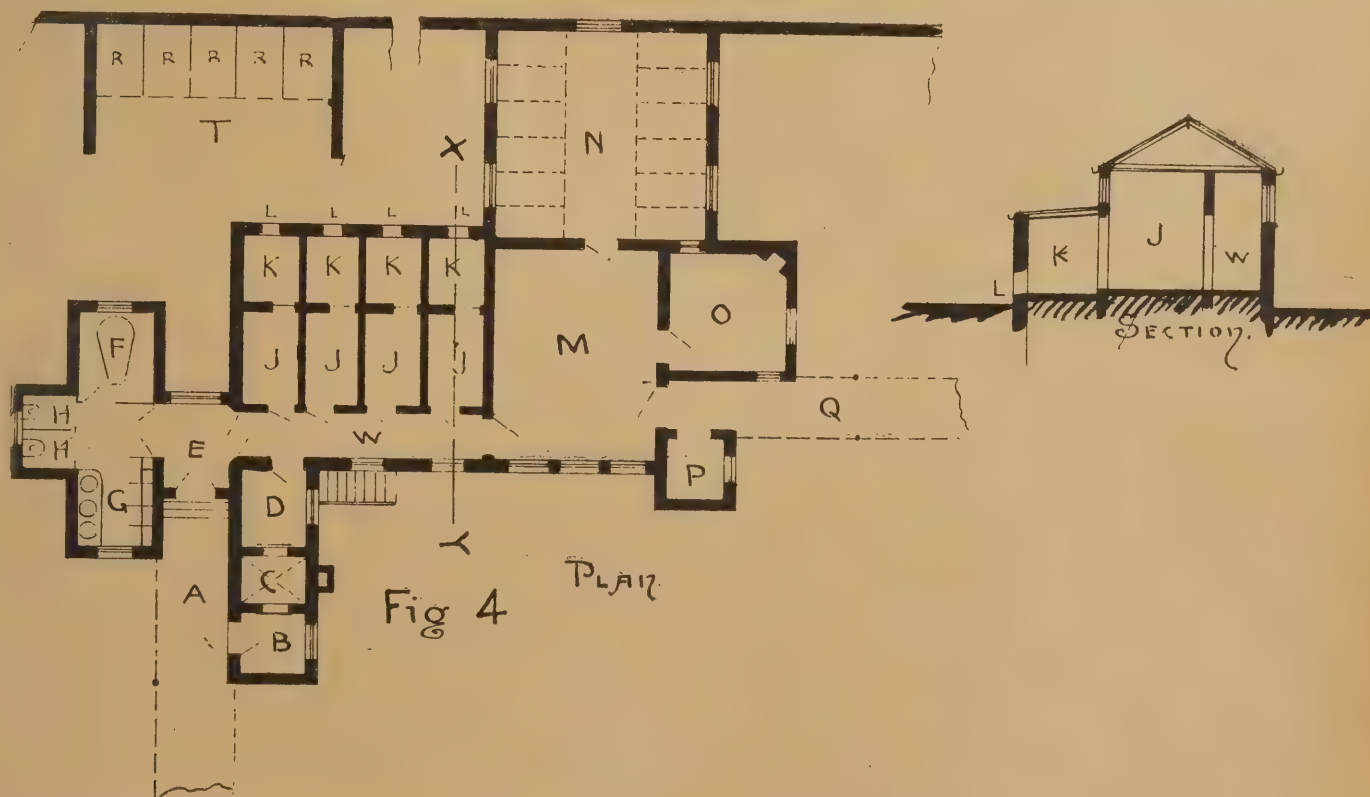
THE buildings to be provided for vagrants are always required for more males than females, and for only limited numbers of children; and whether or not all these be habitual or casual applicants for relief, in erecting wards for vagrants we must remember that there is a large class of persons in existence who are firmly determined to make undue

pected; the associated wards, being very much less expensive to build, would be suitable for an occasional excess of vagrants. It has also been suggested that, where associated wards are chiefly provided, a few separate cells or wards may be conveniently provided for those vagrants for whom, from their habits and manners, isolated accommodation is desirable; where the separate-cell system alone is adopted it is necessary to arrange for a suitable day-room, which may also serve (during periods of pressure) as an extra dormitory for vagrants when the usual dormitories and cells are fully occupied.

While the Local Government Board requires that the ordinary receiving wards shall be

as to accommodate women with children, the length of the compartments should be 6ft. 6in. for males and 6ft. for females; stout canvas or cocoa-nut matting bound with leather forms excellent and cheap material for hammocks." The particulars of the accommodation required for vagrants are in many respects much more precisely stated by the Local Government Board than for other departments of workhouses, and this cannot be a matter for surprise if the various descriptions of vagrants be fully considered, as well as the circumstances of bodily health or moral character under which they seek the temporary shelter of workhouses.

The Local Government Board disapproves of



use of institutions which are intended mainly for cases of unavoidable destitution; such applicants for shelter and food require, therefore, to be dealt with sternly, and to be set to work until they have repaid for their maintenance.

For this object it is frequently considered desirable to arrange the wards on the separate-cell system, or upon a plan which will combine both associated wards and separate cells, as suggested by the Local Government Board, but the separate-cell system (being certainly more costly of construction) would be utilised for the ordinary number of vagrants to be ex-

10ft. in height and have an allowance of 40ft. of floor space to each bed, the associated vagrant wards must be 12ft. in height and 18ft. in width, and a note is made, that "where ordinary bedsteads are not used, the wards should be fitted with sleeping platforms or hammocks, the former being made of planks, either movable or otherwise arranged so as to allow of cleaning, the floor beneath the platforms should be divided into compartments 3ft. wide in the clear by boards 12in. in height above the level of the pillows, every alternate division in the female ward being made capable of removal by the attendant so

vagrants being made to sleep upon the floor, and the regulations above-mentioned are intended to suggest a means for preventing any necessity for this undesirable arrangement, which is, however, still practised (or was recently) in at least one large and overcrowded institution, and may be in many others.

In those workhouses where the vagrants are provided for on the separate-cell system, two sizes of sleeping cells should be arranged for. The ordinary cell (for men or women) must have minimum dimensions as follows, that is, a width of 4ft., average height 10ft., floor space 36ft., and a cubic space of 360ft.; but a



separate sleeping-cell for women with children must be somewhat larger, and have a minimum width of 5ft. 6in., an average height of 10ft., a floor space of 54ft., and a minimum cubic space of 540ft.

Therefore, the dimensions of ordinary vagrants' cells may be as follows, 8ft. by 4ft. 6in. by 10ft., and for women with children, 8ft. by 6ft. 9in. by 10ft., these being the figures approved by the Local Government Board.

These figures show that the minimum accommodation for vagrants compares very unfavourably with that required to be provided for the patients of lunatic asylums for paupers when located in single-rooms (the word "cell" is quite discarded in modern asylums) for even the clean and healthy patients kept in single rooms in these institutions must each have not less than 63 superficial feet, while the apartments for the sick and infirm must be one-third greater.

The day-rooms for workhouse inmates in health may, according to the regulations of the Local Government Board, provide a minimum of 15ft. per person of floor-space; this also is much less than the minimum of floor-space in day-rooms in asylums under the control of the Commissioners in Lunacy, who require that each person shall have a day-room floor-space of not less than 40ft., while the authorities in Ireland require that asylum day-rooms shall have a floor-space of 30ft. per patient, or double the minimum for workhouses; for these and kindred reasons the cost of asylums is much greater per patient than of workhouses.

In Fig. 4 is given the ground plan of a workhouse building (of one story) for vagrants, in which both the separate-cell and associated dormitory systems are combined.

The whole arrangement is assumed to be within the outer fences of the workhouse, and these wards for vagrants would be approached by a covered way at A leading from the porter's office and main entrance.

One of the first necessities upon the arrival of a vagrant is to disrobe him and disinfect his clothing; for this purpose the infected clothing would be received in the apartment marked B, from thence passed into the disinfectant at C, and taken out disinfected at D; the vagrant is provided with a bath, lavatories, closets and urinals at F, G, H, which are all near to the entrance at E (where the lobby forms a means for cross ventilation between the sanitary annexe and the vagrant's apartments), four sleeping cells are provided at J J J J, while the labour cells adjoin at K K K K, these labour cells have shoots for broken stone, &c., at L L L L (see both plan and section), the day-room is shown at M, and the associated dormitory at N is for twelve inmates, the whole block thus providing for sixteen male vagrants of two classes. Should there be a pressure for space at any time additional beds would probably be supplied in the day-room, both dormitory and day-room are in close connection with the attendants' room at O. At P is provided a closet for patients' clothes, and the covered way at Q affords a means of exit for vagrants when discharged from these wards. The stone-breaking shed is at T, with five spaces or bunks 6ft. deep by 4ft. broad, the divisions between each being about 5ft. in height.

With regard to the provision here shown for bathing the vagrants, and for the supply of hot and cold water, the regulations of the Local Government Board permit that when the total number of vagrants of both sexes is limited, one bath room will suffice, but in such cases there must be separate and proper means of access for males and for females; with larger numbers than eight vagrants, two bath-rooms are frequently provided, but although this is in accordance with the Local Government Board suggestions, yet in many districts one bath-room to every eight vagrant would appear to be an unnecessary expense; the Board has also suggested that the apparatus for heating the water for the baths "may conveniently be arranged so as to warm the cells by means of distinct pipes in connection with the boiler. These pipes should be carried through each cell about six inches above the floor near the external wall, so as to warm the

air admitted by the air bricks, and should have a suitable valve or stopcock for shutting off the hot water from them when not required." The Board recommend that lavatories should be provided in the same proportion as suggested for the baths, but this I consider insufficient and would at least provide double the number of basins.

The plan shown in Fig. 4 is arranged in compliance with a suggestion of the Local Government Board which states that "in the case of cells they should be arranged on one or both sides of a corridor, which, though enclosed, should be thoroughly well ventilated by means of louvres in the roof and windows where practicable. This corridor, which should communicate with the bath room, attendants' room, etc., must, if there be cells on both sides, be at least 4ft. wide, and if on one side only, at least 3ft. 6in. in width, the opposite end wall of the cells is required to be either partially or wholly an external wall, in order that air bricks and windows, or ventilating gratings, may be inserted in it."

Some of the requirements of the Local Government Board, with regard to the structural details of the buildings to be provided for vagrants, appear to demand some modification, especially those having reference to ventilation, as may be gathered from the following extract: "The simplest method of obtaining constant through ventilation at night, is to provide an air-brick in the external wall of each cell at the floor level, and a grating at least 12in. by 9in. high up in the corridor wall. The air-bricks should be covered on the inside with finely perforated zinc, and in order to break the force of the wind in exposed situations, the inner opening should be placed either above or below, or to one side of the outer one; in order that the cells may be thoroughly well aired during the day time in all weathers, a swing window 18in. by 24in. should be provided high up in the external wall of each cell, the fastenings of these windows should be under the sole control of the attendants, the windows being opened only when the cells are unoccupied. Where the number of sleeping cells is considerable, the windows should be arranged so that several of them may be opened or shut simultaneously, by means of a rod with a crank attached to each sash. When there exists any strong objection to the small windows above recommended, the cells may be lighted by means of fixed skylights or glass slates; but ventilating gratings, at least 20in. by 15in., must then be provided in the external wall in place of the windows; the gratings must be capable of being closed at night; ventilating skylights are objectionable, as they cannot be opened in wet weather and are rarely watertight when shut." I have already shown that the cubic spaces to be provided in the cells for vagrants is but very limited, the minimum being 360ft. for ordinary cells and 540ft. for the cells for women with children; therefore the openings for ventilation purposes, as proposed by the Local Government Board, appear to be of excessively large dimensions, and the suggestion that when the number of cells is considerable, that several of them be open or shut simultaneously by means of a crank or rod arrangement, would frequently operate harshly upon those of the vagrants whose condition of health is likely to cause them to be greatly susceptible to a cold temperature of the atmosphere, but in those portions of a workhouse where a rod-action for the opening of windows is required a suitable apparatus is manufactured (for workhouse purposes) by Messrs. James Hill and Co., of 100, Queen Victoria Street, E.C., Mr. George Wragge, of Salford, Manchester, and Messrs. W. and R. Leggott, Limited, of 226, High Holborn, W.C., which can be so arranged as to be beyond the risk of interference from the pauper inmates (an important point in workhouse construction).

Wooden partitions between the cells of the vagrants' wards are not, under any circumstances, allowable; the division walls must certainly be sufficiently thick to prevent communications between the vagrants, and should therefore be of brickwork.

Open fireplaces, in the day-rooms for vagrants, are undesirable for various reasons, one of which is that the stronger and more

selfish inmates would probably endeavour to monopolise the fires and exclude the weaker, and much trouble would be caused to the attendants in keeping order, a condition of affairs easily avoided by providing a suitable heating apparatus.

For those vagrants who are confined in separate cells special arrangements as to water-closets, etc., are requisite, or otherwise it would be necessary for the attendants to conduct the vagrants to the closets whenever required; the Local Government Board suggest that the best method of meeting this requirement is to provide in each cell an inexpensive sealed night stool, earth commode, or other approved contrivance of the kind (but not a w.c. apparatus), for the emptying and cleansing of these of course a suitable place must be provided. This mode of dealing with the question has many obvious disadvantages, but appears to be the best under existing circumstances.

In the room appropriated to the attendant upon the vagrants a bell should be fixed, and in each cell or ward should be a pull, with indicators to show who may require attention from the attendant.

The female vagrants are frequently employed in cleaning the cells, bath-rooms, etc., and are also employed in picking oakum—this work may be performed in their cells.

With regard to the provision to be made for the drying and disinfection of the vagrants' clothes, many arrangements are before the public, some of these are by the action of air at a dry heat of 250° F., or by the action of steam, or by a combination of these means, or the clothes may be dried in the ordinary manner and be then disinfected by fumigation with burning sulphur. Amongst the firms who manufacture disinfectors are Messrs. Clements, Jeakes and Co., Great Russell Street, W.C., Messrs. A. M. Perkins and Son, Limited, 43, Regent Square, W.C., Messrs. W. Summercales and Sons, Limited, of Keighley, Messrs. Benham and Sons, Limited, London, W., and Messrs. Frederick Dye and Co., of St. Paul's Churchyard, E.C. In large workhouses each of the larger sections of the institution might conveniently have its separate disinfecting apparatus; in selecting a system many considerations must be thought out, and the facts of economical supplies of gas or steam existing in the workhouse may influence the final decision.

With regard to the proportion of separate cells to be provided in the vagrants' buildings, it is interesting to note that the whole question of locking up vagrants in solitary confinement has not always found favour in the eyes of magistrates and others, especially in those cases where tramps have been liable to be detained beyond one or two days; the reason for placing the labour cells so as to be immediately approached from the sleeping-cell is to save the attendant from the trouble of transferring the vagrants from one cell to another by way of the corridors. Every vagrant who is found to be in good health must be given employment, unless he be in other respects incapable, and it is desirable that the vagrant's buildings should be planned conveniently for the purpose, for it is frequently found difficult to compel vagrants to perform their tasks, even when these are moderate and the buildings are conveniently arranged for the purpose.

The floors of the vagrants' wards should be at a level of not less than one foot above the ground level generally. The Local Government Board has suggested that the day-room for vagrants should be formed of concrete, finished in cement, or that it might be asphalted, paved with quarry tiles or flagging; the walls of brickwork would be limewashed on their internal face, plastering not being considered necessary.

In any case it is desirable that the buildings and workyards for vagrants should be as far away as can be conveniently arranged from the wards for children and the sick and infirm.

(To be continued.)

A NEW museum is to be erected in Berlin at a cost of nearly six million marks.



# Building Trades Exhibition.

## SECOND NOTICE.

THE Building Trades Exhibition for 1897 concluded on Saturday night. It was a record Exhibition, and for many years it must stand prominently forward in the list of future successes which are now confidently looked forward to. In our last issue we noticed a great number of the stands, but those who visited the Agricultural Hall during last week will at once recognise the impossibility of doing justice to the Exhibition in a single issue. We have, therefore, decided on a second notice. Sir Arthur Arnold distributed the prizes in the afternoon to the successful craftsmen in the handicrafts' competitions. The chair was taken by Professor Banister Fletcher, who remarked that the competitions in handicrafts had been most successful, and nearly 100 workmen had entered for them. Their object was to improve the standard of work for all schools and shops so as to benefit both the workman and the trade, and to enable this country to compete with foreign nations on more equal terms. Sir Arthur Arnold, after distributing the prizes, congratulated all concerned on the unqualified success of the Exhibition. The greatest industry in London was the building trade; more persons were engaged in or dependent on the trade than on any other. It was a matter of the highest importance that the trade should be carried on in an enlightened and intelligent manner, and since the work in the workshops was more mechanical than it used to be, it was good to afford them such opportunities as these to display their talent and ability. He liked the Exhibition the more because in many ways it concerned the health of London, which was a matter of interest to every one. Sanitary reform was once in a very different position to the one it held at present, but there was still further advance to be made, and he had seen examples in this Exhibition of what might be done in the future. In consequence of sanitary improvements life had been prolonged, but this was less important than the maintenance of a high standard of health. The recurrence of disease was the greatest evil, and, therefore, they should encourage such Exhibitions as these, and he hoped that all would co-operate in every useful manner for the advantage and welfare of this great city and its population.

### THE DELLA ROBBIÀ POTTERY COMPANY, LIMITED.

DELLA ROBBIÀ pottery, which, according to the late Lord Leighton, embodies "the application of artistic qualities to objects of ordinary domestic use," was to be seen in all its richly decorative forms at the Company's stand in the gallery. Della Robbia pottery and its artistic application is too well-known to need description; it is enough for us to mention that the exhibits included small panels for overmantels, sundials, and pedestals, bands of colour for dadolines, chimney sides, bands in rich-coloured relief, designs for tilings for window-garden boxes, large jardinières, &c. The pieces are all original, inasmuch as they are made by hand, and no two pieces are exactly the same. Mr. Harold Rathbone superintends the production of the pottery, which has won the appreciation of many leading Artists and Architects of the day.

### MESSRS. T. J. SYER AND COMPANY.

THE exhibits on Messrs. T. J. Syer and Company's stand ranged from laths to patent joiners' vices. These vices are instantaneous in their action in gripping or relaxing their hold in any distance 1-17in. to 13½in., and are always parallel when open. A patent mitre

camp, Syer's patent bench knife (the handle of which is placed in horizontal instead of a vertical position, and works the blade both ways by its action), wood-split pulleys, portable forges, telescope and folding ladders, were only a few of the many and varied exhibits on this stand.

### GEORGE JENNINGS.

THE well-known goods from the South Western Pottery—all made of the best Dorset clay—exhibited by George Jennings, attracted considerable attention during the week. Perhaps the exhibit claiming greatest attention was Tyndale's patent "double seal" jointed pipes. The joint was generally admitted to be perfect, and besides the material is homogeneous in texture, impermeable to water, and affords improved facilities for quick laying, testing, and covering in. Sink bends in glazed stoneware, highly glazed cane colour sinks, the "Parkstone" flush-down apparatus, patent and other invert blocks for brick sewers and glazed stoneware manhole bottoms, were included in the stock of sanitary accessories which is upon a stand—the largest at the firm's disposal—all too small to accommodate examples of the many goods with the production of which Mr. Jennings' name is so closely associated.

### MESSRS. STANLEY R. DOCKING AND COMPANY.

A VERY simple and efficient safety-valve was shown by Messrs. S. R. Docking and Co., of 62, Dingwall Road, Croydon. It cleverly surmounts many of the difficulties encountered with other valves, and among its advantages are a security from sticking or leakage, the abandonment of perishable washers, whilst it also requires no lead away pipe, thus obviating the risk of the same freezing up at the very time when most required, and rendering valves worse than useless. When relieving a sealed boiler, it does so by a simple puncture at the apex of the cone (without any complication of piercing by a needle) in a silent and harmless manner by the power and temperature increasing. The fact that whilst all other valves require attention, Messrs. Docking and Co.'s valve, when fixed, requires no attention whatever, is in itself an adequate reason for its preference over all others.

### MESSRS. PETERS, BARTSCH, AND CO.

MESSRS. PETERS, BARTSCH, AND CO., of Derby, and 68, Queen Street, E.C., had two or three specialties on show. The first was their patent wood preservative, Carbolineum Avenarius, which is claimed to be more effective than paint in preserving wood under and above ground, not only against wet and dry rot, but against the ravages of vermin. Secondly, they showed samples of their Antioxide, which as a rust protector and a protector of iron has been largely used by the Railway Companies. And patent indestructible combination washers for flange joints of steam and water pipes were also on the same stand. These washers have been tested up to 2300lb. pressure, and of their durability, therefore, there can be no doubt.

### MESSRS. POTTER AND CO. LIMITED.

STAND 14 consists of a model of Potter's patent fireproof floor, shown by Messrs. Potter and Co. Limited, of Victoria Street, Westminster, S.W. The floor is very light—it weighs 26lb. per footsuper—is partially fireproof, thoroughly sound-proof, is very strong, and in every respect sanitary. It is well-known that concrete conveys sound very readily; a suspended and independent ceiling is the only remedy, and Messrs. Potter obtain the desired results by the total disconnection of floor and ceiling. Double air spaces are introduced into the steel

joists as a fire preventative, and the bottom flanges are protected by fireclay flange-shields, which thus enable the flooring to resist fire for a very protracted period. Those who know the floor or who have inspected the model will readily admit that it has certain distinct advantages—advantages which the trade is recognising more fully every year, and hence an increasing demand for it.

### H. HART, COMMERCIAL ROAD, E.

MR. HART, who, according to catalogue arrangement, occupies the first stand in the Exhibition, shows almost every description of drain and sweep's tools, which include a patent spring lock joint and a patent push-in-socket joint.

### MESSRS. WEBB AND CO.

WITH, perhaps, one exception, the best collection of mosaic work was exhibited by Messrs. Webb and Co., of 292, Euston-road, N.W., who occupied a stand in the gallery. Marble mosaic pavements were numerous, but there were also to be seen examples of jewelled mosaic, a new and effective treatment of mosaic panels for friezes, facias, stall boards, pilasters, and mural decoration generally, which Messrs. Webb and Co. not long ago introduced into their business. By the use of tesserae, formed from the Company's enamelled and lustre tiles, with Venetian gold glass cubes, the exquisite and brilliant effects of jewellery are produced, beautiful by day, and especially resplendent by artificial light, which brings out a variety of iridescent gleams. Such a rich decoration, which has already been introduced into several well-known hotels, &c., must claim general appreciation.

### MESSRS. E. E. TWIGG AND COMPANY.

ON the stand of Messrs. E. E. Twigg and Company, of Ashford, near Bakewell, were several mantelpieces of marbles in rather unique shades, suitable for decorating with rare effect the interiors of either public or private buildings. There were also on exhibition turned marble columns and balusters, inlaid marble tables, marble tiles for flooring, marble slabs for well linings, &c. The marble was from the company's own quarries in Derbyshire, and it has been used in many important public buildings in the provinces.

### COLLANDER'S PURE BITUMEN DAMP-COURSE.

SEVERAL models were exhibited, showing the application of Collander's pure bitumen damp-course, firstly, to railway arch, secondly as lining for a reservoir, and thirdly, to a brick wall standing in water. Whilst samples were also shown as illustrating its application to vertical work finished with match-boarding, expanded metal, plaster, &c.

### MESSRS. JOHN KNOWLES AND CO.

AMONG their "Vitrifine" stoneware pipes and other sanitary goods, Messrs. J. Knowles and Co., of 38, King's Road, St. Pancras, N.W., showed the patent Anti-Vap street gully. As the trap is completely hidden from the action of the sun, evaporation is practically unknown, which thus ensures immunity from any offensive smell. The Aquarius closet, which, as explained elsewhere, is constructed so that the drain can be set off at any angle, was also exhibited, other goods on the stand including channel pipes for manholes, blue Staffordshire bricks, fire bricks, chimney pots, &c.

### MESSRS. J. ARMSTRONG AND SON.

MESSRS. J. ARMSTRONG AND SON show drain cleaning machines of all descriptions and in all sizes. They are manufacturers of improved



brass screw sockets for drain rods which, as exhibited on stand 17, are double rivetted and much longer in length and in thread than the ordinary rod. The latest improvements in chimney-sweeping machines are also shown.

#### CHARLES G. ROBERTS, HASLEMERE.

NEXT to Messrs. Armstrong's stand, Mr. Roberts shows an example of his patent rain-water separator. Its object is the purification of rain water. The rain washing the roof runs into a pipe connected with the drains, and when rain has fallen sufficiently to have carried away the dust and dirt off the roof, the water automatically is directed to a pipe connected with a tank, and thus nothing but that which is clean and wholesome is preserved.

#### THOS. KEMP, BRIXTON, S.W.

MR. KEMP's improved system of house drainage, shown at Stand 19, attracted considerable notice during the Exhibition. It embodies new inventions for rodding drains throughout from ground surface. A welcome feature of this system is that it obviates the necessity of costly manholes, whilst amongst other advantages, trench drains can be laid with only a shallow cutting. Kemp's patent intercepting traps were also exhibited, and showed pipes fitted for use with or without manholes, and also the mode of unstopping and dredging trap and unstopping pipes leading to the main sewer. Double ceiling inspection eye cover, and apparatus for supporting the same were among other exhibits on the stand.

#### THE PATENT CHIMNEY POT COMPANY, LIMITED.

THAT Peyton's patent "Champion" chimney pot is up-to-date no one will dispute. It has weathered the blasts in the most exposed parts of the kingdom, and, in addition to its stability, it offers no obstacle to the begrimed sweep as his brush can easily pass through the pot and remove soot without further attention. As compared with crows, pecuniarily, Peyton's "Champion" is cheaper.

#### MESSRS. RIGBY, BATTCOCK, AND COMPANY.

MESSRS. RIGBY, BATTCOCK AND COMPANY, of Bethnal Green Road, Shoreditch, showed a large collection of painting brushes and artists' tools of all sorts and sizes. Brass hand distemper brushes, copper locket varnish brushes and tools, and paint removing lamps were represented in the collection. The goods were clearly of very high class.

#### DURRANS' PATENT SYNDICATE.

DURRANS' patent self-cleaning galvanised iron cisterns, shown on Stand 28, are well worth a passing notice, as they supply a great need for a clean container to receive the household water for drinking purposes. The tank is circular in shape with a coned-dished bottom, and mounted on an iron-framed stand. The ball valve has a copper circular flushing pipe, so that when the valve is open all dirt and sediment is completely washed away. Where cisterns are situated inside roofs and other inaccessible places the valve can be fixed with a length of pipe to discharge over a sink below or in the bath-room, and thus no trouble is entailed in turning the valve on and off. The cistern is fixed with a galvanised iron cover, bolted down air tight to prevent any foul air contaminating the water. The cistern has much to recommend it. Durrans' Kallio metallic jointed air-tight cover for manhole chambers was also on exhibition.

#### D. C. SIMPSON, FOREST GATE E.

THE sash window seems to have claimed the inventors' attention a good deal lately. Mr. D. C. Simpson exhibited his patent on Stand 30, and it differs from other patents of the kind in that the ordinary sash frame is made to revolve within an outer one, built in brick-work, so that the whole of the sashes, frames, &c., can be completely reversed. Besides, by the removal of a single screw, the whole of the window-frame, with sashes, can be lifted bodily from its place; the advantages of these facilities are obvious, especially in

cases of lofty and dangerously placed windows. But in all buildings, whether domestic or public, they are a desirable acquisition.

#### THE EUREKA DISINFECTANT CO.

THE "Eureka" Automatic Disinfecting Cylinder, shown by the above Company on Stand 32A, is a useful invention which provides a new method of using disinfectants. It consists of a cylinder of porous cement filled with Crystals of Permanganate of Potash, Creosote, and Eucalyptus Oil, and the action of water on the cylinder converts it (the water) into a strong disinfectant.

#### THE CRANSTONE ENGINEERING WORKS, LIMITED, AND THE KENT ENGINEERING WORKS.

THE principal exhibit on Stand 37 was a self-sustaining, hand-power, dinner service lift. It was constructed on a very much improved principle, and became self-sustaining at any point directly the hauling rope was liberated. A hand-brake rope was, therefore, unnecessary. The same exhibitors also showed a very compact friction hoist—which could be fixed in any position—and a number of pulley blocks, quick rack hoists, &c.

#### A. E. PARNACOTT, JUN., LAMBETH, S.E.

A PNEUMATIC water waste preventing flushing cistern, which occupied Stand 38, shown by Mr. A. E. Parnacott, jun., 33, Finch Street, Westminster Bridge Road, Lambeth, S.E., was one of the novelties of the Exhibition. It obviates all chance of overflowing, and this without a ball valve! In a few words, the invention is this: water is supplied direct from the main to the cylinder, and when it begins to empty, compresses the air; this compression of air increases until it overcomes the force from the main. Then, when the valve is open and the water finds an outlet, the air begins at once to expand, and its power in the direction where there is the least resistance, which is, of course, the valve, results in an extraordinary flush.

#### T. M. ROBERTS, FINSBURY CIRCUS, E.C.

ODDY's patent automatic bell, shown by Mr. Roberts on Stand 40, seemed effective enough to rouse all Islington. The difficulties of the enterprising burglar bid fair to be increased. But Mr. Roberts did not only exhibit alarm bells. He showed door bells, and bells for general use all of which work automatically, by means of a strong spring which thus does away with the sensitive battery and all the ills to which it is heir. It is not difficult to believe, therefore, that these automatic bells are in great demand; their simplicity and effectiveness ensure popularity.

#### MESSRS. J. C. BROADBENT AND CO., LIMITED.

MESSRS. J. C. BROADBENT AND CO., LIMITED, of 73, Basinghall Street E.C., exhibited a model of a building showing various methods of applying silicate cotton or slag wool, and also patterns illustrating the application of the material more in detail for building and other purposes. The merits of silicate cotton are well known. It is a pure mineral fibre made from iron slag, and besides being very light, is sound, fire, frost, and vermin proof. Messrs Broadbent also exhibited their hair fabric, which is made similarly to slag wool and is for similar purposes.

#### THOMAS POTTERTON, BALHAM, S.W.

THE principal exhibit on Mr. Potterton's stand was an example of his patent range boiler for supplying large quantities of hot-water and warming houses from the kitchen fire in conjunction with the hot-water domestic supply. It fulfils its dual capacity admirably, for its heating powers are enhanced by utilising the large percentage of heat wasted in an ordinary fire. Other notable exhibits on the same stand were Potterton's patent indicating safety valves, which are fitted with hollow spindles and attachable cocks, and an example of a kitchen range with a rising bottom for diminishing the heat when not required.

#### MESSRS. KING AND SON, WEEDON.

MUCH praise has been bestowed upon Messrs. King and Son for their "Honeycomb" wine-bin, as shown on Stand 51. Certainly in construction it has the charm of novelty. Each receptacle for a bottle is a separate tube, made of terra-cotta, hexagon or honeycomb shape outside, and circular within. Thus each bottle having a separate chamber, is protected from currents of air, and, to a great extent, sudden changes of temperature, whilst the bin is durable and cheap. It can be built into the walls of houses, making the cellar a foot larger each way.

#### MOULE'S PATENT EARTH CLOSET COMPANY, LIMITED.

THE Company had on exhibition examples of all their patent closets, including Moule's pull-up earth closet apparatus, Moule's self-acting earth closet apparatus, and Moule's pull-up portable closet, &c. The system, which is founded on the now well-known power possessed by dry earth, of deodorising and disinfecting fecal matter, is applicable not only to new closets, but to most existing closets, and is to be strongly recommended, as its employment effectually remedies all the evils attendant on common cesspool privies, &c.

#### MAURICE'S PORCELEINE CO., LTD.

THERE was a great profusion of Maurice's porcelaine on Stands 64 and 65. It was shown applied to figures and to Anaglypta with a very bright and pleasing effect. It gave a china-like surface, and it is claimed for the porcelaine that it is an effectual preventative of damp walls, and will resist the action of hot water in the same way as stove japan. It is prepared in any colour, and by the Company's process of manufacture the most delicate tints are obtained. It is claimed that it is superior in effect and durability to four of ordinary paint or enamel.

#### MESSRS. FRED JONES AND COMPANY.

MESSRS. FRED JONES AND CO., of Perren Street, Rylands Road, Kentish Town, N.W., exhibited silicate cotton or slag wool in a loose state and in various made up forms for use in buildings. Jones's patent combination slab which is composed of a plaster slab lined with silicate cotton, is put forward as a substitute for heavy girders. Fibrous plaster slabs and Jones's patent damp proof slabs were also shown, and it may be mentioned that the former has been considerably in demand by London builders.

#### THE LONDON OPAL TILE AND DECORATION COMPANY.

THE new patent Opal tiles for wall and general decorative purposes was shown in varied treatments on Stand 68. The tiles are made with a pure Opal surface, and their great feature is a patent cemented back which greatly facilitated the fixing. The tiles have a superior finish, and equal in appearance—but not in price—glazed bricks and glazed tiles, whilst they also possess the advantage of suitability to all climates, readily allowing for expansion and contraction. The Company showed an example of Opal tiles on ordinary walls, which strikingly represented enamelled bricklaying, and it was shown with what ease repairs could be executed in case of a tile becoming chipped or broken.

#### MESSRS. H. AND F. BONTEN.

A VERY varied and interesting collection of wrought-iron mouldings for Architectural purposes was shown by Messrs. H. and F. Bonten, of Elder Street, Norton Folgate, E. If it does nothing else, the collection forcibly illustrates the progress Art metal work has made during recent years; and by the goods exhibited by Messrs. Bonten, Architectural effects of a very high character are easily attained. A novelty on the stand was examples of self-contained sections for the construction of shop front windows, with roller blind channels attached, and by an ingenious introduction of ornamental iron mouldings the glazing frame is effected, and you have at once a fireproof, ornamental, and well-ventilated wrought-iron window. Another exhibit out of the ordinary



was examples of patent, twisted, ornamental, wrought-iron hollow tubes or banister iron, made in sections, whilst numerous other sections for Art metal work were also shown, claiming lightness, indestructibility, and cheapness as their chief advantages.

#### MESSRS. D. ANDERSON AND SON, LIMITED.

FELTS for all purposes were shown on Messrs. D. Anderson and Son's stand, a feature of which was a segmental lattice girder specially made for the roofing of sheds. Other models showed the application of silicate cotton for deadening sound and fireproofing buildings; the use of Anderson's patent hair fabric for covering hot and cold water pipes to prevent freezing; and also silicate cotton as a covering for pipes. All kinds of india-rubber goods used in the building and allied trades were also on exhibition.

#### PEASE'S TUBULAR CONSTRUCTION SYNDICATE, LIMITED.

A NON-METALLIC portable house with specimens of fireproof flooring were the chief exhibits of Pease's Tubular Construction Syndicate, Limited, of Stockton-on-Tees. These portable houses are constructed in panels, the connecting and strengthening members being open joint tubes, which engage with light angle strips fastened to the sides of the panels. Structures erected on this system are light and rigid, and possess a highly finished appearance. The flooring is of galvanised steel and wood for all spans, and is made in a cylindrical form, engaging with tongued and grooved boarding, the whole drawn together in sections by through bolts. The beam-like structure of the ironwork gives it strength enough to stand the most severe tests.

#### MESSRS. C. G. PICKING AND CO.

"MAXIMUM of strength with minimum of weight and thickness" is what Messrs. C. G. Picking and Company, of Bounds Green Works, New Southgate, N., claim for their interlocking fireproof flooring. These *desiderata* have been secured by adapting to hollow tubular blocks the twin arch design, combined with the employment of a strong and refractory material in manufacture. Additional strength is given by the lateral interlocking arrangement, and, therefore, concrete has not to be employed. The double-arched blocks need only the covering of fire-resisting grout in order to form a homogeneous floor. Another important point is that the floor does not exceed six inches in depth; its value in economising head space must be readily appreciated. At the same time, a heavier or thicker floor is quite possible if required. Messrs. Picking also exhibited an example of their interlocking fire and sound-proof partitioning, the walls of which, when plastered and finished, are only about three inches in thickness. It is therefore very light, and at the same time extremely strong.

#### MESSRS. G. AND J. HAIGH.

MESSRS. G. AND J. HAIGH, of Dewsbury, showed an extensive collection of bricks—firebricks, glazed bricks, and building bricks—and sinks and sanitary ware generally, made from clay brought up from mines of which they are the proprietors. This enables them to put their goods on the market at a low rate, and at the same time the quality of the material is such as to produce bricks that have been proved equal to severe tests. They also showed some buff and red floor tiles.

#### PATENT WINDOW COMPANY.

NORFOLK's improved sash windows have been designed with due regard to the exigencies of an outbreak of fire. In such a case, both sashes can be opened inside the room in the space of half a minute. Each sash works independently, and can be turned inwards on hinges. New sash lines can be replaced without the removal of the beading, and the windows are fitted with the screw rope coupler, which has been introduced as an improvement on the present style of tacking on sash cords. Mr. Norfolk's address is Brockley Road, Brockley, S.E.

#### MESSRS. F. WALTON AND COMPANY.

LINCROSTA WALTON has been so long before the public, and has met with such wide appreciation, that little remains to be noted beyond the fact of the exhibit. Quite in a fitting manner Messrs. F. Walton and Company determine to maintain their position—hence an exhibit of excellent designs and corresponding workmanship. The season bids fair to be one of great activity in all branches of building and decorative Art, and Lincrosta Walton is to the fore with a singularly effective range of patterns. We append one of the current designs for a dado, which may seem to illustrate the play of fancy and grace of manner which form so marked a characteristic of the Lincrosta

#### MESSRS. DIESPEKER AND CO.

AN interesting exhibition of mosaic work was made by Messrs. Diespeker and Company, of 60, Holborn Viaduct, E.C., on Stand 89A. Examples of Roman and Venetian marble mosaic for floors, dados, wall decoration, hearths, pathways, &c., made a very good collection, which recommended itself to the trade on practical as well as artistic grounds, for it is well known that mosaic adds strength to concrete foundations, and is especially desirable on sanitary grounds. Circular mosaic skirting and channels specially suitable for wards, corridors, baths, &c., were also shown, all the work having been done by Messrs. Diespeker, who do not import mosaic from abroad.



DESIGN BY MESSRS. F. WALTON AND CO.

Waltons' productions. In decorative treatment Messrs. Waltons' work offers great facilities, and peculiar advantages as compared with the old world methods of wall-papering. The prime cost is greater, but the ultimate result tends to economy. Landlords have a pleasant way of requiring householders to redecorate their premises at brief intervals. Tenants who introduce Lincrosta Waltons' into their scheme of decoration will avoid this form of recurrent expenditure, since Lincrosta, once fixed, is a perennial adornment (barring accidents), approaching to that thing of beauty which the poets claim to be a "joy for ever."

#### MESSRS. FREEMAN AND SHOOSMITH.

ONLY the most approved sanitary appliances were given prominence on Messrs. Freeman and Shoosmith's stand, which adjoined that of Messrs. Skey and Co. Foremost was their close-sealed intercepting trap, which provides better means for making the joint at the nose of the trap and gives better facilities for testing the whole of the joints of the drain. Among other advantages this invention dispenses with the unsatisfactory system of using an ordinary T junction, thereby doing away with an untested joint and ensuring a perfect sewer-gas proof drain. Freeman and Shoosmith's



improved reversible yard sink or gully trap was also on exhibition, and as is well known, is especially desirable as, having a reversible top, the body of the gully can be set to any angle or line of the drain or building, ensuring a straight line from the gully to the main drain of the building, which thus obviates the necessity of undesirable bends. Patent closet traps, brass drain testers, and other sanitary appliances were also shown.

#### MESSRS. G. SKEY AND CO. LIMITED.

A "SPIRALVENT" chimney-top was the leading exhibit of Messrs. G. Skey and Co., of Wilnecote Works, near Tamworth. It has proved very satisfactory in preventing smoky chimneys, but in increasing up-draughts it is equally desirable. Messrs. Skey made a very representative display of sanitary goods, and other exhibits included white and buff channels, buff and salt-glazed sinks, damp-proof courses, salt-glazed drain-pipes, traps, interceptors, &c., of stoneware, and not fire-clay. An example was shown of a closet specially made to meet the requirements of the Works Department of the London County Council. The background of the stand was relieved by a display of tiles of beautiful quality and colour.

#### THE DARLEY DALE STONE CO.

The Darley Dale Stone Company had on exhibition samples of stone from their various quarries, including Stancliffe, Farley, Bentley Brook Old Quarries, Crowford High Peak Quarries, &c. It was mostly dressed stone, and its durability is well-known.

#### MESSRS. C. W. OUTRAM AND CO.

As sanitary goods go, Messrs. Outram, of Woodville, near Burton-on-Trent, made an attractive show. The two most notable exhibits, perhaps, were the "Swiftsure" wash-down closet and the "Aquarius" closet. The "Swiftsure" has been designed to ensure perfect immunity from the dangers of sewer gas escape arising from the faulty construction of, and method of fixing the present system of closet. In the "Swiftsure" closet the soil trap terminates above the floor level, and, with its brass fittings, which take the place of putty, is thus open to inspection, whilst other improvements suggested by forty years' experience have also been incorporated. The "Aquarius" closet will also be found to meet the most stringent sanitary strictures, having an outlet which can be turned in any direction, and an excellent connection of closet and soil pipe. Lavatory basins, traps, fountains, and innumerable other goods were exhibited.

#### MESSRS. S. AND E. COLLIER.

Red terra-cotta work of almost every description was to be seen on the Stand of Messrs. S. and E. Collier, of Gravelands, Reading. Smooth-faced and sand-faced tiles, plain tiles, and ornamental tiles, chimney tops, ridges, and finials, were all included in the collection, but there was no speciality to note with the exception, perhaps, of Fletcher's patent chimney-pot for curing down draughts, and the sand-faced, hand-made roofing tiles, which are desirable in cases where the tile is required to tone down quickly. All the goods were in a good deep red, and it is the colour and quality of material, rather than novelty in construction, to which Messrs. Collier draw attention.

#### MESSRS. BROAD AND CO., LIMITED.

MESSRS. BROAD AND COMPANY, of Paddington, exhibited a large variety of white enamelled ware goods and drainage accessories with the latest improvements. Their patent sink is one likely to be very largely used, as it obviates some of the objections to the ordinary scullery sink. The white enamelled drinking water cistern exhibited was obviously perfectly adapted for the purpose, whilst the sewer gas interceptors are now so well-known as to need no comment. At this stand were seen excellent patterns of fire-clay closets, especially an "Infantile Closet," designed for schools; also manhole covers, drain-pipes, and a selection of sanitary specialities for which the Company is well known. Some excellent specimens of terra-cotta were also exhibited, the buff being especially good, the rich colour of deep golden hue proving very attractive.

#### MESSRS. H. J. AND C. MAJOR.

"MAJOR's patent interlocking plain tiles" were shown in position on Stand 102. A feature of the tiles is the ribs and fillets, which are so arranged as to offer complete resistance to the passage underneath of rain and snow, and also by the method of interlocking, of preventing wind stripping in the most exposed situations. The method of hanging them on the laths by ribs or buttons is as usual, but the interlocking parts render nailing or pegging unnecessary. The tile may be easily removed and replaced without in any way impairing the soundness of the roof—a material advantage which has met with wide-spread recognition. Being made of the best alluvial clay under heavy pressure by powerful machinery absorption of moisture is minimised.

#### THE GRAY'S CHALK QUARRIES COMPANY, LIMITED.

The scope and range of the bricks manufactured by the above Company was shown in the three examples of decorated window openings on their stand—103. The bricks were also exhibited singly in colours ranging from red to chocolate, together with mural tiles and panels, garden edging, plain roofing tiles, Essex flints, &c.

#### MESSRS. J. GRAYSON LOWOOD AND CO. LIMITED.

The above Company (Sheffield) had a model on show built of the celebrated "Lowood" Silica bricks for high and continuous heats, as employed in the Siemens-Martin open hearth furnaces, chemical works, &c. The refractory power of these bricks has now been well established, whilst in durability they are equalled only by the special Ganister and firebricks manufactured by the same company.

#### F. G. TUXFORD, DEGANWY.

MR. TUXFORD exhibited a small model roof covered with fancy Gothic slates, slate ridge, and slate finials, along with various sample slates, finials, and ridges. Two notable exhibits on the stand were some old slates in good condition after fifty years' wear, and an example of thin splitting of Oakley slate, showing a very unusual cleavage.

#### MESSRS. J. RIDDIOUGH AND SON.

This Bradford firm exhibited samples of the renowned Bolton woodstone, which has been very largely used by sculptors and monumental masons. It is white in colour, very fine in texture, and is capable of a high polish. Building stone from Eccleshill Quarries, Bradford, was also shown.

#### MESSRS. FENLAN AND SON.

SEVERAL up-to-date heating and ventilating appliances were shown by Messrs. Fenlan and Son, of Tudor Street, E.C. They included their patent hot-water apparatus, to burn gas or oil, for conservatories, their patent hot water circulating condensing stove, which also burns either gas or oil, and circulating hot-air and hot-water condensing stoves with propagators combined. Messrs. Fenlan's patents are undoubted achievements in engineering skill; there is a completeness about all their specialities; but the greatest success seems to be in connection with the heating of greenhouses and conservatories. They regard the construction of the boiler as especially important under certain conditions, and they have designed a boiler which is independent of the atmosphere of the conservatory. All the heat thrown off the boiler is utilised, and yet it remains equally as independent of the atmosphere of the greenhouse to support combustion as though it were fixed in the open air.

#### G. J. FARROW, BRIXTON.

"FARROW's Patent Improved Portable Iron Scaffold" towered at the further end of the hall. It is claimed for it that it has the advantage of the ordinary scaffold in the speed with which it can be erected, its adaptability to the height of any room or building, and movability in any direction upon castor wheels. These scaffolds, we are told, will also do duty as observatories, triumphal arches, water towers, &c.

#### J. ARNOLD, CAMDEN TOWN, N.W.

SANDS of all kinds for building purposes were shown by Mr. Arnold, on whose stand miniature sacks contained the various samples, which included a special sand for water and sewage filtration.

#### MESSRS. MERRELL AND COMPANY.

MESSRS. MERRELL AND Co., of 45, Corn Exchange Buildings, Fennel Street, Manchester, exhibited Coupe's patent screw-key and screw-bolt, which provide an easy way of fixing together chairs, tables, show-cases, shop-fronts, &c. When fixed, perfect security is obtained, and with the same ease that the fixing is carried out, the various parts may be detached when occasion arises. The "Moso" patent frost-proof pump and patent sash-fasteners were shown on the same stand.

#### A. J. ELLIS, READING.

IN Ellis's patent system of glazing, a model of which was shown on Stand 119, rolled steel bars with condense gutters take the place of putty and painting. The compensating arrangements consist of a spring clip which presses the zinc caps on the glass, and is so fitted as to leave the metal free to expand, and thus avoid a breakage of glass through a sudden change of temperature.

#### MASON'S PATENT REVERSIBLE WINDOWS.

THERE was great simplicity about all the window sash patents exhibited at the Exhibition, and Mason's was no exception. It is designed to ensure perfect safety in cleaning and repairing, and also as a means of ventilation, for the window can be opened and the air directed upwards. Another point in connection with Mason's patent is that in whatever position the sashes may be put in, the full weight is always bearing direct on the pivots and cases, and never dependent on the screws. When the screw opener and fastener is tightened up, any rattle is impossible, and the ventilator can be well regulated.

#### THOMAS PULFORD, CANNON STREET, E.C.

STAND 121 was filled with a variety of varnishes, japans, colours, &c., for high-class decoration. A damp wall paint, impervious to moisture, is worth special mention. It resists atmospheric action, and is a very good preserver of wood.

#### E. V. HARRIS, SOUTHAMPTON.

It is said that the sash window has much to answer for in its influence upon Architectural styles. But it seems as though the sash window of to-day will be unknown a few years hence. Harris' improved patent reversible window sashes are made so as to be brought wholly into the room by working on a pivot. The patent can be fitted to existing sashes as well as being applied to new.

#### AERAGON ROAD JOINERY COMPANY.

IN addition to the examples of round and square turnery and handrail mouldings shown by the above company, an invention for window cleaning known as the "L.O.O. Safety Cleaner" was exhibited. It is a very simple but efficient arrangement by which both sides of a window can be cleaned simultaneously from the inside without opening the sashes more than a few inches. It will also clean a casement light equally as well as a sliding sash, and its simplicity is such that its appearance at once suggests its order of working.

#### W. GOODING, HOLLOWAY, N.

MR. W. GOODING, of North Road, Holloway, shows numerous examples of his patent interchangeable rubber stair-treads. To anyone who has examined these treads, their advantages are obvious, allowing, as they do, of the easy replacement of worn rubbers, besides giving a firm elastic footing in all weathers. They are adaptable for railway stations, railway carriages, tramcars, yachts, &c. They are non-slipping, and evidence of their durability was forthcoming in a model tread exhibited, which had been in use for a period of nine years. A special feature of this tread is the use of a metallic keeper, fitted with pieces of rubber, which project above the metal, and form the wearing surface.



**MESSRS. TOWERS AND WILLIAMSON.**  
ADAMANTINE clinker paving and roofing tiles were shown by Messrs. Towers and Williamson, of Little Bytham, Grantham. The advantages claimed for clinkers are that they are extremely hard and durable, scarcely any absorption, less slippery than vitrified paving, and consequently make an excellent sanitary paving. They are made plain and chamfered, and in buff and red colour. The firm's roofing tiles and paving bricks are claimed to be practicably imperishable and non-porous.

**ANAGLYPTA COMPANY, LIMITED.**  
THE advance made in the decorative treatment of Anaglypta during the ten years it has been upon the market was well evidenced at the Exhibition. Instead of bringing the panels in high relief, directly up against the cornice, as heretofore, the Company is now making special mouldings, which are finished off within six inches or a foot of the cornice, so as to hide the finish of the relief. The mouldings are specially made to suit the designs, and the union of the two has invariably a very pleasing effect. It is noticeable that the relief of the patterns made by the Anaglypta Company has been appreciably increased during recent years. The effect of this is obviously to give a more plaster-like effect, and to meet the increasing demand which is now being made for decorations in high relief. We may add that the Company now issues a high-class book of litho plates, illustrating their numerous patterns.

**THE SANDSTONE SYNDICATE, LIMITED, OF LONDON.**

THE Sandstone Syndicate of London made a very striking contribution to the Exhibition. Their exhibits, made of an artificial stone that has long been tried successfully on the Continent, were varied and were encircled by a balustrade and doorway. It is claimed that the stone of this Company is equal to Portland in durability; and one advantage it possesses over other natural stones is that it can be so moulded as to only entail a minimum of waste. It can be worked from the block, as it has no cement facing or other drawback. It strongly resembles natural stone.

**PATENT VICTORIA STONE COMPANY.**

ANOTHER display of stone was to be seen on Stand 98. The Patent Victoria Stone Company claim for their stone that it is suitable for nearly all constructional purposes, and that its strength and hardness will compare very favourably with various bricks and other kinds of stone, whilst it is especially adapted for decorative treatment. An exhibit on their stand well worth noticing was a moulded, bracketed, grooved staircase, with enriched newel moulded banisters and moulded hand-rails; whilst a window in red stone, two columns, one plain and the other polished, could scarcely fail to attract attention. The material itself is an amalgamation of granite and Portland cement, steeped by a patent process in a solution of flint, by which it becomes a non-porous stone of a hard and durable character.

**THE MARBLE MOREAU-RAE SYNDICATE, LIMITED.**

THE highly decorative effect which can be obtained in Moreau-Rae marble was well illustrated by the specimens shown on the above Syndicate's stand. The Moreau-Rae marble is a natural, soft, white limestone, coloured, hardened and converted into marble by Moreau-Rae's patent chemical process—a process which, by the way, has lately been greatly improved, and has considerably reduced the time required for making marble. The stone is worked and carved in the soft state, and Architects will especially appreciate a material which leaves them untrammelled by the consideration of extras for thickness, &c.

**GEORGE WRAGGE, MANCHESTER AND LONDON.**

MR. WRAGGE's exhibits served to illustrate the great progress which decorative metal work has made during the last twenty-five years. Whereas

Gothic was the all-in-all a quarter of a century ago, examples of metal work in Grecian, Italian, and Renaissance styles are now very common. Nearly all these styles are included in Mr. Wragge's collection, but in addition there is a very great variety of fittings, such as Repoussé finger-plates, lock furniture, ventilating casements in coinage metal, and also fittings in Kronand metal and aluminium.

**SWANSEA SIEMENS BRICK COMPANY.**  
THIS Company had on exhibition a selection of high-class refractory Silica fire bricks and slabs, manufactured by patent process. On the same stand there was also a collection of patented grates for gullies, manufactured by the Malleable Spring Grid Company of Cardiff.

**MESSRS. T. C. MOLESWORTH AND COMPANY.**

MESSRS. MOLESWORTH AND COMPANY's stand was mostly occupied by blocks of Ketton Oolitic freestone—a stone which was extensively used by mediæval masons, and examples of which are to be seen at St. Dunstan's Church, Fleet Street; St. Pancras Station, &c.; and, in the provinces, at Ely, Peterborough, and other Cathedrals. The absorbing power of Ketton stone is about 14 per cent, and the crushing weight is 1½ tons to the square inch; it is very compact and even in formation, and has a beautiful warm, cream colour. Old monuments made of this stone fully prove its weather-resisting qualities.

**THE BUXTON LIME FIRMS COMPANY, LIMITED.**

BUXTON lime, stone lime, limestone chippings for footpaths and carriage-ways were included among the exhibits on the Buxton Lime Firms Company's stand. Buxton lime is considered specially suitable for sewage precipitation and gas purifying, and an analysis issued by the company strongly supports its claims in this direction. The feature of the stand, however, was a display of limestone tufa and spar for rockeries and garden work, around which was constructed a miniature gravel path.

**JOHN ROOKE, KETTERING.**

ANOTHER exhibition of stone was made by Mr. John Rooke, of Corby, Kettering. This time, it is the Oolitic building stone from Lord Winchelsea's quarries at Weldon, which claims attention, and we might pay a deserved tribute to its weather-resisting capabilities; that a block of this stone was on exhibition bearing the eloquent letters M.D.C.X.L.

**THE MANSFIELD PATENT CHIMNEY POT COMPANY.**

To prevent down draught without the use of mechanical chimney cowl is the aim of the "Mansfield" chimney pot, which is simply constructed in two parts to facilitate fixing. It is made in salt glazed fire-clay, and also in buff and red terra-cotta, and in practice combines efficiency with durability.

**E. HOLWILL, TEMPLE CHAMBERS, E.C.**  
A VERY representative show of bricks and tiles was made by Mr. E. Holwill, of Temple Chambers, E.C., of white and coloured clayed bricks. A speciality was made of grey for dados, house fronts, &c.; damp and acid-proof engineering bricks, impervious buff stoneware facing bricks, and buff and grey Architectural terra-cotta were a few of the other exhibits on this Stand.

**MARK GENTRY, HEDDINGHAM.**

RED hand-pressed and hand-made facings, rubbers, and moulded bricks shown on Mr. M. Gentry's stand, do not require a lengthy description. They are too well-known. Arch bricks in rubber earth made to any size, length, and radius, was a speciality which must meet with general appreciation, as, being ready for fixing, labour is reduced to a minimum. Mr. Gentry carries out Architects' designs in chimney-pots.

**MESSRS. SERCOMBE AND COMPANY.**

MESSRS. SERCOMBE AND COMPANY, of Leicester, showed a model of an improved continuous kiln for burning all classes of bricks, terra-

cotta roofing-tiles, &c. Messrs. Sercombe's great claim for their kiln is that it involves a great saving in fuel; it also possesses other advantages in the facility with which its fires can be manipulated, and a free draught from or to the top and through all chambers. It has no complicated system of flues or dampers, but yet any required heat can be obtained and sustained at will.

**THE SOMERSET TRADING CO., LIMITED.**

THE Somerset Trading Co., Limited, of Bridgwater, showed a model house covered with their improved, pressed, triple angular tiles. These tiles are of a rich red colour, manufactured from selected Bridgwater clays, and are made and pressed by specially designed and patented machinery. They make a very good cover, as the corners are not cut off, and, considering their quality, with their cheapness, are undoubtedly very desirable tiles.

**MESSRS. DAVID AND LANT, LIMITED.**

FOREST OF DEAN stone was the principal exhibit here, and its texture and uniformity of colour was well demonstrated. The blue and grey somewhat resembles York in appearance, but are a little harder, and finer in grit. A great feature of Forest of Dean stone is that it always retains its natural colour; it has been largely used throughout the country for engineering, building, and monumental purposes. Messrs. David and Lant are working the lower beds of their quarries, from which the best quality and most durable stone is obtained.

**MESSRS. HAYWOOD AND COMPANY, LIMITED.**

MESSRS. HAYWOOD AND COMPANY, of Moira, Ashby-de-la-Zouch, had the usual collection of sanitary pipes and sanitary accessories, including Soak's patent safety joint and also Soak's patent for a true alignment. A pipe was shown which had broken at 140lb. pressure, whilst a second pipe remained intact with 130lb. pressure. Other exhibits included interceptors, garden tiles, air bricks, enamelled sinks, &c.

**THE CORONET BRICK AND TERRA-COTTA COMPANY.**

AN exclusive collection of terra-cotta goods, comprising finials, ridges, vases, chimney tops, terra-cotta springs, panels, air grates, arch bricks, was exhibited by the Coronet Brick and Terra-Cotta Company. All the goods were of a uniform red—the natural colour of the clay—and were treated in numerous decorative styles.

**MESSRS. J. W. PALMER AND COMPANY.**

MESSRS. PALMER AND Co. showed samples of iron fencing and hurdles, corrugated fencing, galvanised stable fittings, &c. A speciality on the stand was an example of an unclimbable steel wire fencing, the framework of which is erected and strained in the same way as the ordinary wire fence, after which the verticals are securely bound on to the horizontals. The fence is elegant in appearance, whilst on grounds of utility it is equally satisfactory. Another example of fencing—oak pole or combination fencing—was also on exhibition. The poles are tightly held in position by wires of two strands, which grasp them on each side, and are tightly interwoven. The pattern has two or three lines of strong galvanized steel strand wire running at back of the poles, to which the latter are securely stapled, thus giving it great rigidity and resisting power.

**MESSRS. ALFRED GOSLETT AND COMPANY, LIMITED.**

THERE was a more or less uniform excellence of design in the brilliant cut and bevelled and silvered glass, shown by Messrs. A. Goslett and Company, of 26, Soho Square, W. But one exhibit attracted special attention. It was a specimen of figured rolled for facia works, which would make an excellent background. A good sample of embossing for public-house decoration was also shown, whilst an overmantel in Louis XV. style could not fail to attract attention. It was of pine, in white, with gilded enrichments, and would



have enhanced the decorative charm of any drawing-room. A combined lavatory stand and looking-glass was another exhibit out of the ordinary; whilst wall-papers in original designs were also included in the display.

#### MR. S. BUTLER, VAUXHALL, S.W.

MR. BUTLER exhibited a variety of wood-working and general machines for the use of builders and contractors. The wood-working machinery comprised tools for planing, squaring up, chamfering, stop chamfering, thicknessing, straight and circular moulding, circular sawing, band sawing, morticing, &c., and a Stockport engine was seen at work driving the dynamos which lighted the Hall.

#### MESSRS. NEWSUM, ROBERTS, AND COMPANY.

Low pressure hot water heating apparatus was shown in work by Messrs. Newsum, Roberts, and Company, of Charmouth Street, Beeston Road, Leeds. The radiators, known as "Leeds" ornamental radiators, have been specially designed for entrance halls, reception rooms, &c., and require no box work or covers, as they are of a beautiful pattern and may be decorated to correspond with the rooms in which they are placed. An example of Newsum's conical boilers, which have been largely used in Churches, Chapels, schools, conservatories, &c., was also shown, and its simplicity of construction and effectiveness in all its heating processes were demonstrated.

#### THE FERRYBRIDGE FOUNDRY COMPANY.

Of the "Fryston" kitcheners manufactured by the Ferrybridge Foundry Company there were several examples on show. The duplex or simplex fires at the pleasure of the user is the distinguishing feature of the "Fryston." It has no descending flues, and oven and roaster are dispensed with. It has open and close fires, a sliding fire-panel, and horizontal and upright draught throughout. Plinth and all raised parts are ground, and the bright parts are nickel-plated.

#### LONDON WARMING AND VENTILATING COMPANY, LIMITED.

The above Company showed a number of patent stoves in which anthracite coal was consumed. Anthracite coal is claimed to be an ideal coal for most purposes; it is smokeless, bright, healthy, and economic, and, above all, is a safe fuel, as it deposits no soot in the chimney, and, moreover, does not scatter its embers in the erratic fashion peculiar to common coals. The patent stoves exhibited included the "Jackson" continuous burning anthracite grate, the "Cheminee" continuous burning anthracite stove, the "Salamandre" ditto, the "Mansion," the "Brilliant," &c.

#### PITTMAN PAINT COMPANY, LIMITED.

The Pittman Paint Company, of 2, Colonial Avenue, Minories, E.C., had a large stand on which their paint in almost every tint was shown. Pittman's paint differs from ordinary paint in that it answers other purposes beyond those of renovation—it will waterproof any structure or object to which it is applied. It has a brilliant polish, and when once dry will never blister, crack, or peel off. It is non-corrosive, and is specially recommended for ironwork, tinwork, stoves, mantelpieces, &c.

#### MESSRS. MENSAQUE AND CO.

STAND 4 in the bays attracted considerable attention. It contained an interesting collection of Moorish tiles, which are being introduced into this country by Mr. G. A. Trapp, on behalf of Messrs. Mensaque and Co. The beauty of design and manufacture of the tiles exhibited was much admired. Moorish tiles assist in the decoration of the Alhambra at Grenada, the Alcazar at Seville, and the Mosque at Cordoba, whilst in London they are seen to perfection at St. James's Hall and at the new entrance of the Alhambra Theatre just opened in Charing Cross Road. The tiles are most effective in large places of entertainment, their brightness and richness of colour giving a very fine effect. Moorish pottery and panels were also exhibited.

#### THE BARTON LIMESTONE COMPANY.

THE Company exhibited encrinital stone, polished stone, rockery stone, &c., from the Barton Quarries. Stone from these quarries is of a very pure character, consisting almost entirely of carbonate of lime. Its value for chemical purposes is, therefore, at once established. The engineering and building stone is, by its hardness and durability, especially suited for piers, quay walls, &c.; the polished stone is seen at its best in pillars and steps, the encrinital gravel makes a very durable path, and the same remark also applies to the road metal, which is taken from the lower beds of blue limestone below the encrinital sections.

#### THE "LOCO" DRAINING APPARATUS COMPANY, LIMITED.

ABOUT a dozen different patents in sanitary goods were exhibited by the "Loco" Draining Apparatus Company, Limited. These included the patent "Loco" deflector traps with horizontal and vertical outlets on the same principle, "Loco" bath with compulsory self-cleansing overflow and rapid outlet, "Loco" lavatory with compulsory self-cleansing overflow and rapid outlet, "Loco" sink with compulsory self-cleansing overflow and rapid outlet, detached fitting and sections of the patent "Loco" compulsory self-cleansing overflow, and the "Loco" closet cistern silencer, which may be applied to all syphons and cisterns, and silence is thereby obtained.

#### LAWRANCE SEAGER, SITTINGBOURNE.

MR. SEAGER not only exhibited his patent reversible dust, draught, and burglar proof sashes and frames, but also an example of his improved steps, which combine both a trestle and ladder. The sides are fitted with semi-circular stays in which there are a series of indents, and being fixed on one half of the ladder, pass through strong staples, which are provided with spring bolts fixed on the other half. It is specially desirable for use over a bay window or other projections which necessitate an ordinary ladder being reared at a dangerous angle.

#### MESSRS. GODWIN AND COMPANY, CHELSEA.

IN the South Gallery Messrs. Godwin, of Park Walk, Chelsea, exhibit a small but very charming collection of flock papers. An interesting and well-executed frieze in double flock; a crimson flock with corn-coloured design; and an exceedingly clever silk flock in shaded greens, form the most striking features of the exhibit. There is also a ceiling paper in three flocks, of geometrical design, which is singularly effective. Altogether, it is cheering to see evidences of life and enterprise in so old and highly respected house as Messrs. Godwin's.

#### MESSRS. HUMMELL AND CO.

MESSRS. HUMMELL AND CO., of 55, Bishopsgate Street Within, E.C., had a small structure roofed with asphalt slates, whilst their application to walls was also illustrated. Asphalt slates are practically unbreakable; they are very much lighter than ordinary slates and their first cost is also considerably less. These slates have been extensively used in Norway and Sweden, and their introduction into England bids fair to be attended with a great measure of success. They are laid on laths like ordinary slates, and at no time is a coating of tar or any other substance required.

#### THE NATIONAL OPALITE GLAZED BRICK AND TILE SYNDICATE, LIMITED.

A BUILDING was shown entirely constructed of Opalite glazed bricks, which the Syndicate maintains are superior to ordinary glazed bricks in many ways. It has a beautiful polished surface, of which it cannot be deprived by exposure to damp, frost, or heat—as an exhibited example, which had stood these tests, proved—and its surface being so highly polished, dust and dirt will not readily adhere to it. "Opalite" is made in a variety of tints, and as it can be applied when brick work is finished, close joints are secured and heavy

waste in breakages is avoided. Its qualities are best appreciated in bath rooms, lavatories, corridors, dairies, and subways. Numerous tiles were exhibited on the stand adjoining the Opalite buildings, as typefying the varied treatment of design of which the material is capable.

#### MESSRS. BOULTON AND COMPANY.

MESSRS. BOULTON AND COMPANY'S stand was mostly occupied with tiles of various descriptions. They included a superior tessellated paving tile, superfine pressed paving tile in red, blue, buff, and black, a medium pressed and ordinary pressed paving tile in the same colours, a terra metallic garden edge tile in different patterns, blue Staffordshire coping tiles, &c. Blue Staffordshire bricks, finials in a large variety of patterns, and adamantine clinkers also found a place on the stand.

#### THE IMPERIAL STONE COMPANY, LIMITED.

A LARGE stand was taken up by a display of the Imperial Stone Company's goods, which included an arch, a flight of steps, ornamental plaques, balls, cups, &c. Imperial stone, as is well known, is produced by an artificial process, and inasmuch as it never shows the patches so often seen on the surface of hand-made slabs, has been in great demand. The Imperial Stone Company also manufactures silicated stone pipes, whilst miles of its celebrated "Petrositicon," an *in situ* paving for public footpaths, railway platforms, &c., have been laid down in different parts of the kingdom.

#### OTHER EXHIBITORS.

OTHER exhibitors on the gallery included Messrs. G. Brooke and Sons, Hipperholme, near Halifax, who exhibited examples of "Spamesfol" Silix hard York stone; the Somerset Quarry Company, Frome, who had black stone, spar, macadam, gravel, and sand on show; the executrix of the late C. F. Chadwick, Carlow Quarries, Nelson, with samples of building and monumental stone; the Whitland Abbey Green Slate Quarries, of Clynderwen, R.S.O., with sample slates from Llandilo Quarry; Messrs. T. Clark and Sons, Idle, near Bradford, with samples of hard York stone, and Ashlar and Delph stone, sawn and worked; William Mitchell, Lees Moor, near Keighley; the Radnor Company, Limited, Kington, with samples of kerbstone, channel stone, building stone, paving slab, granulated chippings as produced especially for concrete work, asphalt, garden walks, &c.; J. P. Bailie, Cardigan, South Wales, with samples of bricks, &c.; Darbishes, Limited, Penmaenmawr, with sets, channels, macadam, chippings, &c.; Yate Fireclay and Brick Company, Limited, Chipping Sodbury, with silica fire bricks, fire squares, boiler shields for steamships, &c.; W. T. Chapman Grimsby Road, Cleethorpe, with panels, chimney pots, &c., in buff terra-cotta; the Castle Fire Brick Company, Limited, Northop, Flintshire, with Buckley blue fire-bricks, slabs, &c.; Messrs. Cocking and Sons, Walkeringham, Gainsborough, with red and white facing bricks; J. B. Tomblesen, Barton-on-Humber, with bricks, ridges, pavings, &c.; Elham Valley Brick and Tile Company, Limited, Elham, Kent, with samples of bricks, &c.; the Abercwmdeiddaw Slate Quarry Company, Limited, Machynlleth, with specimens of slates, slabs, &c.; and Messrs. G. Farrow and Sons, South-orram, Halifax, with various samples of stone.

#### OUR STAND.

We have been complimented on all hands on the decorative treatment of our stand at the Exhibition. But much of the credit should go to Messrs. Waring and Company, of Oxford Street, who not only erected the stand, but furnished it throughout. The good taste they displayed has been readily and generally acknowledged. The appearance of the interior of the pavilion was much enhanced by a display of drawings by Mr. Joseph Pennell, Mr. C. E. Mallows, Mr. F. Griggs, and Messrs. Hall, Cooper, and Davis; three valuable water-colours by Mr. G. C. Haite, and many others by artists well-known in the Architectural world.





**The Brick Famine.** THE scarcity of bricks, which has so seriously interfered with the process of building during the past months, we may hope is now, with the return of spring and the re-opening of the brickfields, approaching to an end. Nor does the relief come a week too soon. Round London the dearth of bricks has been severely felt. A month ago London stocks stood at fifty-five shillings a thousand, and the price has been

about forty shillings a thousand. In many places old houses have been prematurely pulled down, and the bricks re-used. The cause of the famine is not far to seek, inexplicable as it may seem. It is due entirely to the enormous quantity of building which has been progressing all round London during this last winter, and now that the season of the greatest activity in building is come round, contractors find there are no bricks left. London is shooting out tendrils and branches through all its suburbs, and a ring of new buildings has been raised about it this winter that may be compared to the annular rings in the growth of a tree. To trace back in its turn the cause of this phenomenal activity is a difficult matter. People want houses in London, and houses they must have, with all the supplementary retail trades and accommodation for the complex systems of our artificial life. Some years ago the number of public-houses in London for every thousand inhabitants was

bricks at this present time; but we hope shortly to see signs that things are returning to their normal condition.

### Important London Housing Schemes.

THREE measures under the Housing of the Working Classes Act, 1890, relating to the County of London, have been, or are now engaging the attention of Parliament, and a few details regarding them will doubtless be read with interest. The first of them is a comparatively small affair. The London County Council require to purchase and take certain lands compulsorily for the purpose of providing lodging-houses for the working classes, and following the statutory course the Home Office, on being applied to, made a provisional order which has been confirmed by both Houses and has received the Royal assent. The property to be taken is described as "a piece of vacant land abutting on the north side of the Borough Road and bounded on the north by King James' Street, on the south partly by the Borough



REMAINS OF A BYZANTINE PALACE, CONSTANTINOPLE.

rising since; indeed, it may be doubted whether sound English stocks are now anywhere to be purchased. A fair price has been given for rubbish that never aspired to the name of brick, and "grizzle" and "place," the execrated of specification, have found an honourable place in the citations of the market. We have ourselves seen a quantity of "grizzle" bricks, the accumulated wasters from the kilns, shapeless and fused together into lumps of clinker, and fit for nothing but bad road metal, being used on a private building of some pretensions. The brickfields, however, are all making up again now, and we learn from the British Clay-worker that new fields are springing up everywhere to meet the demand, and that the manufacturers of brickmaking machinery cannot complete their orders at the pace at which they come in. Some alleviation has been afforded by Belgian and French bricks, which have been extensively availed of along our southern shores, and have also been delivered in London, where they fetch

eleven, and the butcher, the baker, and the candlestick maker all had their due proportion to the population also. Why, however, this particular year should have run ahead of all others, and the country chosen this rather than another year in which to come to town, we cannot decide. It hardly seems possible that the Diamond Jubilee can altogether account for it. We may remember besides that if the weather this winter has not interfered with the processes of building as much as often is the case, still the protective attitude taken by the Plasterers' Union in refusing to work overtime has delayed building operations seriously, as we may know from the high wage that plasterers have been paid during the past three months of their embargo. It may well be realised that the famine has proved disastrous to many builders, who, having entered upon heavy contracts, have found bricks quite unprocurable at any reasonable price, and many builders have of late refused to tender. It is the small contractor who mostly suffers by the high price of

Road, partly by the Bridge House public-house in the Borough Road, and partly by premises in Warwick Street, on the east partly by Lancaster Street and partly by the aforesaid public-house, and on the west by premises in the Borough Road and Warwick Street, the whole of such piece or parcel of land containing 21,800 square feet or thereabouts." The scheme that is next put forward is of much greater magnitude and larger significance, and is the Churchway, St. Pancras, which is a different and very much more important scheme than the one we have just described, seeing that the number of persons of the working class who will be displaced if it be carried out in accordance with the order is estimated at upwards of 1000. So long since as October, 1893, an official representation was made to the London County Council by Dr. Shirley Forster Murphy, the medical officer of health for the administrative county, that certain houses, courts or alleys within this area (which lies between Euston Road and Drummond Street, with Seymour Street to the S.W.), were unfit for human habitation, and that the narrowness, closeness, and bad arrangement, or the bad condition of



the streets and houses, or the want of light, air, ventilation, or proper sanitary conveniences, or other sanitary defects, or one or more of such causes, were dangerous or injurious to the health of the inhabitants, either of the buildings in the area, or of the neighbouring buildings, and that the evils complained of could not be effectually remedied otherwise than by an improvement scheme. The Council considered the matter, and framed a scheme; and the Home Secretary, after due enquiry, made an order provisionally confirming the scheme, subject to certain conditions and modifications. That order, as modified, has been confirmed by both Houses, and, like the preceding one, has received the Royal sanction. The actual number of persons of the working class that will be displaced under the scheme is estimated at 1095, occupying 423 rooms in 272 holdings. The site is, of course, to be cleared of the existing buildings, and the new dwellings are to be constructed so as to afford in the aggregate suitable accommodation for not less than 580 persons of the working class. Churchway is to be widened, from Drummond Street to Grafton Place, to a minimum width of 40ft. Wellesley Street is to be extended in width to 40ft. between Seymour Street and the new Churchway, and Churchway, from Grafton Place to the Euston Road, is to be stopped up and form part of the improvement area. Such of the lands in the improvement area as shall not be required for the purpose of providing accommodation as aforesaid for 568 persons of the working class may be sold, leased, or otherwise disposed of. The Bill embodies an agreement between Lady Henry Somerset and the London County Council, which is subject to confirmation by the Court of Chancery, but which would be of very beneficial effect to the ratepayers, seeing that under it the total net estimated cost of the scheme would be reduced from £51,650 to £39,150.

#### CLARE MARKET.

This is an even larger scheme than the foregoing. It originated it would seem out of a representation made to the London County Council by Dr. F. J. Allen, the medical officer of health for the Strand district, as to a large area situated in the parishes of St. Clement Danes, St. Mary-le-Strand, St. Giles-in-the-Fields, and St. Martin-in-the-Fields. The scheme was submitted to the Home Secretary, who, after the usual inquiry, approved it subject to certain modifications. Under it 2893 persons of the working class occupying 1208 rooms in 835 holdings, and 279 occupants of lodging-houses—3172 in all—will be displaced. In respect of these the Council proposed to provide in the area, to which the scheme relates, accommodation for 500 persons of the working class, and on part of the site of Millbank Penitentiary accommodation for 1269 others, thus making a total provision for 1769 of the displaced persons. The Home Secretary's order prescribes that there shall be provided accommodation for 750 persons upon the improvement area, and in the dwellings on part of the Millbank site accommodation for 1500 persons, making a total provision for 2250 souls. This displacement of working people is to proceed by degrees, and is not to be carried out without the approval from time to time of the Home Secretary, as the old buildings are removed and new ones erected. As a part of the scheme Drury Lane is to be widened to 40ft. by setting back the whole of the frontage on the east side between Blackmoor Street and Kemble Street, Blackmoor Street is to be widened to 40ft. by setting back the whole of the frontage on the north side between Drury Lane and Stanhope Street, and Clare Street is to be widened to 40ft. by setting back the whole of the frontage on the south side between Stanhope Street and Clare Market. The Bill embodying these proposals has passed the Commons and is well advanced in the Lords.

MESSRS. EASTON, ANDERSON AND GOOLDEN, LIMITED, inform us that having disposed of their premises in Whitehall Place, their London address is now Broad Sanctuary Chambers, Broad Sanctuary, S.W., adjoining the Westminster Palace Hotel.

#### THE BORGIA APARTMENT.

WORK of some importance in the history of Art has now been completed in the Vatican by his Holiness Leo. XIII. The "Appartamento Borgia," well known to all lovers of Art, has been closed for some years to the public while the work of restoration was being carried out, and now, on the occasion of the anniversary of the Pope's coronation, it is to be opened. The Borgia Apartment was built in 1494 by Pope Alexander VI., and consists of six rooms. Five of them were painted by Pinturicchio; the first and largest was done later by Giovanni da Udine. These rooms were occupied by the Popes until the reign of Sixtus V., 1585-1590, but in Clement VII.'s time the apartment was much defaced by the soldiers of Charles, Duke of Bourbon, who were quartered here when they invaded Rome. The remains of their scribbling on the walls were till lately visible. After the apartment had ceased to be the residence of the Popes the walls were covered by bookcases, which have only been recently removed. The first room, or Hall of the Guards, which is entered from the loggia near the library, had on its walls representations of various Italian towns. These in process of time, and by bad usage, had become so much damaged that it was not possible to restore them satisfactorily; they have therefore been covered by tapestry of the period, which was removed from another part of the Vatican. Stands of old arms and armour have been placed in this room. Two of the pieces of armour are of great interest. One is that of the Constable of Bourbon, with the mark of the shot in it which caused his death. The other is the armour of Pope Julius II. Some suitable furniture has also been placed in this room, and in the others. A new pavement has been laid down—a reproduction of the old design, of which enough remains existed to enable the work to be carried out satisfactorily. In the second room, which is entirely

BY PINTURICCHIO,

as are the rest, the old design on the walls was only left in parts, and as it was not thought fitting that the great Artist's work should be interfered with, the same design has been reproduced on canvas, which now covers the walls, leaving Pinturicchio's work untouched. The third room has been partially panelled with intarsia work by Giovanni da Dolci, which was brought from the library of Sixtus IV. In the fourth room the old pavement has been reproduced by Professor Ritrosi. This pavement is of a very beautiful design, which has been admirably carried out. A few fragments of what remained of the original floor have been placed on one of the walls. The fine chimney-piece by Sansovino, formerly in the first room, has been placed here. The fifth room has a new design on the walls done by Professor Morani. The old pavement has been reproduced. In the sixth room, where the walls had no decoration before, a new design in harmony with the period has been made by Professor Frenguelli. An arch which formerly divided this room was removed by Count Vespignani. This was a most difficult matter, and it was successfully carried out. Count Vespignani has had the control of the whole work as Architect, and under him the well-known Professor Cavaliere Seitz has been charged with the supervision and direction of it. The work of restoration has been done by Professors Ritrosi, Morani, and Cingolani. The pavements were executed partly by the Museo Industriale of Naples, and partly by Cantogalli, of Florence. The restoration of this famous apartment has been carried out in a thoroughly conservative manner. Nothing has been destroyed, and only repairs absolutely necessary have been allowed. The Pope has taken the greatest interest in the progress of the work, which may well be said to be worthy of a great Pope. Great praise is due to those to whom the restoration has been intrusted—to the distinguished Architect, Count Vespignani, and to Cavaliere Seitz, to whose great Artistic knowledge and skill so much is owing, and for whose conservative treatment of the work of the great master the world of Art cannot be too grateful.

#### ST. LAWRENCE, JEWRY, AND ST. MICHAEL.

THE scheme drawn up for the union of the benefices of St. Lawrence, Jewry, and St. Michael, Bassishaw, has now been finally approved by Parliament, after having been agreed to by the Bishop of London, the patrons of the two livings, and the vestry of each parish. The scheme dates back to some few years since, when it was discovered that St. Michael's was in an insanitary condition, and that an outlay of some thousands of pounds would be necessitated to render it again available for public worship. The Church claims Wren as its Architect, but it possesses no Architectural interest, and therefore its retention from the Archaeological point of view cannot be urged. It is situated within a stone's throw of St. Lawrence, and the two parishes are contiguous, so that the amalgamation is desirable not only as judged from the standpoint of the worshippers, but as regards the geographical location of the two benefices. The proceeds of the sale of the site of St. Michael, Bassishaw, are to be applied as follows: (a) The sum of £4000 is to be transferred to the Union of Benefice Fund; (b) the sum of £4000 is to be set apart for the provision, as soon as an opportunity shall arise, of a suitable house of residence for the incumbent of the said united benefice; (c) a sum not exceeding £500 shall be allowed for putting the Church of the united benefice into complete repair. (d) The remainder of such proceeds shall be appropriated by the Ecclesiastical Commissioners towards the acquisition of a site and the erection of a new Church.

#### SOME RECENT ARCHÆOLOGICAL DISCOVERIES.

MR. FLINDERS PETRIE, in lecturing before the members of the Bradford Philosophical Society upon "Recent Discoveries in Egypt," said that two years ago, when at work near Thebes, he found to his astonishment, when excavating some graves, that they contained burials totally different from those of Egyptians, and as time went on he found that he was dealing with an altogether different race, which had forced its way into the country, and had completely ejected the native inhabitants. The results arrived at enabled them to place the advent of this race, of which nothing was previously known, at about the period 3000 to 3300 B.C. They worked in flint with marvellous skill, and Mr. Petrie showed some pictures of flint implements of a shape like the letter V. The pointed end, as was shown by one which was found entire, was inserted into the handle, and the forked end, which was chipped to a very sharp edge inside, was used to cripple the legs of antelopes, or to catch the necks of birds. Pictures of a number of curious vases, made with much skill from the hardest rocks, such as porphyry, syenite, and black granite, and without the use of any lathe or wheel, were shown as further examples of the skill of these people, but it was characteristic of them that while of great proficiency in mechanical work, they were clumsy in representing animal figures. Proceeding to deal with other excavations, Mr. Petrie showed a portrait from a well-preserved bust of Meren Ptah, son of Rameses II., and the king under whom the Exodus had generally been understood to have taken place. This had been found at Thebes, and in the same temple was a stone erected by this same king, which, in the course of a long inscription, mentioned that this king carried war into Syria, and destroyed the people of Israel—the first and only mention of the Jews or Israelites on the Egyptian monuments.

The eighth visit of this session of the day and evening Architectural students of the Glasgow Technical College was made on Saturday last to Langside Road United Presbyterian Church, by permission of Mr. J. B. Wilson, Architect. Mr. Mair, the Clerk-of-works, conducted the party and fully explained many points of interest.

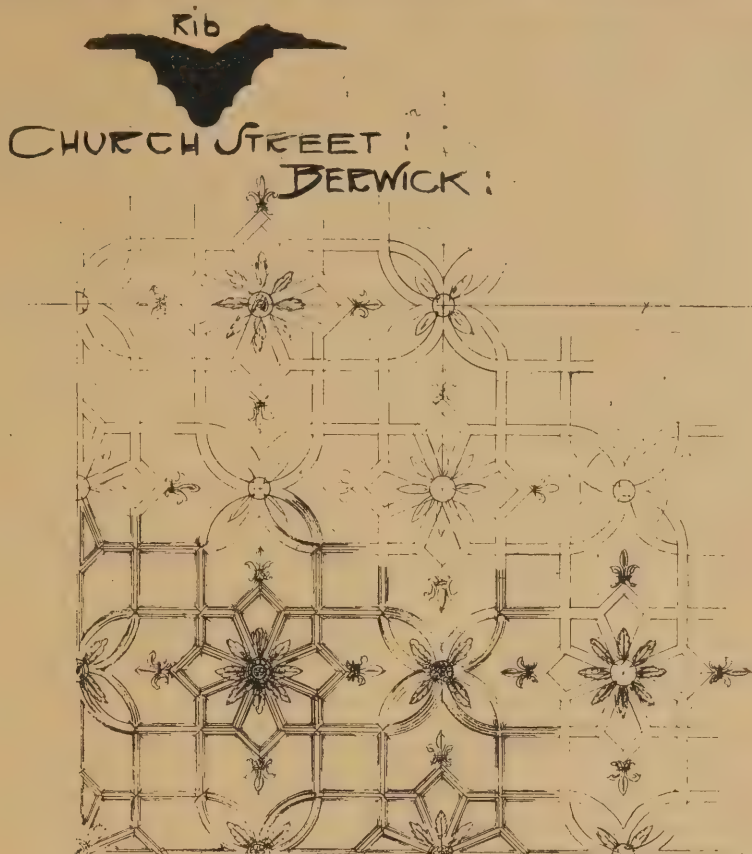


## Scottish Plaster Work.

WRITTEN AND ILLUSTRATED BY R. S. LORIMER.

WITH the beginning of the sixteenth century came a change in the Architecture of Scotland. It is what might be called the beginning of the Transitional period from the Scottish style to the Renaissance and Elizabethan, which in turn gave place to the purer classic. External forms and designs of buildings were gradually altering, and we may say the same of internal arrangements, features, ornament, and detail. The towers and keeps, with nothing more than a hall and dungeons, were gradually becoming unnecessary as places of defence and security, and quite inadequate to meet the growing requirements and tastes of the country nobles of the period, hence we find drawing-rooms, reception-rooms, and galleries being added. Then came the greater necessity for decoration and ornament in all materials, wood, stone and plaster; more so plaster, I think, from the extravagant way it has been used.

We may say there was little or nothing in that way before the sixteenth century; in fact, nearly all our examples are of seventeenth century work. Of our ancient country houses nothing remains but bare walls, and in towns, modern improvements make short work of the houses where we should be likely to find something in the way of Early Decoration. The internal finishings of the early buildings were, no doubt, very simple and very far behind the highly finished dwellings in England. As Scotsmen began to have more intercourse with their English brethren, and see more of their styles and customs, the defects of their own houses became more apparent; so we find the Renaissance making its first appearance in



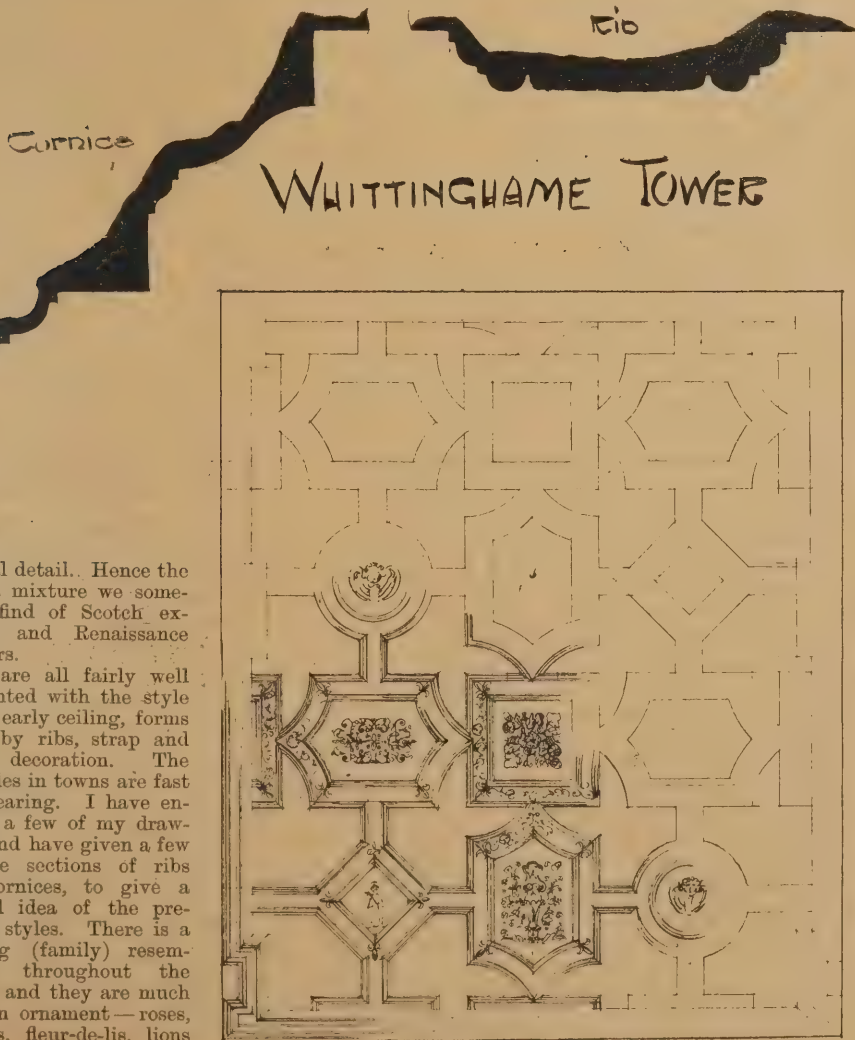
and griffins, with fruit and flowers filling in the panels.

One of the earliest examples that I illustrate

here is from an old house in Church Street, Berwick-on-Tweed. Its date is supposed to be about 1600, but that is not at all certain; at any rate, I should say that it was done before the time that rich designs and elaborate modelled work became so common as we find in the later examples of the seventeenth century. This ceiling is divided up by a plain rib of rather an uncommon section, in fact it is the only one of the kind I have seen. The ornament is simple. There are small bosses at the intersections, and leaves spring from them and spread on to the ceiling.

From Bonhard, Linlithgow, built in 1591, we get some fine examples of varied design. They are simple but refined in detail. The ribs mitre with the ceiling members of the cornice. The modelled work in the panels is very light. Small bosses and leaves form the chief decoration. Waldie, in his "History of Linlithgow," writes of a house built by the father of the man who owned Bonhard, that contained some fine stuccoed ceilings in the style prevalent during the reign of Charles I., from about 1625 onwards. On one of these ceilings there was the mask of Alexander Cornwall, a member of the family who is said to have fallen at Flodden. Masks of men such as Alexander the Great and other ancient heroes are frequently met with in panels. At Merchiston Castle, for instance, we have Alexander and David and harp.

Some good examples of seventeenth century work are to be found at Craigievar, Aberdeenshire. Billings, in his "Antiquities of Scotland," gives some very good illustrations of them. The hall is vaulted with the old barrel vault, and the central portion is groined in much the same fashion as Moray House, and all richly finished with stuccoed panelling and ornament. The upper floor bedrooms have also decorated plaster work of the same period. In the first floor room of Whittingham Tower we have another specimen of early seventeenth century ceiling. Here we have a broad rib with what was once a running enrichment in the styles, but is now almost unrecognisable with the many layers of whitewash. The panels are filled in with various devices in modelled work. They are still in good preservation, and fairly distinct. The ribs here do not mitre with the cornice, the first member of which has a deep fillet, and on this the ribs butt. I may also mention here that the



internal detail. Hence the curious mixture we sometimes find of Scotch exteriors and Renaissance interiors.

We are all fairly well acquainted with the style of the early ceiling, forms taken by ribs, strap and panel decoration. The examples in towns are fast disappearing. I have enlarged a few of my drawings, and have given a few full-size sections of ribs and cornices, to give a general idea of the prevalent styles. There is a striking (family) resemblance throughout the period, and they are much alike in ornament—roses, thistles, fleur-de-lis, lions





woodwork of this room is also good, and is probably of the same date as the ceiling, but much later than the tower itself. The door architraves have an egg and dart enrichment. The tower is still inhabited, and is well taken care of.

Glamis Castle, in Forfarshire, is also rich in plaster work. The ceilings of the hall and rooms on the first floor, east wing, were constructed by John, the tenth Earl of Strathmore, and contain his monogram and that of his Countess, and the date 1620.

In the dining-room at Rosslyn Castle we have rather a different treatment. The ceiling here is divided into panels with beams, with plain soffits and coved sides, with running enrichment. These large panels are again divided with small ribs. Relieved ornament spring from the corners. In the centre panel is a shield, with the initials of Sir William St. Clair, and the date 1622.

Pinkie House, that well-known mansion near Musselburgh, is quite a storehouse of good plaster work. Here are examples of the various ways the Artists (for Artists they must have been) treated the ceilings of the seventeenth century. We have one almost entirely covered with broad enriched ribs, with decorated pendants at the intersections, and the plain spaces that are left are filled with modelled work in the form of crescents, monograms, coronets, &c. There is a very fine drawing of this in the first volume of the "Architectural Sketch Book." In another room we have plain, narrow ribs, forming squares and circles alternately, and joined with ribs at right angles to these. Another room ceiling is entirely made up of circles, and connected with ribs running diagonally. Then the fourth example, on the same floor, is ribbed in squares, circles, and interlaced work. The modelled work in all is very similar.

I believe Carnock Castle, in Stirlingshire, contains some examples of rather a different type from those I have just described, and are quite different in detail and ornament from those at Wintoun, Pinkie, and Moray House,

and others of the same century. I am sorry I cannot describe them more fully.

Drumlanrig Castle, the Duke of Buccleuch's seat in Dumfriesshire, is well worth a visit, and should not be missed if you should happen to be in the district, and have the time and opportunity for seeing the place, not merely to strain the backs of your necks in gazing at the beautiful ceilings, but to have a good look

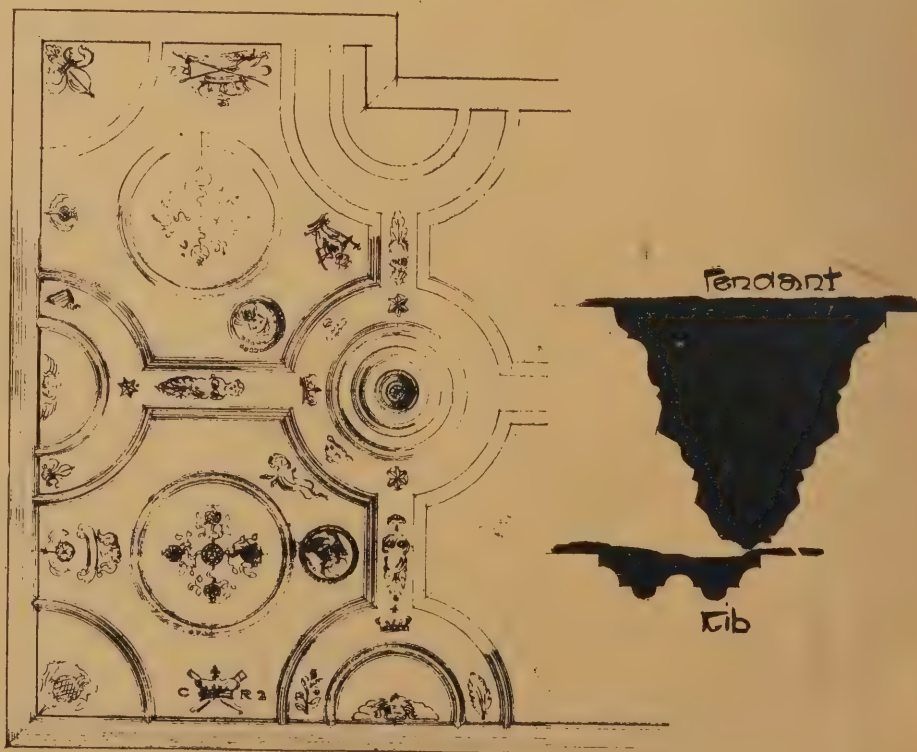
at the whole building. It is one of the finest examples in Scotland of a seventeenth century mansion, and it is greatly enhanced by its splendid situation. I was not an enthusiastic youth when I had the pleasure of seeing through the place, but I was greatly struck by its imposing exterior. I can tell you nothing about the ceilings, except that at the time I thought they were very grand. I daresay I might have taken more note of them if I had known that some day I should try to write about them. There is a wealth of work to measure and sketch here if permission could be obtained.

I daresay most of you are acquainted with Caroline Park. The suite of rooms on the west side are elaborately decorated with panelled plaster work. The ornament here is of particularly fine workmanship.

I will now draw your attention to Wintoun House, Haddingtonshire, which is remarkably rich in plaster detail. The drawing-room ceiling is an example of the perfection attained by the plasterers and modellers of the seventeenth century. The detail and ornament are exceedingly fine. The ribs are broad, with small lead and ogee moulding and enriched styles. The room adjoining, known as King Charles' room, is also richly plastered, and here we have the addition of moulded and decorated pendants. We have in this room, too, an example of what the ancient plasterers could do in the way of a frieze. It is made up of small decorated pilasters and arches. The spaces are filled in with vases and flowers almost identical with those in the panels of the drawing-room ceiling.

About two miles from Haddington stands Lethbridge Castle, and in it we have an example of ceiling executed in the early part of the seventeenth century, but it is in a very bad state. It is composed of narrow ribs forming squares and diamonds, with pendants at the main intersections, and connected to the ceiling with leaves. The chief ornaments in the panels are the initials I. M. S. for the Earl of Lauderdale and his wife, and winged heads.

In a room on the first floor at Merchiston Castle the ribs on the ceiling show a different treatment. They form circles and half circles next the walls, and two ribs connect them. The enlarged drawing shows the method clearly. It is on this ceiling that we have the masks of David and his harp and Alexander the Great. From the centre panel hangs a large moulded drop. Possibly some of you may have noticed from the train



MERCHISTON CASTLE.

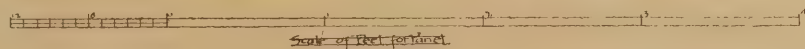


Kellie Castle: life.

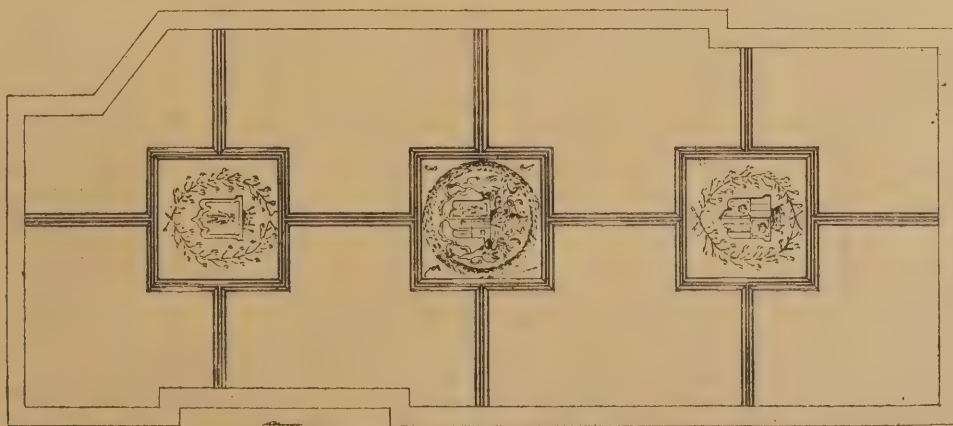
The Drawing Room Ceiling



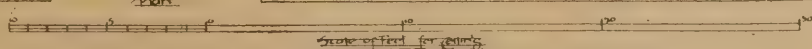
The Centre Panel



By that pattern



The piece which exists at present is very imperfect copy having penwork over on the top of the original which was much older



Measured and drawn 1857  
Revised on the 21 June 87  
R. S. Lorimer

MEASURED AND DRAWN BY R. S. LORIMER.



a ruinous-looking building near Prestonpans Station. That is Wallyford, or what used to be Wallyford. It was burned down some years ago. The dining-room and ante-drawing-room had fine ceilings, with light ribs forming circles and other figures common during the period. My principal reason for taking notice of this place is to draw attention to the fine doorway, which is well worth measuring. The lintel bears the date 1672.

(To be continued).

### KEYSTONES.

THE death is announced of M. Edmond Yon, the landscape painter, who was born in Paris on March 31, 1841.

THE Marquis of Salisbury has given £30 towards the restoration of St. Laurence's Church, Blackmore. About £1300 is required.

THE erection of a Cathedral at Liverpool as a memorial of the Queen's long reign is being strongly advocated locally, and is receiving considerable support.

WE understand that the Canadian Government is about to expend \$10,000,000 in enlarging the canal system between Lake Superior and Montreal.

THE cost of the Free Gardener's new hall at Picardy Place, Edinburgh, opened recently, was £9000—£4000 having been paid for the building, and £5000 as the cost of the alterations.

MR. ALEXANDER PECKOVER, of Wisbech, has consented to lay the foundation stone of a new grammar school at Wisbech. The members of the Peckover family have contributed £3500 towards the cost of the new school.

MR. HENRY HARBEN, of Hampstead, and Warnham, Sussex, has, at a cost exceeding £50,000, erected and equipped on the sea front at Littlehampton a convalescent home, which is to be open to workmen in all parts of the country.

THE Durham Miners' Association at the collieries at South Moor, near Chester-le-Street, has determined to build a new hall at an estimated cost of between £2000 and £3000. The contract has been let to Mr. John W. Bolam, builder, Pelton.

WE understand that the more ornamental of the wrought iron gates and railings fixed at the Marylebone Public Baths, recently opened, were supplied by Thos. Brawn and Co., of 64, Clement Street, Birmingham, who obtained the order in competition.

A NEW altar has been erected in St. Mary's Roman Catholic Church, Lochee, built and fitted up by Mr. A. B. Wall, sculptor, Cheltenham. It stands about 24ft. high, having marble shafting. The altar frontal is of pure Sicilian marble.

KILRUSH House, near Kilrush, the seat of Mr. Hector Vandeleur, has been destroyed by fire. Nothing is known as to the origin of the fire, which has destroyed the whole building, with the exception of the billiard-room. The damage is stated at £30,000.

THE St. Pancras Vestry is of opinion that the most suitable way of commemorating locally the Queen's long reign would be to raise funds to assist the building of the North-West Polytechnic Institute, towards the maintenance of which, when built, the Charity Commissioners and the London County Council will contribute £5000 annually.

MESSRS. J. CHESSUM AND SONS, the contractors for the new offices for the Commissioners of Sewers, deny any knowledge of the rescinding of the building contract, and state that the works are being pushed forward to carry out a modified design rendered necessary by the injunction which restrained the erection of the building according to the original plans.

As the workmen engaged in the enlargement of Hamilton Slaughter-house were making excavations, they came upon the memorial stone of the old building. In the hermetically sealed bottle there was a parchment, finely preserved, containing the inscription:—"This Flesh Market was built in the year of our Lord One Thousand Seven Hundred and Ninety-Four, and in the Thirty-fourth year of the reign of His Majesty King George III."

### ARCHITECTURE IN RELATION TO THE HANDICRAFTS.\*

BY T. G. JACKSON, R.A.

IT used to be the fashion for anyone writing or speaking on Architecture to cite Vitruvius as the authority for what he said. The writings of Vitruvius are no longer regarded by everybody as the gospel of Architecture, and, indeed, are now perhaps rarely read by Architectural students. And yet, on the present occasion, I cannot do better than take as a text the opening passages of his treatise, which seem to apply very aptly to the subject for discussion to-night. Vitruvius distinguishes at the outset between practice and theory in Architecture, and goes on to point out that Architects who are mere handicraftsmen without literary training are unable to give any reason for what they do, while those who trust only to theory and book learning without practical training seem to grasp at a shadow, and not reality. An Architect, he says, must be properly trained in both fields. He must be both ingenious and teachable, for neither will wit without training, nor training without wit, make the perfect Artist. He must be a skilful draughtsman, a learned geometrician, not ignorant of optics, instructed in arithmetic, a good historian, and a diligent student of philosophy. He must understand music; he must know something of medicine; he must be familiar with the decisions of the lawyers; he must understand astrology and astronomy. This is a formidable programme, and if one may, without profanity, speak disrespectfully of a writer who has hitherto been considered almost sacred, one would be tempted to say he was writing nonsense. The first part of his list is, no doubt, necessary enough, and as to the latter part, when we come to his explanations, we find that they do not make so much demand on the student as at first sight they seem to do. The usefulness of his historical lore is to enable the Architect to explain the meaning of some of his ornaments, and to tell the inquirer that the figures of Caryatides which were used as columns, were derived from the matrons of Caryas, a Peloponnesian city, who were carried into slavery because their country had sided with the Persians against the Greeks.

#### PHILOSOPHY IS NEEDFUL

to him only in the same way that it is needful to everybody—to prevent him being arrogant, and make him just, honest, and temperate. As for music, he seems to require it principally for testing, by the notes they give, the strain of the ropes of catapults and military engines. His knowledge of medicine should be sufficient to guide him to avoid unwholesome sites and bad water. As for his knowledge of law, Vitruvius seems to think he ought always to be an expert in questions of party-walls, rights of drainage, and light and air. After this long enumeration of matters requisite for an Architect, Vitruvius draws the line. Pythius, the Architect of the Temple of Minerva at Priene, had said that an Architect should be able to excel in all the Arts, and in each to surpass those who made that Art their especial study. Vitruvius thinks Pythius goes a great deal too far. An Architect, he says, neither need be, nor can be, such a grammarian as Aristarchus, but he must not be unlettered; he need not be a musician like Aristoxenus, but he must not be without musical sense; nor need he be a painter like Apelles, but he must not be unskilled in drawing; nor need he be a sculptor like Myron or Polyclethus, but he must not be ignorant of the plastic Art; nor finally, has he to be a doctor like Hippocrates, but he must not be without knowledge of the laws of health; nor in other studies need he excel as a specialist, but he must not be wholly unskilled in any of them. To say that Architects should excel in all these things is to

#### DEMAND AN IMPOSSIBILITY,

because it is only now and then that a man can excel in one Art even if he pursues no other.

\* A paper read at the Architectural Association on Friday evening.

Pythius therefore is clearly wrong, and has gone astray because he has not made a proper distinction between practice and theory. Therefore, says Vitruvius, he seems to have done quite enough in these several branches of study, who has a fair knowledge of those parts and theories of them which are necessary to Architecture, so that if he should be called upon to pass judgment upon or to approve these matters and Arts he should not be found wanting. Vitruvius, therefore, waters down, as he goes on, the somewhat strong dose which at first he seems determined to administer to the student of Architecture, as a tonic necessary to his constitutional well being. A general theoretical knowledge of the various Crafts, which it will be his business to direct, sufficient familiarity with them all to prevent his passing indifferent work on the part of those who work under him, seem to be the measure of the practical acquirements necessary to an Architect, according to the

#### ROMAN AUTHORITY.

On the other hand, we have the dictum of the Greek Architect, Pythius, who says that the Architect must not only have this general theoretical knowledge, but must be actually skilled in the practice of all the Arts which he has to deal with; and not only that, but superior in each one of them to the specialist who follows only that

#### SINGLE ART.

Which of the two is to be our guide? Shall we be satisfied to be proficient in the theory of our Art, learning it from books and lectures, and merely acquainting ourselves with practical work in a general way, enough to enable us to understand our specifications, and order the work properly, and detect flagrant instances of inferior workmanship and bad material; or are we, with Pythius, to put our hands to the work ourselves, and not only design but help to execute it; to train ourselves to be Master Craftsmen as well as superintendents and directors of other men's labour? For many generations past the former of the two methods has been the order of the day. Most of us who have reached or passed middle age have been brought up under it, and if we have, to any extent, departed from it, it has been of our own initiation that we have done so. That this plan was not that in vogue during the best periods of modern European Art is well known. It was not in that way that the Architects, or building Artists of the Renaissance, in its earlier and more independent days, or those of the middle ages worked. They would have been at a loss how to go on if you had parted them from their building and their workmen, and shut them up with a drawing-board and a T square, and asked them to make their designs and convey their instructions by

#### MEANS SOLELY OF DRAWINGS.

Their method was that of Pythius rather than that of Vitruvius, whose gospel, fortunately had not in their day obtained currency, or been placed on the canon of inspired authorship. I need not tell you that of late years there has been a revulsion against what I will call the Roman method of practising Architecture in favour of the Greek. Many of us have been preaching against the strictly professional view of Architecture, and urging that a man cannot be expected to produce good designs who seldom or never comes into contact with the materials out of which his designs have to be constructed. We have argued that it is from the handling of material that suggestions in design can most readily be gathered. That reading about processes in building, or any of the Arts which go to make up a building, will never teach a man how to make the most of his opportunity, how to use his material to the best advantage, how to economise labour so as to avoid wasting it to no purpose, and how to design in accordance with the natural qualities of stone, iron, or wood with which he has to deal. We have tried to impress on the student that an hour spent in the workshop or on the scaffolding will often teach him more than a week spent in a library. We have gone still further, and tried to persuade students not only to go and see how things are done, but actually to put their



own hands to the work, and to become handicraftsmen in one or more of the many Arts with which as Architects it is incumbent on them to be familiar, and of which it is necessary the technicalities should be understood by anyone who undertakes to design for them. These proposals, however revolutionary they appear to the advocates of the old-established professional system, according to which Architecture has so long been practised among us, are still, it is clear, very far from bringing us again to the methods of the Architects of four hundred or five hundred years ago, to say nothing of those of the Greek Architect, whose demands seem to Vitruvius so extravagant. The contracts which Bishops and Chapters and others who intended building on an important scale made with their Architects bound them down rigidly to a much more constant and intimate association with their work than a modern Architect would submit to. The Architect bound himself to come with his family and live in the place where he was to build, to engage workmen, and see that they did all that was necessary to be done, to work with his own hands, both in building and in sculpturing, as befitted a good sculptor, and a master of the

#### ART OF STONE-CUTTING.

He was also to go to the quarries as often as was necessary, and arrange for the quarrying of the stone. Furthermore, he was bound for the term of so many years, during which the building was to be constructed, not to undertake any other work without the special leave of his employers, or a majority of them, or, if he were engaged on some other building in the same or a neighbouring place, the time he should devote to each was strictly specified. Finally, he bound himself to supervise as chief master builder and superintendent all the labourers, builders, master workmen, and handicraftsmen employed on the building, and to supply them with such dimensions, orders, and methods as would be required during the progress of the works. For all this he was to receive a fixed annual salary, to which was sometimes added a gown or two gowns in the year, and perhaps a house was provided for him to live in with his family. The Architect of those days, therefore, was a superior clerk of works, as we should call him, with this radical difference, that he had no master over him, sitting most of his time in an office, perhaps, one hundred miles away, directing him by the penny post what to do, and sending him drawings to show him how to do it. Imagine a modern clerk of works to have had the training of an Architect as well as that of a tradesman in one of the handicrafts; that is to say, to have the skill to design the work he directs; or, what is the same thing, imagine a modern Architect to have learned one or more of the manual trades, and to choose to go and superintend one of his own buildings as his own clerk of works, and you have the nearest approach to the Architect who designed and raised

#### THE MIGHTY STRUCTURES OF THE PAST,

which it is our aim to rival, and our despair to surpass. He would necessarily be a mason to begin with, for masonry is the king of all the trades, the one which all the rest follow, and the one which, blending itself, as it does, imperceptibly with Sculpture—which is but a refinement of masonry—passes without any visible or marked transition into the higher region of fine Art. In olden time Sculptors and Architects were the same persons, or, at least, though there were Sculptors who were not Architects, there were probably no Architects who were not Sculptors capable of designing the carved work of their buildings, and of executing the most important parts of it—notably the figure-work—with their own hands. Let us for a few minutes try to realise in our own persons what it would be like to practise Architecture after this fashion. Let us shut our eyes to the present and try to open them again in the days of, say, Henry VI. or Lorenzo de Medici. The dingy office in a London street vanishes from our sight. Away go the high stools, the drawing-boards, the dusty piles and rolls of paper, for—oh! blessed release—there will be no more working drawings to make,

and little drawing of any kind whatever. The office bell will no longer send a shock through our nerves, announcing the coming of a visitor to interrupt us at the most critical period of a design. The approach of post-time will no longer drive us into a frenzy to get off arrears of correspondence that cannot be postponed any longer, for we shall have little reason to write to anyone. Our employers will be on the spot with ourselves, and an occasional conference on the building itself will make much letter-writing unnecessary. Away, too, goes all that tedious necessity of long railway journeys which dissipate our time, and exhaust perhaps four hours in travelling for every hour we have to spend on the work at the end of it. Our work will now be all under our eyes, or near at hand, and

#### THE HOURS WASTED IN THE RAILWAY CARRIAGE

will be employed to good purpose on our growing building. Away, too, go the long specifications, the contracts with builders, the lynx-like supervision required to keep their performance up to their engagements, for we shall either be our own contractors or else have workmen under us employed and paid directly by the (our own) employer. Relieved of all these official and commercial occupations in which I venture to say most of us—do what we will—find half, and more than half, our time spent, we shall pass our working days clad in the workman's blouse, setting out our work on the ground, drawing such simple diagrams as will give the workmen the proportions and dimensions of the several parts, marking out the mason's moulds, perhaps taking the mallet and chisel out of his hand to show him practically how we want certain parts finished, trying on the building itself as we can nowhere else the scale and proper character of our sculptured ornament, without doubt doing so much of it ourselves as will give the clue to the subordinate carvers, and probably finishing some of the most important parts with our own hands. Conceive the sureness and confidence with which we should work. There would be none of that experimental and hesitating anxiety which makes us doubt after drawing out a design whether it will come out as we intend in actual execution. No! there is the building itself on which to try experiments. When the thing is going wrong we can stop it at once and correct our original device and substitute something better, and there will be

#### NO CONTRACTOR TO WORRY US.

for an *extra* on the inevitable plea that the new way is more expensive than that for which he contracted. And so our building will rise, and as it nears completion, and the scaffolding comes down, and we stand with hands behind us, and head thrown back, to see our creation as it emerges in its maiden whiteness from the enveloping veil of poles and planks, we shall feel that it is indeed our creation, the work of our own brain, and in a measure of our own hands, in a way that no Architect can quite feel now about any of his creations, however much pains he may have devoted to them. This, I venture to think, will appear in the eyes of many of you—certainly to the younger men among you in whose bosoms the stirrings of Art have all their youthful freshness—an attractive picture. Can we realise it at the present day? Or, if that is impossible, how near can we get to it? Can we get back to it? Well, of course, we cannot do it in a hurry. But can we expect ever to get back to the old system at all? I think not. It would be putting the hands of time back too far. Changes of system do not come about without some reason in the nature of things and of men, and to neglect the conditions of modern life in Art while we admit their supreme influence in other fields would be not only unpractical but unphilosophical. Take, for instance,

#### THE MATTER OF WORKING DRAWINGS.

The drawings used in olden time were of the slightest and most conventional kind. Even in Wren's time working drawings such as we make for every detail were not found necessary when competent workmen were employed.

When sending his small scale plans and directions for the library at Trinity College, Cambridge, Wren adds: "I suppose you have good masons; however, I would willingly take a further pains to give all the mouldings in great; we are scrupulous in small matters, and you must pardon us, the Architects are as great pedants as critics and heralds." In his day there were trained schools of masons and joiners who had traditions of their own, and could be trusted to apply them. The Architect gave them the size of the door, the scale and amount of ornament he wished to use in the doorcase, and the workman had sufficient skill to fill up the details of the sketch and to realise the Architect's intentions as he would have them. So with the masons: to give them the moulding in great would, Wren seems to imply, be unnecessary if the men were good Craftsmen. But where are the workmen nowadays who could be trusted to do this? It is easy to imagine the result if we tried the experiment. There are very many Architects who do try the experiment of dispensing with working drawings, not from any desire to return to the older system of work as being better, but simply from the wish to save themselves trouble, or else in order to save their time for more lucrative occupations which have little or nothing to do with Architecture. Some of them employ a ghost, and the ghost naturally takes little interest in a work which is neither his entirely, nor anybody's entirely, and the details come off badly. Others dispense with the ghost, and leave all the details to a contractor. One builder told me that when he applied to an Architect for details of a certain work, the only answer he got was, "Take it and do it, and don't bother me about it." In another case the builder told me the only full-size details furnished him by the Architect of a building which cost £6000 were those of a cellar door and a coal-shoot, and that he—the builder—himself made all the other working drawings, and did not even go through the form of showing them to the Architect. Now, I need not tell you that, whatever may have been the case in the days of Sir Christopher Wren, there is no school of workmen nowadays capable of filling in the

#### DETAILS ON A GENERAL DESIGN

given them by an Architect. Nor need I tell you that it is on the details of a design that its success depends for its ultimate appreciation no less than on the general conception; for no grandeur of idea, or originality of scheme, will make a good building if it is badly carried out in its details. An amateur may and often does have good conceptions in the mass, but it is only the Artist who can carry them out into execution successfully, because he alone is capable of contriving the parts out of which the whole general idea is built up. It may be imagined, therefore, what kind of Architecture results from the method I have described when the nominal Architect gives only the rough idea of the building, and leaves the details to men who have had no Artistic training whatever. Indeed, there is no need for imagination in the case, for the streets of London are lined with buildings erected on this system, expensive and costly buildings very frequently, for the worst modern Architecture is the most gorgeously decorated, and lavish expenditure on ornament is the last resource of an incompetent designer. But if neither builder nor workman can be trusted to supply proper details for the carrying out of an Architectural design, what conclusion is left to us but that they must be done by the Architect? How is he to supply them? Of course, he might, like the old men, go and live on the work, and give the details to the workmen by word of mouth, or by example, or by setting out the moulds and dimensions with his own hands. I do not know how many of you are prepared to follow your Craft in this way. You would only be able to look after one, or, at the most, two or three, buildings at a time, and, though you would save the expense of an office, I fear 5 per cent would not enable you to earn much more than a bare livelihood. Drawings, I fear, are, and must remain, a necessity if an Architect is to have his designs carried out as he intends, and if he wishes to



have full justice done to them. Again, there are many buildings in modern times involving

#### INTRICACIES OF PLAN

which must be carefully plotted on paper, and could be contrived in no other way. Old buildings were very simple, and in their plans there was very little variety. One manor house was arranged very like another manor house, and one Cathedral or Church on much the same general lines as another. Those buildings of our own day which retain this simplicity of plan could be built without drawings just as the old ones were. It would be easy enough to build a great Church from foundations to cap-stone of spire without a single drawing but such rough diagrams as the designer would need to enable him to put the parts of his building together. But when we come to such elaborate buildings as the modern town halls, or technical schools, or boarding houses of our public schools, or theatres, or when we have to deal with confined and scantily lighted sites, as in the streets of London, careful and elaborate plans are a necessity, and the drawing office indispensable. There is no prospect whatever of our being able to build in the future without drawings, and we may dismiss as impracticable all hope of superseding them by supervision and direction on the spot, and of being able to shut up our offices and take to the building sheds and the scaffolding. But admitting all this—acknowledging, as I fear we must, that the necessities of modern system are too strong for us, and that we must, in the main, go on as we are now doing, is there nothing we can do to place ourselves more in touch with the handicrafts? If we cannot go the whole way, may we not go part of the way to meet those workmen on a common footing with whom, whether indirectly or directly, we cannot help co-operating in the carrying out of our designs? If we cannot, as Pythius would have us, excel in all the Arts, so as to surpass in each one of them the skilled workman who has followed that one alone, and made himself master of it, surely we may, without being unreasonable, demand of our Architects that they shall at least not design things without knowing how they are to be made. Nor if it is unreasonable to ask us to be better masons, better joiners and carpenters, better smiths and better plasterers than the men who follow those callings and do nothing else, is it unreasonable to demand that every Architect should so far familiarise himself, by actual observation and inquiry, with every one of these trades, that he may know how to make designs

#### SUITABLE TO THE MATERIAL EMPLOYED,

and the way of employing it. And yet we are all our lives designing things without knowing how they are made. How is it possible for us, in our ignorance, not to give a world of unnecessary trouble to the workman, cause a deal of needless expense to our employer, and miss altogether that propriety in design which arises from proper use of material, if the proper use of it is unknown to us. Take, for instance, the case of wrought iron work. Every Architect is called upon constantly to design such simple things as railings, grills, balustrades, in that material. He draws, probably, something after good examples that he has seen; perhaps he tries to improve on them and design something new, and if he knows nothing of smiths' work except from books and drawings and such sketches as he has made of his own, the alterations he makes very likely make what was very easy into something very difficult, if not impossible; and even if the workman gets over the difficulty by some troublesome device of his own, the labour involved is thrown away, and might have been saved by a little knowledge on the part of the designer. Those who have only designed ironwork on paper, and never seen it made, would be astounded to find how very differently it was done from what might have been imagined, and how very much more simply their design might have been done by altering it a little. I wonder how many in this room have any idea how so simple a thing as the ordinary forked baluster is made, with one foot to be let into the stone for each pair

of balusters. I confess I did not know till the other day, when I wished to vary the form of a thing so as to give it a little more character, but began to doubt as I went on whether the smith could make it. So I went to the forge and had some experiments made, and found that the usual process was quite unlike what I had imagined. Another advantage of the visit was, that I was able to suggest to the smith other ways of doing it, and before we finished we had made

#### A FORKED BALUSTER IN FOUR DIFFERENT WAYS,

and found out which was the easiest and cheapest. This seemed to me an instance of the way in which designer and workman can help one another; the designer, from habit, seeing his way to fresh possibilities, while the workman, from habit, had not thought of doing anything but what he was used to. Let it be a rule, therefore, with every Architect never to design anything without knowing whether his design is practicable, and practicable according to the received traditions of the Craft concerned. But may we go no further than this? May we not require that he should be able to put his own hand to the work as a handicraftsman in one or more of the trades over which he has to exercise control in the ordinary discharge of his duties? There are some trades of which it is obvious such knowledge as an Architect can derive from observation is enough. Going through the trades in the specification according to their order, we begin with Excavator. It is, I think, obvious that he would not improve himself in Architecture by going to work in the trenches with pick, shovel, and wheelbarrow. Next comes the Bricklayer and Waller. I once built a brick wall, but I do not know that I learned much from it, except that bricklaying was not so easy as it looked, and that if it was hard to keep a true upright it was still harder to keep a true level. The bricklayer to whom I showed my wall when it was done could only say that he thought it strong, but very ugly. I do not know that I should advise any of you to follow my example. Carpentry and Joinery are more within the reach of everyone, and a course of training at the bench may safely be recommended to all who have to do with building as supremely useful. I need not go through all the trades, but Masonry brings us near to

#### THE VERY CENTRE OF ARCHITECTURE.

To be a practical mason would not in my opinion be so useful an accomplishment for an Architect as skill in joiner's work. The ordinary problems of stone-cutting can, I think, be understood without actually handling the chisel and mallet. But masonry, as I have said, melts insensibly into sculpture, and it is not always easy to say where masonry ends and sculpture begins. What will you do when you come to the carving of your building, as, of course, come you must in a building of any importance? If you only care for quantity and not for quality you can, of course, leave it, as many do, to the carver, and simply get an estimate and leave him to do his best, which in that case may also be his worst. But you will not, I am sure, if you are in earnest, be content with so perfunctory and vicarious a way of bestowing on your work its principal adornment. You will have your own notions of the scale, the character, and the finish of your carved work; you will feel that the outline of your sculptured capitals is as important as the profile of your mouldings; that the play of light and shade in your foliated stringcourse or your enriched frieze was an important element in your design; you will desire for your sculpture an historical character, illustrating the purpose and circumstances of your building; and, above all, you will feel that the same feeling which you have impressed on the purely Architectural part of your design must be carried into the sculptured decoration, or the unity of the effect will be marred. You must impress yourself on that as you have done on the rest. How are you to do this? You may spend hours standing over the Sculptor or watching him model what is afterwards to be carved, and tire both

him and yourself by suggestions and counter-suggestions which perhaps end in

#### MERE MEOCRITY AND DULNESS,

because though both of you want something different you do not want the same thing, and are unable to explain your meaning to one another. But if you were able to finger the clay yourself you could realise to yourself your own intention, and explain it to him perfectly, and in this way you would succeed in getting what you want as you can in no other. Every Architectural student, therefore, ought to learn to model. He will find it of the greatest service to him in his future career, not only in enabling him to explain his meaning to those Artists who will collaborate with him, but also in fixing and correcting his own loose ideas of sculptured decoration, and helping him to secure for it that character which will correspond to his intention. If he goes on to carve so much the better; for my part I should like to see the callings of Sculptor and Architect rolled into one. As to the other Crafts, time forbids me to speak more at length. Every man, be he Artist or not, should, as with the ancient Jews, be taught some handicraft; and to us Architects such an accomplishment would naturally be doubly useful. We cannot expect that an Architect should have actual manual experience of them all, still less can we require, with the Greek writer, that he should have mastered them all. But we have a right to demand that he shall by actual observation acquaint himself with the methods and difficulties of them all, not from books but from the workmen, not in the library but in the workshop. Let him never make a design without knowing how it will be carried out, and if in doubt let him go with it to the workshop, the building-shed, or the forge; let him consult the men who are to make it, and then correct or alter his design to suit the difficulties of material and workmanship. In this way we may expect to infuse a new life into our Architecture, and to awake it from its torpor. The knowledge you will acquire in this way will not be of a kind to be tested by examination, or to enable you to win prizes and scholarships, but you may feel assured it will be the means of making you better Artists individually, and of advancing the Art of your country as a whole.

A FUND is being raised in Croydon to build a new wing of the local hospital, in commemoration of the Diamond Jubilee.

A DESTRUCTIVE landslip has occurred at the village of St. Pierre-Liveron, near Caylus, in France. Four houses have already fallen into the valley, and the Church threatens to follow.

PROFESSOR HERKOMER, R.A., recently gave a demonstration in the Galleries of the Royal Society of British Artists of his new process for the autographic reproduction of drawings in black and white.

It has been decided to proceed with the erection of a new United Presbyterian Church and halls in Cambuslang. The site chosen is Rosebank grounds, corner of Main Street. The probable cost is stated at £7000.

At a recent meeting of the Corporation of London, the Coal, Corn, and Finance Committee reported upon the financial arrangements necessary to carry out the plans for the rebuilding of the Central Criminal Court, but the consideration of the report was adjourned, so that it might be considered with a similar report as to the enlargement of Stone Asylum.

At a public meeting in Dundee, it was stated that, although nothing had been definitely decided as to the Stevenson memorial, the Executive Committee had resolved that the memorial should take the form of a statue, a bust, or a medallion.

THE Methodists of Leeds have decided to practically reconstruct the chapel in Oxford Place. Something like £18,000 is to be spent in modernising the premises and adapting them to the needs of present-day mission work. In addition, the new buildings will afford central premises for the whole of the district. The enlargements include a synod hall, to hold some six hundred persons.

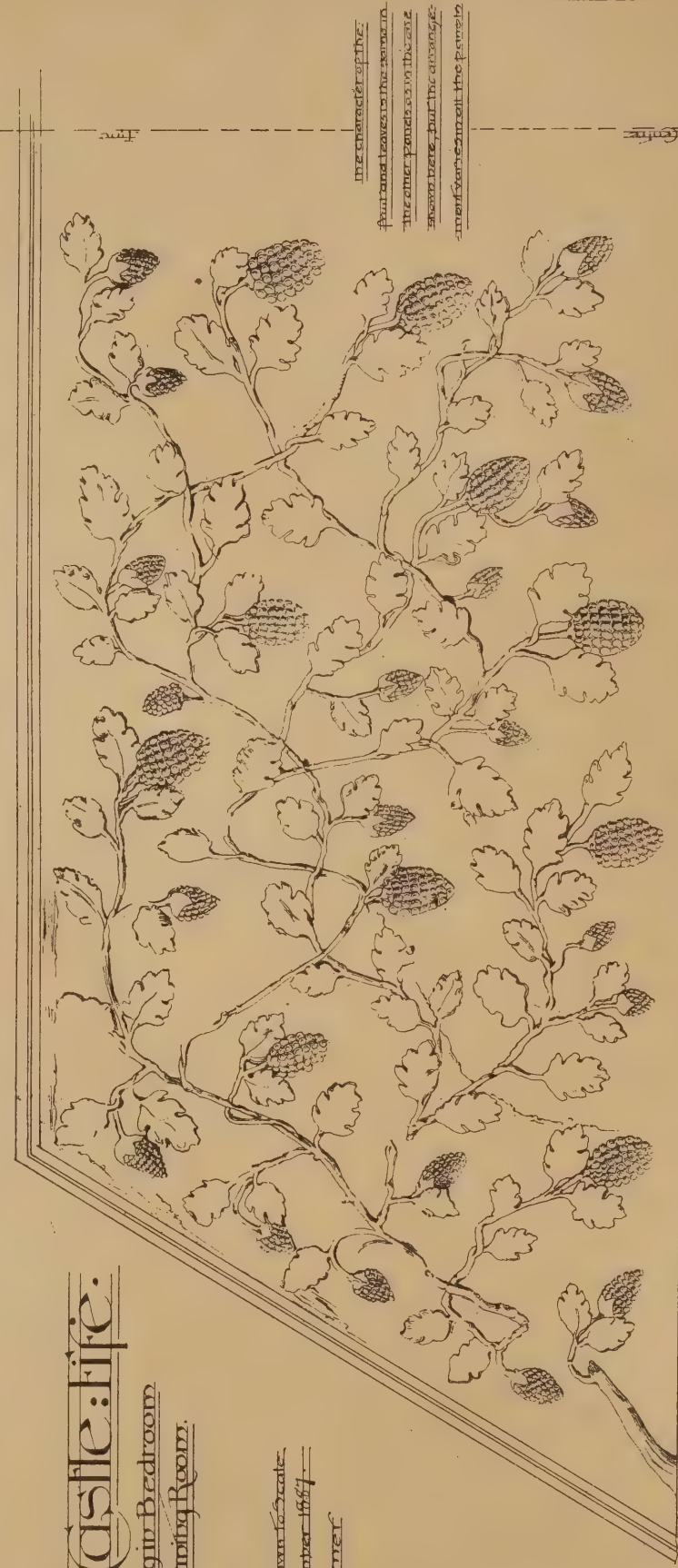


LIBRARY  
OF THE  
UNIVERSITY OF ALBANY

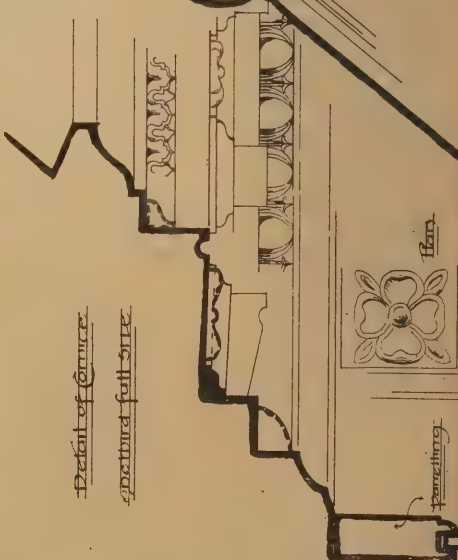


# Kellie Castle: Life. Plaster Ceiling in Bedroom over Dining Room.

Measured and Drawn to Scale  
 on the spot November 1887  
 R. S. Palmer

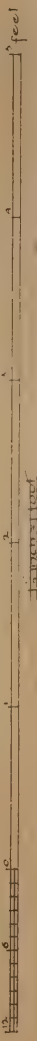


The elevation of half of one side.

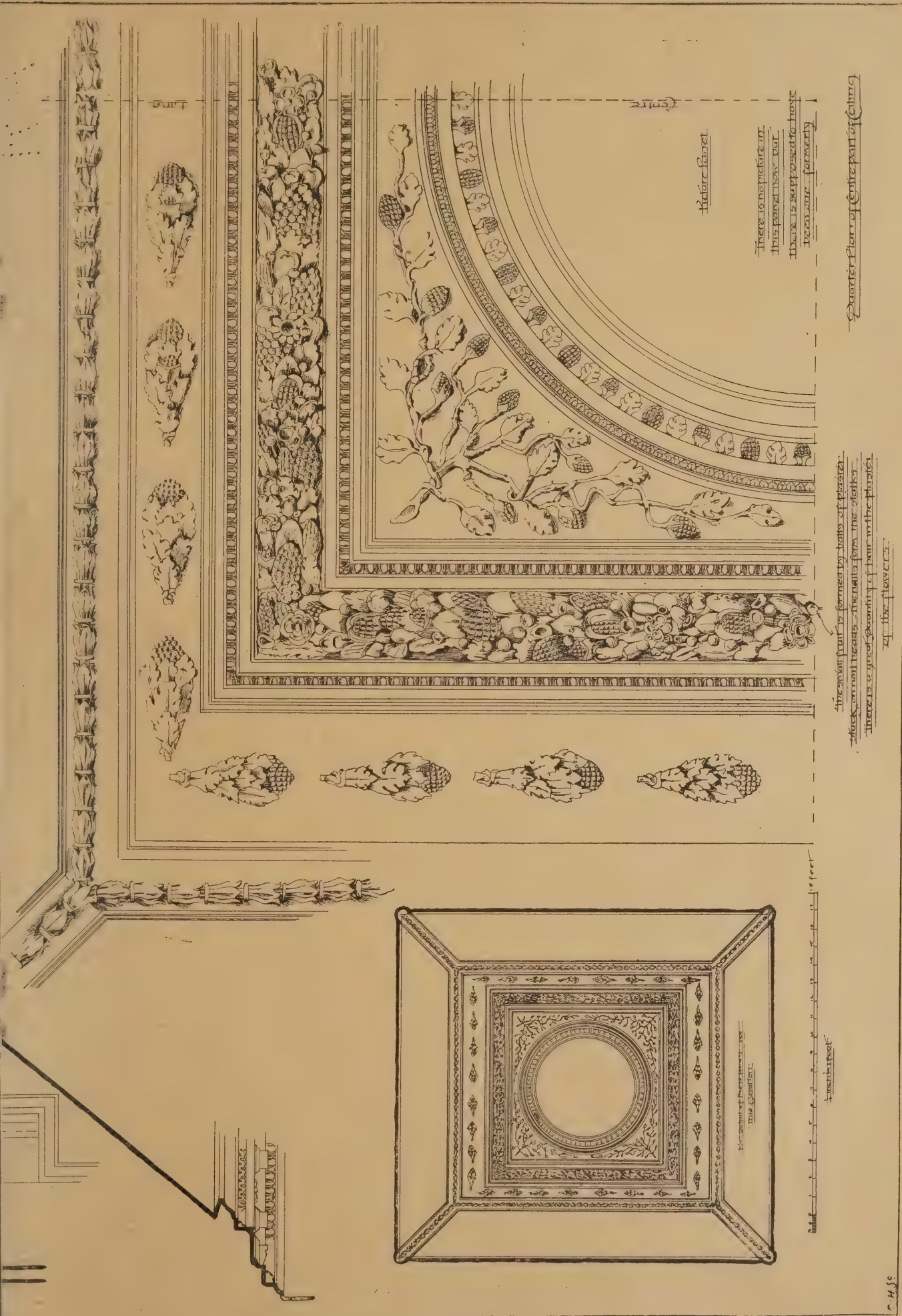


The Section of these rooms is  
 in no way affected by the  
 ceiling, but the ceiling  
 was attached to the  
 walls.

Section of Ceiling









THE  
OF THE  
UNIVERSITY OF TORONTO



LONDON CHURCH ARCHITECTURE  
OF THE VICTORIAN ERA.\*

By T. FRANCIS BUMPUS.

Author of "London Churches Ancient and Modern,"  
"Ecclesiological Notes from North Germany," &c.

(Continued from page 108.)

THE INVENTIVE OR ORIGINAL PHASE OF THE  
GOTHIC REVIVAL.

TWO Churches, probably the noblest Architectural conceptions of their class raised during the present century, head the list of those erected in London under the second phase of the Gothic Revival—the inventive or original one—St. Matthias, Stoke Newington, and All Saints, Margaret Street. Each is by the same Architect, Mr. Butterfield; each, while belonging to the thirteenth century style of English Gothic, presents many departures from Mediæval precedent and arrangement; and each affords an example of what can be effected, not only with the costliest, but with the commonest materials when used by a master hand. The sumptuous character of All Saints, Margaret Street, caused its erection to extend over nearly ten years (1850-59). St. Matthias, on the contrary, was finished in two years, being begun in 1851 and consecrated in 1853. Few London Churches have had a more interesting or eventful history than St. Matthias, Stoke Newington. It originated during the latter part of the "forties" with a small band of North London Churchmen, who, with but a small sum at their command, and under difficulties which for a time seemed unsurmountable, succeeded in realising the idea of a town Church in its fullest essentials, carried out not only with great originality of Architectural treatment, but with correct ritualism.

## A BOLD AND ORIGINAL STEEPLE.

Probably no Church erected near London at the time attracted more attention than St. Matthias, Stoke Newington. The introduction of the "saddle-back" tower† into the streets of the Metropolis was certainly a bold experiment on the part of Mr. Butterfield, but one that was justified by its effect. There is perhaps nothing so grand in the whole range of Modern Architecture as this skilfully designed tower, rising at the east end of a lofty clerestoried nave, whose aisles are continued alongside of it in lieu of transepts. The fine proportions of this plain brick steeple, in which the sparingly introduced bands of stone form so characteristic a feature, have secured for it numerous admirers; it has outlived the hostile criticism which its novelty at first provoked; and it has, with more or less success, been adopted by other Architects. Upon entering St. Matthias, its great height (nearly 70ft.) and narrowness are most striking; this is the secret of the picturesque character which has all along distinguished Mr. Butterfield's work from others less daring in conception and, therefore, less liable to mistakes.

## GRANDEUR OF BUTTERFIELD'S WORK.

Grandeur and effect this Architect has ever aimed at, and whether he be designing a village Church or a Cathedral, he holds to those stern notions of Architectural beauty which he has made peculiarly his own. In every way St. Matthias embodies the idea dominant in its conception of a town Church, its finely-proportioned nave arcade and lofty clerestory, the noble tower arches spanning the Church transversely, its well-raised, stalled, and screened chancel, and its sanctuary—an early instance of brick vaulting—being the elements mainly conducive to this result. Perhaps one of the most interesting features of St. Matthias, Stoke Newington, is its nave roof. Of a simple cradle type, it strongly calls to mind that of Ely Cathedral before Mr. Le Strange took its painting in hand. Another feature is the absence of elaborate decoration in stone or wood carving. The former exists

only in the caps of the corbelled pillars supporting the tower, in the sedilia, and in the dripstones of the great east window. The glass which fills this last is by Wailes, and, owing to the cold grey which forms a background to the figures, must be pronounced one of the most satisfactory works produced by that Artist, thanks to Butterfield's superintendence. The small western window of either aisle—also by Wailes—is very good, but by far the finest in the Church, albeit desiderating grisaille work, is the great one above the west door, with its Old Testament figures, by O'Connor. A very peculiar feature of this window is the buttress which is carried up it in lieu of a central light—doubtless suggested to Mr. Butterfield by the east end of the Abbey Church of Dorchester, which, at the time of the erection of St. Matthias, he was engaged in restoring. Those of you who may chance to visit this remarkable Church should not omit to observe the grand effect produced by the two great tower arches from about midway up the south aisle, as well as from the extreme west end of the Church.

THE ECCLESIOLOGICAL SOCIETY'S "MODEL"  
CHURCH.

All Saint's, Margaret Street, if it were not quite that model Church dreamed of by the early ecclesiologists, was at least the nearest approach to that ideal which the ecclesiological movement had up to the period of its completion, in 1859, produced. Without vitiating in the least our beautiful Decorated style, Mr. Butterfield in All Saints overstepped the mere repetition of conventional forms, to produce a building in which a free eclectic manipulation of parts was grafted upon a system of polychromatic construction, having its basis in the fact that London is naturally a brick town. The choice of site for this Church was unfortunate, feelings of sentiment having been allowed to prevail; but in spite of its cramped area, that vigour and originality of construction inseparably connected with every work undertaken by Mr. Butterfield is everywhere exhibited in this sumptuous work, from the nobly-proportioned tower and spire, immeasurably grander than the steeples of the Marien Kirche at Lübeck, to the carving of the delicate alabaster capitals of the clustered columns of the nave arcade, carving which had the honour of extracting from Mr. Ruskin a high eulogium, but not higher than it deserved for combined boldness and grace. The magnificent western window was made, as we now see it, not many years ago by Gibbs; the original window, by Gerente, a very, I may say too faithful, copy of the celebrated Jesse window at the east end of Wells Cathedral, not giving satisfaction. I am, however, happy to say that the same idea has been preserved, and this western window of All Saints may now be ranked among the finest in the kingdom.

## DIFFERENT SCHOOLS OF MURAL DECORATION.

The contiguity of houses to the east end of All Saints, Margaret Street, prevented its being pierced with a window—a defect neutralised by the scope it afforded to the pencil of Dyce, whose delicate and frequently restored frescoes, carried out in the German *heilige* style, form a welcome relief from the Archaic surroundings. At St. Alban's, Holborn, which forms, if I may so speak, a *via media* between the dignified severity of St. Matthias and the gorgeousness of All Saints, the same accident—confined situation—has been likewise neutralised, but by that series of paintings on water-glass with which the genius of Le Strange and Preedy covered the east wall like a gigantic reredos.\* In feeling, these paintings at St. Alban's are the antipodes of those at All Saints, being treated, as far as the style of drawing is concerned, very Archaically. A very happy medium between these two schools was struck by Mr. Holiday about five-and-twenty years ago in the two frescoes executed by him upon the wall on either side of the reredos at All Saints, Notting Hill, one of the largest and most important works of Mr. Wm. White, and

highly deserving of careful examination by the ecclesiologist. It is a work of great power, combined with a certain amount of originality, though very English in its details, and contains a reredos of singular beauty from the chisel of Redfern. But to return to St. Alban's. The chief beauty of this Church, internally, resides in its grand proportions. Its nave arcade is peculiarly graceful, the piers being genuine specimens of Early Decorated work. Butterfield excelled in the arches opening from his naves into his chancels; those in St. Matthias, St. Alban's, and All Saints being among the finest things in the whole range of modern English Architecture. No good general view of St. Alban's is obtainable outside, a defect it shares in common with All Saints, St. Clement's (City Road), and St. Augustine's (Queen's Gate), a truly noble and sumptuous work, considered by many to be Mr. Butterfield's most original work, and belonging to that style of highly-enriched mural decoration which he developed during the latter part of the "sixties," as exemplified in the chapel of Keble College, Oxford.

## WORKS OF MR. BUTTERFIELD.

Both St. Alban's and St. Augustine's (Queen's Gate) being exceedingly broad and lofty, the Architect has been enabled to invest their western façades with more than ordinary grandeur and majesty. We have seen how pleased Mr. Butterfield was with his experiment of a "saddle-back" tower at Stoke Newington, and this led him to adopt it again at St. Alban's. Here the tower, being much broader from N. to S. than from E. to W., has, I always think, more the appearance of a prolongation upwards of the west front than an actual steeple, but there is something very striking and Minster-like about the mass, which is augmented by the cleverly contrived octagonal belfry turret and the transepts, which, like those in some of the old Rhenish Churches, project from either side of the west front, forming internally a narthex after the fashion of that gigantic one at Peterborough, the noblest Romanesque building on this side of the Alps. At St. Augustine's, Queen's Gate, Mr. Butterfield seems to have been induced to cast his western façade into the form of one of those huge quadrangular belfries met with in the South of France, in the neighbourhood of Toulouse. Probably no Church built by him gives one a better idea of the manner in which the Architect values the aid of colour than St. Augustine's, Queen's Gate. Its interior is unquestionably the noblest in the West of London, deriving its impressive effect from the manner in which every detail has been left to the supervision of the Architect. To some of these exception may be taken, but I have not time, nor is this the place to point them out. With the Churches of Mr. Butterfield may be classed the only London work of his pupil, the late Mr. Henry Woodyer, who, like his master, while infusing great originality into certain details and avoiding stereotyped and common place forms, has never deviated from our national forms of Middle Pointed. One of

## A NOBLE GROUP OF CHURCHES,

is St. Augustine's, York Street, Hackney Road, a plain brick structure consecrated in 1867, and designed, like the same Architect's Church of the Holy Trinity, Winchester, with a nave and chancel both clerestoried, and contained under one line of roof. Probably from fear of committing either himself or his patrons, this work of Mr. Woodyer's at Haggerston, although abounding in vigour and originality, is neither so stately nor so abnormal as some he has designed, notably the fine pile of collegiate buildings erected by him for the late Sir Frederick Gore Ouseley at Tenbury. The reredos in St. Augustine's is one of the loveliest works of the kind in England. While on the subject of reredoses I would call your attention to that in All Saints, Stoke Newington—one of a series of Churches built in the North and North-Eastern suburbs from the designs of Mr. Francis Dollman, and all of them exhibiting much genius and power, not without considerable originality. But to return to St. August-

\* A paper recently read before the Toynbee Architectural Society.

† The Tower forms the chancel on the ground-plan, a short sanctuary projecting beyond.

\* An elaborate and costly reredos is now in course of erection at St. Alban's.



tine's, Haggerston. This Church is one of a group in the same district, all lying so close together that from the tower of one the rest is clearly seen, all from the hand of the same Architect, and all exceptionally grand specimens of town Churches, in which the characteristics betrayed are dignity and repose, a decided penchant for Early French detail, a tendency at times to abnormal outlines; simplicity of material; absence of elaborate detail—in short, all those features so essential in Churches built for a stately ritual, and planted in poor and thickly-populated districts.\* The Architect of this striking group was Mr. James Brooks, and of them it is not too much to say they are the most remarkable erected in London under the "inventive" phase of the Revival. Their names are: St. Michael, Shoreditch (Mark Street, Finsbury), finished in 1865; St. Saviour, Hoxton, near the Rosemary Branch Bridge (completed 1866); St. Chad, Nichol Square, Hackney Road, and St. Columba, Kingsland Road, both consecrated in 1869. To this group may be added St. Andrew, Plaistow, which followed a year later. I should much like to enter into a detailed account of these noble Churches, but as I still have a deal of ground to get over, their leading features must be sketched as briefly as possible. St. Michael's, Shoreditch, is a most stately Church, very lofty and very long, but unfortunately so hemmed in by tall model lodging-houses that no really good general view is obtainable; but the east end, seen from the north, tells to great advantage, as does the grand mass of roof, which here, as well as in all Mr. Brooks' Churches, is planned with the greatest and most Artistic ability

#### WORKS OF MR. JAS. BROOKS, 1860-1870.

The small octagonal spirelet on the gable between the nave and the chancel is both charming and appropriate, supplying, *pro tanto*, the want of a tower and spire. The fine group of buildings to the west is the Hospital of St. Mary of the Cross, the joint work of Brooks and Seddon. In St. Saviour's, Hoxton, we have a lofty first-pointed building, yellow brick outside and red within, consisting of a clerestoried nave and chancel contained under one continuous roof, lighted by tall lancets, and terminating in a very bold semi-circular apse. The site was unfortunately cramped, but the Church is well placed, and towers grandly above the mean houses of the vicinity. Undeniably imposing is the west end, with its large plate-traceried window, recalling the "Dean's Eye" in the north transept of Lincoln Cathedral. St. Chad's, Haggerston, is built of red brick throughout, with, of course, stone for the dressing, and is cruciform in plan, with an apsidal chancel, a chancel chapel also apsidal, transept and nave, with a lean-to western narthex. The four nobly-planned roofs, meeting at a simple but effective slate spirelet, impart an air of great majesty to the pile, viewed from the north-east. The transepts do not project beyond the aisles, but this is no detriment to the general effect. The vaulting of the choir and the side chapel in red brick with stone ribs is undoubtedly a masterpiece of genius. St. Columba's is also cruciform. Here, a low unfinished tower rises at the crux which, as well as the short square-ended sanctuary and transepts, is groined in red brick. Owing to its great height, length, and unencumbered area the interior of St. Columba's, Kingsland Road, is most impressive on first entering. At St. Chad's the piers are circular ones, very short and thick, with, as yet, uncarved capitals; at St. Columba's they are taller and composed of a cylinder, round which four slender shafts are disposed. Here, again, much of the carving is *en bloc*, but a beginning of carving is, I am glad to see, being made. Other features of this remarkable Church are the huge plate-traceried windows of two simple lancets and a circle, lighting the transepts and clerestory, as at St. Chad's; the open arcade above the arch opening into the north-west transept; the bold fenestration of the west end by a

double tier of lancets; the narrow aisles spanned by half-arches of brick at the interval of each bay; and the dignified flights of steps leading from the chancel to the sanctuary. The name of Mr. Brooks, the Architect of this fine group of Churches, had been brought prominently before the Architectural public in 1861, by the extremely clever manner in which he had remodelled the Parish Church of St. Mary's, Haggerston, a specimen of the "Commissioners' Gothic," with a laughable tower, concerning which all sorts of absurd tales were afloat at the period of its erection in 1828. Although these remarkable Churches of Mr. Brooks do not show a thorough conversion on his part to the principles of Continental Gothic, yet they have a very un-English look. Indeed, many of the details are reminiscent of Churches in that enchanted ground to the ecclesiologist—the North-Eastern part of France—I mean the Valley of the Oise between Beauvais and Paris; round about Soissons, Châlons-sur-Marne and their vicinity. Having occasion lately to revisit St. Columba's, I was much struck with the similarity between the arrangement of its east end and that of the Church of St. Honorine, at Gravelle, near Havre; though, doubtless, it will recall to some the same part of St. Cross at Winchester.

#### INTRODUCTION OF A FOREIGN ELEMENT.

This introduction of a foreign element into the plans and details of many an English Church before the "fifties" were very far advanced, forms a very important sub-division in the second phase of the Revival. In the hands of men like Scott, Street, Brooks, Bodley, Burges, and Pearson, who were sure of their tools, this was all very well, but, like everything else, it was carried to excess, and in unskilful hands many of the Churches in which a foreign type of Gothic was introduced became rampantly extravagant, and in some instances quite grotesque. Several causes led to this infusion of Continental Architecture with our own, and these I will sketch as concisely as I can. First, the publication of Rev. Benjamin Webb's "Continental Ecclesiology," of Ruskin's "Stones of Venice" and the "Seven Lamps of Architecture," of Street's "Brick and Marble of North Italy," and of Viollet Le Duc's exhaustive "Dictionnaire Raisonné." Secondly, the competition of 1855 open to the Architects of Europe for the erection of a Church at Lille,\* in which, by the way, two English Architects, Clutton and Burges, carried off the first prize; Mr. Street the second. Thirdly, the increased facilities for foreign travel. Nothing can be more delightful or instructive than a tour through those countries which contain the best examples of Church Architecture. It is no wonder, therefore, that so many Architects, forsaking the glories of Beverley, Lincoln, York, Wells, Ely, and Gloucester, should have returned with sketch-books enriched and their minds stored with many a charming detail from Chartres, Soissons, Dijon or Auxerre; Parma, Modena or Ferrara; Münster, Soest, Lübeck or Erfurt, which they sought to engraft upon our insular forms.

#### TWO GRACEFUL WORKS OF SIR G. G. SCOTT.

This study of foreign Gothic, due to the causes I have just enumerated, had sensibly affected our national Architecture as early as 1854, when Sir G. G. Scott drew the plans for his beautiful Church of St. Andrew, Ashley Place, Westminster, and a little later for a larger Church of similar character, viz., St. Mary, Stoke Newington. Although these two buildings are not distinctly English in their character, there is nothing in either of them that suggests a thorough conversion on the part of their Architect to the principles of Continental Gothic. It was at first hoped that St. Andrew's, Westminster, might be erected on a scale more worthy of its position, but, though munificently supported in various quarters, the general contributions, much to the regret of those who saw the exuberance and fancy characterising the original drawings—were so scanty as to neces-

sitate the adoption of a comparatively humble design. But while sacrificing richness and magnificence, Scott was enabled to attain a certain degree of boldness and novelty by adopting the half-Belgian, half-German idea of a nave and aisles of the same height, separated by a row of tall cylindrical pillars with boldly-foliaged caps, like those in the Cathedral of Châlons-sur-Marne, a city in which many delightful hours have been spent. Tall three-light windows placed under separate gables, and a slender flèche at the junction of the nave and choir, succeeded in imparting to the pile an air of great dignity, dwarfed, however, by the hideous block of houses facing the Church in Ashley Place.\* Inside there is no rival to distract attention from its positive proportions; accordingly the Church pleases by its breadth and repose. There are few London Churches in which a profusion of bright and graceful colours would be more in place. The circular pillars and luxuriant capitals are a peculiarly advantageous field for the display of pronounced hues, while the apse—which contains three lovely specimens of Clayton and Bell's work in stained glass—admits of the richest polychrome. Some *instrumenta* have been added within the last ten years from the designs of Mr. J. Oldrid Scott. In St. Mary's, Stoke Newington, Scott carried out the same idea on a larger scale, with the addition of transepts and a western steeple.† The great beauty of proportion, elegance of detail, and extreme magnitude of Stoke Newington Church places its interior among the most noble and imposing of the modern Churches in the kingdom. Few have so graceful a nave, while the chancel, terminating in a three-sided apse—in which, by the way, as at St. Andrew's, we desiderate a groin—is inferior to none in richness of carved ornament; in this respect it forms a most striking contrast to Butterfield's severe St. Matthias, in the same parish. The Church contains a great quantity of painted glass, but little of it rises above mediocrity. Clayton and Bell's windows in the sanctuary derive their excellent effect from uniformity of design less than from any peculiar grace of grouping or colour. But I must call your attention more particularly to the small trefoil lancets lighting the clerestory of the transepts, also by Clayton and Bell. Here the figures of the Evangelists stand out in bright tinctures against a background of grisaille. This glass, superintended by Sir G. G. Scott himself, is of the kind he wished to see adopted throughout the Church.

#### A THOROUGHLY UN-ENGLISH CHURCH.

But no two Churches revolted from English precedent more entirely than those I am about briefly to introduce to your notice for a few moments. In St. James-the-Less, Upper Garden Street, Westminster, the late Mr. Street was enabled—aided by splendid individual munificence—to rear a structure most sumptuous in its materials, and thoroughly North Italian in its character. Built just after the Architect had uttered his love for North Italian Art in his "Brick and Marble,"‡ it may, in some respects, be compared with Butterfield's equally sumptuous Church in Margaret Street, with this difference, viz., that whereas in All Saints the Architect has clung tenaciously to English detail, Street, at St. James's, cast aside insular traditions altogether. Time does not permit me to descant upon the many beautiful points of detail in St. James-the-Less, but I cannot leave it without noticing the vaulted chancel, a perfect triumph of the modern Architect, and the detached campanile, a lovely creation, lifting its head, *sicut lilium excelsum*, above the mean houses of the vicinity.

(To be continued.)

\* The general features of this elegant Church recall very vividly the lofty unclerestoried structure raised by the Preaching Orders in various German cities.

† Left unfinished at the time of the Church's consecration in 1858, but completed from the designs of Mr. J. Oldrid Scott seven years ago.

‡ After his Essays in North Italian Pointed, as illustrated by this Church, and also that of St. Philip and James, Oxford, Mr. Street returned to English types, as seen in the lovely Church of Taddington, Gloucestershire.

\* Occupying the site of humble mission buildings, these stately and abnormal Churches owe their erection in a great measure to the untiring exertions of that single-hearted layman Robert Brett.

\* Notre Dame de la Treille, of which only the lower part of the choir and its substructure is at present a fait accompli. A Lillois Architect was ultimately chosen.



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

April 7th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

AN interesting experiment is about to be tried by the Vestry of St. Leonard's, Shoreditch. Their new works for the destruction of the parish dust and refuse are to be specially designed to generate electricity for light and power. It is also arranged that baths and washhouses shall also be served by these same dust-destroying furnaces, that a public library shall be heated, and that the parish drains shall to some extent be ventilated. The cost is estimated at about £63,000. In this new Shoreditch establishment will be included a system of thermal storage, as well as an electrical reserve by means of accumulators. These are necessitated by the immense fluctuations in the demand that must necessarily be made by a large parish like Shoreditch. While business is in full swing after dark there will be twenty times as much demand for electric current, both for light and for motive power than there will be at other periods in the twenty-four hours, but of course it is impracticable to vary the generation of furnace heat by the burning of refuse to anything like this extent. It is arranged, therefore, that furnaces and engines shall be kept steadily going day and night all the year round, thus producing a steam pressure of about 100,000lb. With the appliances for storing heat and current it is calculated that the utmost extremes will be amply provided for.

THE foundation stone of the Museum of Egyptian Antiquities, which is to be erected to the north of the Kasr-el-Nil Barracks, Cairo, was laid on the 31st ult. The Minister of Public Works stated that two museums were being constructed, one for ancient monuments and the other for Arabic art. The Khedive, in the course of his speech, said that for a century scientists had been occupied in collecting monuments relating to the ancient Egyptians, and now the Government had decided upon building a resting-place for these relics. He was delighted to lay the foundation stone in the presence of the representatives of civilisation, science, and Art, and was happy to continue the work which had been commenced by his predecessors. The site of the museum covers 13,000 metres, and the cost of the edifice will be £110,000. This work is to be completed within twenty-six months from designs prepared by a French Architect.

At the Central School of Arts, Regent Street, there was recently opened an exhibition of selected works from the studies submitted in competition for the Art Scholarships of the London County Council, held for the encouragement of Art in handicrafts. The County Council offer 150 scholarships, varying in value from £20 for three years to £5 for two years, with free tuition at any approved School of Art in the Metropolis. From forty schools or more students have entered the competitions. The object of the County Council is not to make Academicians, but to train builders and decorators, carvers, glass stainers, and metal-workers, who will make our towns attractive

rather than fill our picture galleries. Most of the students are already engaged in these crafts by day. In the evening they attend classes in the cause of Art and Crafts. Some interesting specimens of sgraffito, otherwise scratching work, are shown by plasterer students from Battersea. Two layers of plaster, one red, the other yellow, are laid on, and while the yellow is still moist it is scratched away on the lines of the design. Gesso work, which has been obsolete for many years, has been revived, and there are some interesting specimens of it. It is a cross between painting and modelling. A mixture of whitening and glue is painted on with a brush and sets rapidly. Most of the pictorial designs are archaic, and on the flat plane, but there is modern humour in a series of horse sketches.

PROPERTY or building land in the vicinity of Newcastle is very valuable at the present time. A resident in the West End of Newcastle, who lives in his own house, recently put up his house for sale, thinking that he would rent a larger one, as he needed more accommodation. He made enquires in various parts for such a house as he wanted, but was unable to find one vacant, and ultimately was obliged to withdraw his own house from the market so that he might still have a sheltering roof under which to rest. At a certain country village not many miles out of the city, house accommodation is equally scarce, and the agent of the owner of considerable land in the village and its vicinity declined to entertain any proposals for building unless it was certain that the outlay would return a minimum interest of 7½ per cent. On the new building estate at West Jesmond many houses that were being built as a speculation were snapped up by eager purchasers before the foundations were completed.

CONTROVERSY as to the completion of South Kensington Museum still rages. A correspondent writes to the Times as follows:—"On Friday last Mr. Lough asked the Chancellor of the Exchequer in the House of Commons whether the Government would bring in a Bill, similar to the Military Works (Loan) Bill, for completing the South Kensington Museum by means of a loan repayable in thirty years. The reply was in the negative. Let us see what this means. The estimate of 1891 for completing the Museum was £400,000. Taking interest and sinking fund into account, this would mean about £20,000 a year—i.e., a one-thousandth part of this year's Navy Estimates—for thirty years. The excuse given—the proposed erection of new public offices in London—might be accepted but for the facts (1) that there always has been and always will be some plausible pretext why this particular project should be postponed; (2) that the proposed public offices will take many years to build; (3) that there is no hint that the South Kensington Museum will even then be taken in hand; (4) that the national finances are in a flourishing condition—if rumour is correct, the surplus which will at the end of this month go to reduce the National Debt would complete the Museum three times over. Moreover, it is not as if the entire Museum had to be built. Half of it is there already, as anyone may see for themselves who will go and compare the very interesting model of Major-General Scott's original design (which is to be found near the main staircase there) with the buildings already erected; in fact, a great deal might be done with £200,000, leaving the final completion for a later date if necessary. I do not think that those who merely come up to town for a part of the year, and who look upon London, perhaps, as a necessary evil and a wilderness of bricks and mortar, realise that those for whom London is home, and who take a keen interest and pride in the improvement and beautifying of the Metropolis, may resent a disgraceful eyesore like that at South Kensington just as deeply as the former would resent, let us say, the erection of a South Kensington Museum in its present form in full view of their drawing-room windows in the country."

THE Royal Society of British Artists' Exhibition of Paintings and Drawings, which opened last week at the Suffolk Street Galleries, Pall Mall, is characterised by its customary tolerance of the old forms and methods side by side with the eccentricities and experiments of a later growth. Here and there the influence of Mr. Whistler's reign over the British Artists still faintly lingers, and with this there is an occasional suggestion of the modern Dutch painters, as well as examples of the various kinds of impressionism and naturalism that gave birth to the New English Art Club. Amongst the larger works in the central room, a cottage interior by Mr. R. Gemmell Hutchinson, entitled "When Winds are Howling," tells the old, sad story of anxious watchers while the storm rages at sea, and there is but scant hope for the fisherman's return. Another pathetic subject on the same wall is "A Mother's Prayer," by Mr. Greville Morris, representing a peasant woman at the bedside of her dying baby. Above a picture of the "Baptistry of Siena Cathedral," from the untiring hand of the President, Mr. Wyke Bayliss, hangs an effective study of waves, "Evening Grey," by Mr. Ayerst Ingram; and a fine piece of portrait painting is a three-quarter length of "Amy, daughter of Walter Scarborough," by Mr. G. Hillyard Swinstead. Mr. Edmund Fuller renders the movement of sea and the warmth of reflected light, as well as the spaciousness of sky, in his painting of a steamer lending a friendly hand to a disabled vessel, "In Tow," and in a more pensive, imaginative manner is Mr. Arthur Meade's "Early Twilight," pervaded by a tone of ethereal blue. A pleasant air of tranquility will be found in Mr. Noble Barlow's "Dorset Meadows." In this same gallery are several impressions of light and colour which make one look below the line or beyond some of the more prominent canvasses.

A CONTEMPORARY asks why the City should not have an Art gallery worthy of the Corporation? The nucleus of a gallery exists already. What is needed is a building for its reception and for the adequate housing of future acquisitions which would certainly come in due course by gift or bequest. Here, for example, is the munificent offer of Mr. Henry Clarke, who has promised to present a picture of the value of one thousand guineas illustrative of the most striking incident in connection with Her Majesty's forthcoming visit to the City. Why should the City not recognise the unique event of the Diamond Jubilee by taking another step in advance, and providing a suitable building, say, on the Embankment, to receive the pictures in existence and those which would quickly be forthcoming?

OLD property in Carlisle is just now coming down on all sides. A block of quaint-looking shop property near the Town Hall, which yielded a rental of several hundred pounds a year to the Corporation, has just been demolished in order that the area might be laid to the Market Place, which now affords an uninterrupted view of the ancient Guild Hall as well as the Town Hall, and has improved the approaches to two of the principal streets in the city. Bit by bit old buildings in the Market Place have been removed, but the work of improvement has necessarily been very slow. The old Commercial News Room, long defunct, had its habitat in the block now demolished. The Shambles at one time occupied a site in the Market Place, and, being formed of wood and covered with slates, had a grotesque and antique appearance. They were bought by the Corporation and removed; and another important building, the city guardhouse, was similarly dealt with long afterwards, but within the memory of the people now living. When the latter was demolished, "it was hoped that the old buildings adjoining" would soon be swept away; and this has now been done, leaving a very wide area in the heart of the city.

AN exhibition of Scottish Art, in the Scottish Gallery, 127A, George Street, Edinburgh, opened a few days ago. The collection comprises nearly two hundred pictures representative of Scottish Artists recently dead,



examples of the best of living Artists, and also of the younger Artists who are already securing a name for themselves as painters in one or other of the departments. Among the pictures of those now dead, perhaps the most attractive is that of G. Paul Chalmers, entitled "Running Water," a scene on the Esk near Edzell. It is a large canvas, showing in the foreground a reach of broken water remarkably true in colouring and feeling after movement, and above it, still water overshadowed by a group of trees. There is a capital example of Robert Herdman, R.S.A., in "A Scottish Rose," representing a young woman in pale green short gown and red skirt looking pensive, and holding a rose in her hand. "The Lawyer and Hudibras" is a capital example by Sir William Fettes Douglas, the late President of the R.S.A. Horatio McCulloch is represented by an exquisite little picture entitled "Cloud-land and Moorland." Close beside it may be mentioned Orchardson's "Testing the Blade," a bold and strong example of composition and colouring. There are two charming works by M'Taggart in seascapes with children, entitled "Mist Rising in Machrihanish Bay" and "A Silken Sea," a scene at the south end of the Mull of Kintyre. Hugh Cameron, R.S.A., has several examples remarkable for their harmony of colour. Robert McGregor, R.S.A., has two French scenes which in refinement and scheme of grouping indicate an improvement on his previous work; and there are also noteworthy pictures by J. Lawton Wingate, Erskine Nicol, G. W. Johnstone, John Smart, &c.

A DISCOVERY which has taken place in Paris apparently throws some light on the "Parc aux Cerfs" of Louis XV. of France, the site of which has up to the present been doubtful. A Paris Architect, named Triboulet, who is superintending the construction of houses in Rue de la Pepinière, which formerly formed a portion of the Royal domains, has discovered a trench  $7\frac{1}{2}$  yards long and 5 yards wide, and of a depth at present unknown. This trench is filled with the skeletons of deer, which have been packed as methodically and closely as sardines in a tin, the head of each alternate skeleton being placed towards the tail of the next. The horns have been removed, but with that exception the skeletons are perfect. Each row is separated with a layer of lime. Perfect casts of the heads are to be found in this lime layer. This curious discovery is now being investigated by the Archæologists of Paris.

WE are informed that the council of the Institution of Naval Architects has arranged that that body shall celebrate the Diamond Jubilee by holding an International Congress of Naval Architects and Marine Engineers, at the Imperial Institute, in the course of the summer. The Prince of Wales has consented to act as honorary president of the Congress, and will deliver a speech on the opening day. Invitations to take part in the gathering have been sent to the Ministers of Marine of all the principal maritime powers of the world, to the French Association Technique Maritime, and to the American Society of Naval Architects and Marine Engineers, which are institutions having kindred objects to our own. The holding of this Congress will give the members a fitting opportunity for welcoming to our country the many friends from abroad who, during the last two years, have shown such marked hospitality, and done so much for the advancement of the institution. The exact date is not yet fixed, but the meetings will probably take place early in July.

It is not generally known that the oldest mummy in the world is preserved in the Museum of the College of Surgeons, Lincoln's Inn-fields. This mummy is supposed to represent the mortal remains of a man named Ra-hotep, who lived in the days of the Pyramid builders, about 3600 B.C., and whose tomb is still to be seen near the Pyramid of Meidoum. The outlines of the eyes, mouth, and ears have been traced in black paint or ink on the outside covering of the face, while the nose can be clearly traced through the bandage.

THE monument erected to the memory of the late Bishop Atlay in the north transept of Hereford Cathedral has been unveiled by the Bishop of Gloucester and Bristol. The monument cost £800. It consists of a recumbent life-size figure of Bishop Atlay, in carrara marble, laid upon a cenotaph of Belgian marble, the height of the whole being 4ft. 9in. It rests on a base of Belgian black marble, upon which is a plinth of Belgian rouge royal marble. The cenotaph, or body of the structure, is of cream coloured Belgian marble, shaped into panels, with little columns of rouge marble. A mitre is carved on the west end panel of the cenotaph, and on the east panel a shield presenting the Atlay arms and the arms of the see of Hereford impaled. In the north transept are also the tombs of Bishop Cantelupe and Bishop Aquablanca.

AN interesting discovery has just been made at Hartshill, on the great Roman road running from London to Chester. The Romans established, at intervals, numerous statistics. One such station, Manduessedum, fell within the county of Warwick, and is now occupied by the village of Mancetter. Since 1773 there have been numerous discoveries indicative of the Roman occupation. About four years ago a Roman kiln was discovered, but the importance of the discovery was not realised until too late, and the work was too much destroyed to be of value or allow of a systematic examination. A few days ago, on the other side of the roadway, at what was known as the Caldecote Quarries, a second kiln was found, and in the uncovering very little damage was done. Other indications led to a careful search, and a third kiln, in a wonderful state of preservation, was unearthed. A quantity of pottery remains has been found, chiefly of the dark-blue slate colour, including a perfect specimen of a cinerary urn, about 5in. high. The kilns, which were discovered about 16in. below the turf, are oval in form, and about 48in. by 60in.

AN American contemporary informs us that the plans of Mr. S. S. Beman, Architect, of Chicago, for a silver palace for the Trans-mississippi Exposition, have been accepted. This palace is to be the most imposing feature of the Exposition, and the central figure in a portion of the grounds to be called El Dorado. The building is to be 400ft. square, surmounted with mammoth ornamental towers, and the entire structure will be covered with rolled silver, which will reflect the dazzling glories of the rising and setting sun. The silver to be used in its external covering will be contributed by the miners of the Great West. It will be arranged in the form of a square, with open arcades and loggias at each story, similar to the Venetian palace. The corners will be adorned with octagonal towers, terminating with spires and pinnacles covered with the shining metal.

MAJOR MARINDIN has officially inspected the Highgate Hill Cable Tramway on behalf of the Board of Trade. The original cost of constructing this line, which was the first cable tramway laid down in England, was £60,000. It is now four years since the cars ceased running, but it is thought that the venture, on which £4000 has just been spent, will prove financially successful, seeing that vast numbers of persons constantly visit Waterlow Park, near the summit of the hill, in addition to the ordinary residents who have to ascend the steep incline. The large engines in the dépôt at the top of the hill have been thoroughly overhauled, and a new steel cable, the cost of which was over £200, has been put down.

FOR Diamond Jubilee Day a grand stand will, by the Queen's directions, be erected inside the great gates at Buckingham Palace for members of the Household and their friends. Stands will also be erected by the Office of Works on each side of the central entrance of the National Gallery in Trafalgar Square, and on the terrace opposite the Gallery. In building these stands at the National Gallery

and on Trafalgar Square the Office of Works is following the precedent set when the grand stand opposite the Imperial Institute was provided to enable privileged persons to see Her Majesty going to open that building. St. James's Street will be elaborately decorated. Some of the West End houses, in view of the demand there will be for workmen later on, have arranged to get their proposed seats and balconies ready so that when the Jubilee week arrives a couple of hours may suffice to put the timbers together. Preliminary work of the kind was in progress last week opposite Marlborough House, where a whole frontage was fitted up with tiers of seats. Each board was then marked for its place and afterwards stored away.

IN memory of the Rev. Canon Humphrey Cholmeley, a memorial window has just been unveiled and presented to the Church of St. Mary and All Saints by Sir Edward Lawson. The window—which is an admirable piece of Artistic work, designed and carried out by Mr. Comper—symbolises in its central light the Canon's connection with Magdalen College, Oxford, the property of which the living became in 1705. The left-hand light indicates his family connection with the county of Lincoln, and the right-hand light suggests Canon Cholmeley's association with the diocese of Salisbury, he having been made Prebendary of Bedminster and Redcliffe in Salisbury Cathedral in 1882.

THE German national monument to William I., unveiled by the Emperor on the hundredth anniversary of the first Kaiser's birth, stands on the site of the old Schloss of Liberty, and faces the Royal Castle. It rises from a base of polished red Swedish granite, at the four corners of which are bronze lions in the act of springing. The colossal equestrian statue of the Emperor is also of bronze. Holding the bridle, and with a palm leaf in her hand, is the figure of Peace, the whole design being exceedingly dignified and imposing. With the portico behind it, it cost 4,000,000 marks.

HERE MAETHAUSIUS, Technical Attache to the German Embassy in London, in an article on "William Morris and the Fifth Exhibition of Industrial Art," says: "The exhibition shows the Art industry in England at a stage which can only be regarded as the result of decades of earnest endeavour. Great progress has also been made during the last twenty years in other countries, and the need has made itself universally felt of arresting the grievous decline of German handicraft which set in with the classical revolution at the end of last century, and which, by the middle of the present century, had become intolerable. A return to old traditions has been eagerly sought everywhere. What, however, distinguishes England from other countries is the new and independent spirit she displays. Absolutely novel forms have been found, and the resulting ornamentation shows real creative power. England has entered on new and successful paths, while we others have hitherto contented ourselves with copying our old masters."

AFROSOS of the recent opening of the celebrated Borgia Apartments in the Vatican, with the beautiful frescoes by Pinturicchio, an account of which appears in another column, it may be interesting to mention that there is a model of a portion of one of the "stanze" in the South Kensington Museum. In 1885 the Museum authorities obtained permission to have a model made of a portion of one of the rooms, and in 1888 it was completed and forwarded to South Kensington. The delicate relief decoration of the groins and bands was executed in the model by Signor Adolfo Consolani, and the copies of the frescoes were painted by Count Lemmo Rossi Scotti of Perugia. The frescoes represented in the model are St. Catherine before the Emperor Maximin, the Escape of St. Barbara, and the Visit of St. Paul the Hermit to St. Anthony. The subjects of the paintings on the ceiling are scenes in the story of Osiris. It is believed that the construction of this model aroused



great interest in this suite of rooms at Rome, with the fortunate result that his Holiness Pope Leo XIII. ordered the books belonging to the Vatican library, until recently kept on shelves placed against the walls of the "Appartamento" to be removed, and arrangements made so that the public might have access, a privilege until now exceedingly difficult to obtain.

THE village of St. Pierre Livron, in the Lot, has been destroyed by a landslip. It was a picturesque place dear to painters. The Church was of a great age. It stood on a cliff rising sheer from the River Bonette, with the village clustering round it. There was a hollow on the other side of the village where rain used to lodge. What with the infiltration of water from above, and the wearing action of the river below the cliff, the whole site of the village with its cemetery and some back land got detached. The landslip, however, has been gradual and it still goes on. The latest news is that the Church has disappeared. The Bonette, checked in its force by the fall of the village, is flooding the upper part of the valley it flows through.

A DISPUTE has been pending in the High Court of Justice for some time between Messrs. Murdoch and Cameron, Limited, of London and Glasgow, engineers and contractors for public works, and the Corporation of Southend-on-Sea, over the erection of a promenade pier there, the contract price of which is about £20,000, and in consequence work has been suspended during the last five or six weeks. Sir William Arrol, M.P., with Mr. John Waugh, C.E., and Mr. William Jaffrey, having visited and inspected the pier and reported favourably as to the state of the work and the probability of the pier being ready for the ensuing season's traffic, terms have been arranged between the corporation and the contractors, who are to receive £2000 bonus in addition to their original contract price. The action has been taken out of Court, and work on the pier has been resumed under the direction of Mr. John Wolfe Barry, the newly appointed engineer for the Corporation.

An interesting report has just been published by Professor L. de Launay, upon the ruins of the Great Zimbabwe in South Africa. These ruins were first discovered by the German explorer Carl Mauch, and since the publication of the results of his exploration they have attracted much attention from archaeologists and scientists, who believe that they afford a proof of an ancient Phœnician occupation in these remote lands. The principal structure among these ruins is the Great Zimbabwe, which rests upon a granitic plain 3000ft. in altitude, near the eastern banks of the Sabia, and about twenty-five miles from Fort Victoria. This structure consists of two distinct edifices. To the north there is a sort of fortress, or acropolis, and to the south a wide elliptical enclosure, surrounded by two conical towers. The acropolis is upon a rock, at the summit of which stand blocks of stone from forty to fifty feet, and pillars of clay about 10ft. in height, all of which are covered with curious geometrical designs and conventional figures of birds. Excavations by M. de Launay brought to light the shapeless remains of pottery and vessels, one of the latter bears a design representing a Hottentot landing three zebras and a hippopotamus. More important was the discovery of small clay crucibles that have been used many centuries ago, for the smelting of gold. All of these contained particles of the precious metal, as well as some very ancient tools.

It is high time the statues and monuments that occupy places of honour in the streets of the City were cleansed, if they are to be in readiness for the Jubilee. A spasmodic cleansing, to be followed by a repetition of the neglect that has for so long been the order of the day, will, however, be of but little advantage. What is needed is a periodical spring cleaning that will rescue them from the uncared-for condition in which so many of them now are.

#### THE COUNTY COUNCIL AND ITS WORKS DEPARTMENT.

THE special committee appointed by the London County Council in November last to inquire into "the management and financial position of the Works Department since its inception and as to its future prospects" presented its report to the Council at its meeting yesterday. In the report the committee first gives an extract from the statement of Mr. Waterhouse, one of the assessors, who gave close attention to the best means of avoiding in the future any recurrence of the falsification of accounts which led to the inquiry. Mr. Waterhouse says:—"The total amount of the fabricated entries, as stated by the comptroller in his report, amounted to £7229 11s. 10d. None of the cash outlay of the department, except the petty cash and the wages, the payment of which is entrusted to guaranteed pay clerks, is in the hands of officers of the Works Department, and these entries had no reference to any misappropriation of money, nor did they conceal any action whereby any employé of the department was pecuniarily advantaged. They resulted simply in a false statement as to the cost of various works, the apparent cost of some being decreased by amounts which were included in the costs of others. It is for me to point out any defects in the office arrangements which rendered the fabrication of these vouchers and entries possible, and prevented their immediate detection. It may be well, however, here to refer to the evidence of Mr. Fullwood. The allegations with regard to false entries in the books contained in his letter to Mr. White of November 21st, 1896, were, in cross-examination, found to relate to some entries—of which he instanced two for amounts of £1 2s. 9d. and £1 3s. 1d. occurring in the month of June, 1893—in the books of his own department of gas-fitting, in respect of foremen's time, which he said was evidently false, inasmuch as no foremen were employed. I find that these entries were posted from the time-sheets in the same way as all other wages, and that the amount represented a proportion of the wages of the foreman engaged in generally superintending the work at some lodging houses of which some gasfittings under Mr. Fullwood formed some part. There does not appear to have been in this case any attempt or intention to misrepresent facts." On this subject the committee had nothing to add to the remarks in Mr. Waterhouse's report. It concurred with the recommendation of both the assessors—that, with a view to

#### PREVENTING SIMILAR PRACTICES

in the future, the book-keeper should be placed in a position of independence with regard to the manager. After a reference to the inception of the Department, which was connected with what might be called the labour policy of the Council, the committee said that it had carefully reviewed the operations of the Works Committee in comparison with the practice of provincial municipalities and railway companies, and while it seemed probable that the execution of works without the intervention of a contractor prevailed in regard to municipal bodies and railway companies to a degree much larger than is generally supposed, the tendency to dispense with or even to abolish the contracting system altogether has been much stronger in the London County Council than in any case that has come under its notice. The department was formed in circumstances of great exigency and disadvantage, and, while there had been considerable conflict as to the cost of this and that particular work, it thinks it safer to form an opinion upon the general operations, and upon the statements of all parties, both opponents and admirers of the department, than to enter upon any minute examination of the outcome of each particular operation. The experience of the Council, the practice of other municipal bodies, of railway companies, and of large manufacturers and estate proprietors, had led to a firm conviction that some definite organisation for the direct employment of labour and the direct execution of public works by

the Council, under the superintendence of its own officers, was desirable and beneficial. After stating that inquiries made of the larger corporations tended to show that work of a structural character was carried out, as a rule, by contractors, the committee said that in the business of the Council, except for machinery or wrought-iron or steel work, the intervention of a contractor had been practically discarded in the engineering department, and the evidence received was not unfavourable to a continuance of that system. The cases in which the department had executed works most largely within the respective estimates had been of that character. There was much more contention as to the dealing of the Department with

#### ARCHITECTURAL CONSTRUCTION,

but there was no substantial remarkable difference of opinion as to the general quality and character of the work. Upon this subject the committee said: "There has been excess of cost, but we are unable to say that in the aggregate this would not have been far greater had the Council been left to deal only with those contractors who would accept their terms and conditions of contract. Latterly, with a more settled plan of operation, the Works Department has been more successful, and in regard to recent works, even of Architectural character, the good quality has been maintained, and the cost does not appear to have been in excess of that which would have been paid to a contractor. A period of at least two years was necessary for the economic arrangement of such a new department. In Architectural work there is not the same risk to be insured against as in the underground operations of engineering work; there is not the same uncertainty with regard to estimates, nor the same margin of possible profit. It is unlikely that Architectural buildings will, owing to the numerous details and intricacies, be executed by a Works Department at less than the prime cost to a contractor; but, on the whole, it appears that the Works Department can execute Architectural works of equal quality, without loss, and with no greater charge than the Council would pay to contractors. This inquiry has not, however, led us to believe that the full average of builders' profit upon Architectural work can be obtained by the direct employment of labour, though there can be no doubt that the power of the employer to do the work himself is a valuable check upon builders who might otherwise think the employer was wholly in their hands." The committee concurred in the general opinion of witnesses that there should be

#### NO UNIVERSAL EXCLUSION OF THE CONTRACTOR.

With reference to the form of contract which states that contractors shall pay the wages "in practice obtained by the various trade unions in London," it considered that the objection of contractors to those words can be removed by inserting a mention of the unions of employers where such exist, and the extent to which such exist, together with the trade unions which are exclusively organisations of workmen. The committee did not see its way to recommending any alteration of the standing orders, such as would be required to admit of competition in tendering between the department and contractors. Nor did it recommend the making of a selected list of contractors or the abandonment of the customary mode of open tendering. It regarded the employment of contractors as beneficial, if considered only as strengthening the resources of the Council for the undertaking of public works and keeping the officials concerned in the preparation of estimates and supervision of works closely in touch with the prices of work and of materials. Generally, as to the

#### FUTURE OF THE DEPARTMENT,

the Committee stated:—"No witness that has appeared before us has advocated the abolition of the Works Department. On the contrary, even those who have criticised the work of that Department most keenly have, at the same time, advised its retention. One witness stated that he did not propose to abolish



the Works Department, that he thought the Department was a very useful provision for the Council to have at its disposal; that he thought there were a large number of works that could be done quite as well by the Council as by a contractor, but that he was not certain that building works could be included in that list. Another witness said that he would not contemplate abolishing the Works Department as a Department, and that in his opinion it was better that it should be a separate department. With reference, however, to the Works Committee there has appeared a general concurrence of opinion as to its unsatisfactory constitution. Under the standing order of the Council this committee consists of from sixteen to twenty members with three *ex-officio* members. The subject appears in the evidence in many different forms, and in view of its importance we have given it the fullest possible consideration. Our conclusion is that it is for many reasons expedient that fresh arrangements should be made. After a brief reference to some of the proposed alterations, the committee concluded by stating that it had received a memorandum from four members of the committee which, under the special circumstances attending the appointment of the committee, it thought should be presented as an appendix. The following are the committee's recommendations:—

"(a) That in the opinion of the Council some definite organisation for the direct employment of labour and the direct execution of public works by the Council under the superintendence of its own officers is desirable and beneficial.

"(b) That a Works Board be substituted for the Works Committee, such board to be elected forthwith, one member to be nominated by and from each of the following committees: Finance, Asylums, Bridges, Fire Brigade, Highways, Improvements, Main Drainage, Parks, and Housing of the Working Classes; and that in future years the election of members of the board do take place at the meeting of these committees next to March 31.

"(c) That any committee desiring to propose to the Council the carrying out of any works without the intervention of a contractor shall, in the first instance, obtain an estimate from the proper officer and then refer such estimate to the Works Board for their consideration before reporting to the Council.

"(d) That the works manager shall, unless in any case otherwise ordered, carry into execution all works which the Council resolves to execute without the intervention of a contractor.

"(e) That when the Council wishes to execute any works without the intervention of a contractor the plans, specification, and estimate shall, unless otherwise ordered by the Council, be thereupon referred to the works manager.

"(f) That the works manager shall be responsible to the Works Board, and the Board shall report from time to time to the Council.

"(g) That this report be referred to the General Purposes Committee, and that it be an instruction to that committee to amend the Standing Orders in accordance with the foregoing recommendations.

"(h) That it be referred to the General Purposes Committee to make further amendment of the standing orders by the insertion of words coupling the unions of employers where such exist with the trade unions, in reference to the rates of wages and hours of labour.

"(i) That it be referred to the General Purposes Committee to make further amendment of the standing orders by omitting provisions giving powers to the clerk of the Council to direct examination of the books of anyone contracting with the Council for the execution of works, other than the time sheets or books, or wages sheets or books.

"(j) That the statement of Mr. Waterhouse be referred to the comptroller for report upon each and all of his suggestions with reference to the accounts, and that the comptroller's report be referred to the General Purposes Committee with a view to the adoption of Mr. Waterhouse's recommendations."

## Professional Items.

**BIRMINGHAM.**—A deputation from the Architectural Association has waited on the Lord Mayor, their object being to impress upon the municipal authorities the importance of the City Council taking power to itself under the Birmingham Churches Bill to prevent the replacement of Christ Church, should that building be removed, by any building unworthy of so important a site.

**BLAYDON.**—An important engineering work is being carried out just now in connection with the North-Eastern Railway at Blaydon. It involves the straightening of the line, which, for a considerable distance on either side of Blaydon Station, pursues an erratic course. The North-Eastern Railway Company some time ago resolved to have this work done, and plans were prepared by their engineer, Mr. Chas. Harrison, for the straightening of the line from a point a little to the east of Blaydon Burn to a point a little to the west of Stella Staith. The new line between these points is not exactly straight, but the curve is so gentle as to be almost unappreciable. The whole of the work is being carried out to the plans of Mr. Charles A. Harrison, whose resident engineer is Mr. C. M. Bengough, A.M.I.C.E., by Mr. H. M. Nowell, the well-known railway contractor, of Leeds, whose engineer on the work is Mr. T. E. Scalfie, A.M.I.C.E. The cost of the making of the quay wall, and of the extension, is £21,000.

**BRIGHTON.**—The Education Department has approved the plans of the School Board for the erection of a School for Afflicted Children, and for a new cooking school in Trafalgar Court and in the rear of York Place. It is proposed to add a south wing to the Higher Grade School in Pelham Street, the estimated cost of the building being £4000. The Education Department is to be asked to sanction the adaptation of the existing workshop at York Place and the covered space on the land to the south, recently agreed to be purchased by the Board, to the purposes of a centre for manual instruction in wood and iron, and the formation of a class-room for drawing and modelling. It is further proposed that a second centre for instruction in woodwork be formed in the covered play shed of the Ditchling Road school. The estimated cost of the alteration of the manual instruction centres is £450. At Queen's Park school it is proposed to enlarge the boys' and girls' departments and the infants' department, and to erect a school hall, the whole being estimated to cost £1600. There is also a proposition that a plot of land at the corner of Middle Street and Boyce's Street, together with the premises Nos. 29, 30, and 31, Middle Street, be purchased for the sum of £2400. If approved, it is proposed to utilise the land for the enlargement of the Middle Street Infants' School.

**CLECKHEATON.**—The opening of new Sunday schools which have just been built in connection with and contiguous to the United Methodist Free Church Central Chapel, at a cost of about £8000, including £1400 for the site, recently took place. The new buildings, erected from designs by Mr. R. Castle, of Cleckheaton, form, with the more massive structure of the chapel, a most imposing Architectural whole; and the schools themselves have probably few parallels in the provinces in extent, arrangement and equipment. The assembly-room is capable of seating 1000 persons, and the lecture hall about 150 persons; and, besides the library, bank-room, and sewing-room, there are five large and twelve smaller class-rooms. Beneath the assembly hall there is a tea-room, calculated to accommodate 400 persons. The premises are lighted by electricity.

**CORK.**—In connection with the manufacturing of bricks at Cork, two very important contracts have just been secured by two prominent Leeds firms. Quite recently the Cork Brick Manufacturing Company was formed for the purpose of erecting works near

Cork city, for the making of bricks, and Messrs. Thos. C. Fawcett and Company, Limited, a well-known engineering firm in Leeds, were declared the contractors for the supplying and erection of the necessary machinery and plant in the brick factory now in course of erection. Messrs. Fawcett have just begun the contract, and are pushing ahead rapidly with the work intrusted to them. The directors of this new company having invited tenders for a powerful road locomotive engine and six large waggons for the conveyance of bricks, the contract was secured by Messrs. J. Fowler and Company, of Leeds, who have undertaken to have this engine and the waggons delivered to the owners at Cork before the end of April.

**EDINBURGH.**—The deputation of the Edinburgh Town Council which visited London for the purpose of inquiring as to the experience and practice of the vestries in regard to the use of Australian hard wood for street-paving purposes, has completed its report. Summing up the results of their investigations and inquiries, the deputation states that it is satisfied that the Australian hard woods possess valuable and peculiar qualities, rendering them, so far as present experience goes, highly suitable for street-paving purposes. No specimens examined by the deputation presented any appearance whatever of ordinary decay or rot. No doubt street-paving with hard wood is of the nature of a luxury, and will cost more than whin or granite paving, but the time has come when Edinburgh must face the question of following London experience and enterprise in this direction, especially with her principal streets. The deputation considers that the hard woods recommended will not be excessive in cost, nor far behind in durability (having in view the fact of Edinburgh traffic being so much lighter than that of London), and the gain in comparative noiselessness, in smoothness, and therefore ease in traction, as well as in cleansing facilities, will sufficiently compensate for the extra cost. On the respective merits of the various woods referred to in this report, the deputation is disposed to recommend that black butt and tallow wood be fairly tested, as it is possible that as good, if not better, results may be thus obtained than from the other timbers which have been longer in the market.

**GLASGOW.**—On Saturday last Mr. D. Bennet Dobson's building-construction students visited the new Ruchell Hospital, at present in course of erection for the sanitary authorities of the city. The cost of the whole work is expected to be over £200,000. Mr. A. B. McDonald, city engineer, is the Architect of the work, and both in point of design and general planning it is to be commended as being thoroughly efficient. The administrative block, which faces the west, will accommodate about 200 nurses on either side, and the central portion will be reserved for doctors' and matrons' rooms. The large pavilions are each 66ft. by 22ft. and contain fifteen beds, i.e., ten in the acute ward, the air space being 23,100 cubic feet; and in the convalescent five beds, with an air space of 11,550 cubic feet, and a distance of 8ft. between each bed. Fresh air is admitted at the wall under each bed as well as at the window bossings. The heating everywhere is by low pressure hot water. In each ward, however, there are two fireplaces. In these pavilions the nurses' rooms are between the acute and convalescent wards. The clearing houses are also especially worthy of notice. The cost per patient, exclusive of site, is about £486. A central water tower likewise forms a prominent feature, 150ft. high, containing four tanks, each 12,800 gallons. Mr. Hannah conducted the party in the absence of Mr. McDonald.

**ILKLEY.**—The result of the recent arbitration proceedings, in which trustees of the Skipton Grammar School Estate claimed damages against the Ilkley District Council for acquiring water rights, and for works in the additional supply of water to Ilkley from the lands of the claimants situate at Addingham Moor Side, in the Valley of the Wharfe, has just been made known. The total valua-



tion as given in evidence was £1347 8s. 2d., being an average of £36 18s. The umpire has awarded £650 12s. 6d. on the aggregate claim. The proceedings in the claim made by the trustees of the late Mr. John T. Wall, in which the valuation by the claimant's witnesses amounted to £354 4s., and by the witnesses for the District Council to £4 8s. 6d., have resulted in £189 12s. 6d. being awarded.

LEEDS.—The Meadow Lane Works Sub-committee of the Leeds Corporation has considered tenders which had been received for work in connection with the new purifying plant. The Gas Committee has given power to the sub-committee to accept tenders, but these will come before the City Council for confirmation. The tender of Mr. George Cross, Bowman Lane, for buildings, was accepted at £4760. For two horizontal engines required for the new retorts, Messrs. J. and R. Rankin, Liverpool, were successful, their tender amounting to £567 10s. The tender of Messrs. Clayton and Sons, Hunslet, for pumping valves, steam connections, girders, and columns, roofs and principals, was accepted, the amount being a little over £7000.

LIVERPOOL.—At a special meeting of the Health Committee of the City Council, held to consider the project for widening Cook Street by making a piazza, 10ft. wide, under the front portion of the new buildings erected on the south side of the street, Mr. Watson Rutherford, the solicitor for the owners of the buildings, had a long interview with the committee, in the course of which the possibility of the scheme was discussed. Mr. Rutherford was asked if the trustees of the estate were prepared to cut off the projecting corner next to the entrance of the Law Association Buildings. Mr. Rutherford stated that that would cost a further £5000. After discussing the matter, the committee decided to recommend the Council to carry out the improvement at a cost, including the cutting off of the corner, of £27,500.

PADDINGTON.—St. David's Church, which has the distinction of being the first Church built expressly for the Welsh in the metropolis, was opened at Paddington on the 31st ult. The new building, which is capable of seating about 400 people, has been designed by Mr. C. Evans Vaughan in the Gothic style. Under the Church proper is a spacious hall, which is used as a Sunday school, and during the week for meetings and concerts. At the back of this hall are the caretaker's rooms. The cost of erection has been very considerable, and now that the building is ready for use the Church council finds that it has to face a deficit of £800.

SHEFFIELD.—The alterations which were commenced some time ago at the Surrey Street Music Hall have now been completed. The principal alteration is that affecting the exits. A new staircase has been erected, and has an outlet in Surrey Street. The new staircase is lighted by electricity, and the number of exits is now three in place of the former two. The cost of the change has been something like £600, and this includes the thorough overhauling of the drainage arrangements.

THORNTON, N.B.—Estimates have been accepted for the erection of a Free Church Hall at Station Road, Thornton, to accommodate about 250 persons. Mr. William Williamson, jun., Kirkcaldy, is the Architect.

WEST KIRBY.—The corner-stone of the new Roman Catholic Church of St. Agnes, at Darmond's Green, West Kirby, was laid last week. The new Church is planned for nave, transepts, and chancel, with a presbytery adjacent, but at present the nave, with a seating capacity of 250, will alone be built. Mr. Edmund Kirby is the Architect. The building will be of Ruabon brick, with terracotta and red stone, the cost of the full scheme being about £3000. The floor will be of wood blocks, and the inner roof of pitchpine. Mr. R. Allen, Cloughton Road, Birkenhead, is the contractor.

YORK.—A company assembled at Harker's Hotel, York, a few days ago, to see a working model of a covered stall, designed by Mr. Liversidge. Mr. Liversidge said schemes for covered markets had been suggested, one of which it was estimated would cost £50,000, but none of them seemed to find favour. He had endeavoured to find a solution of the difficulty in the form of the design which he had the privilege of submitting to their notice. The highest estimate of the cost was not more than £5000. Mr. Liversidge then proceeded to explain that he proposed that rows of pits, or troughs, should be dug in Parliament Street. Each of these excavations would be not more than 2ft. wide, 6ft. deep, and 21ft. long, and would be fitted with covers which could be easily thrown back, being made in parts for that purpose. The next step would be to raise the pillars, which worked into large joints at each end of the trough. This simply meant that the pillar would be raised from the horizontal position to the perpendicular. The remainder of the structure was all in one piece, and was raised automatically, sliding up grooves in the pillars till the top was reached. The whole of the stalls could be joined end to end, and the frameworks automatically raised together. The covering for the roof was a light waterproof material similar to that which covered the Westminster Aquarium.

## Correspondence.

### WHO PAYS FOR THE TROWEL?

To the Editor of THE BUILDERS' JOURNAL.

SIR,—May I ask you if you will kindly answer in your valuable paper for me this question?

Who should provide and pay for the silver trowel to be presented to the gentleman laying the foundation stone of a Church, the builder's contract for which is £5700, and the probable amount the Architects will receive commission on being over £6000? Should the builders, or the Architects, or the Church Committee provide and pay for it? Who should hand or present the trowel to the gentleman laying the stone? If either the builders or the Architects provide it, have the Committee any choice in the selection, design, or inscription? If there is no fixed rule, may I ask you if you will kindly say what is the general practice? Also—under the circumstances of its being a nominal £6500 undertaking—about how much should be spent upon the trowel?

I am, Dear Sir,

Yours faithfully,  
S. G. R.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS and SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two.

Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St.,  
Strand, W.C.

## SOCIETY MEETINGS.

**The Architectural Association.**—At the meeting of the Architectural Association on Friday night—Mr. W. H. Seth-Smith in the chair—it was announced that the "House List" had been constituted as follows:—President, Mr. Hampden W. Pratt; vice-presidents, Mr. Banister F. Fletcher and Mr. Alfred H. Hart; committee (ten to be elected), Messrs. R. S. Balfour, W. D. Caroe, H. B. Creswell, A. S. Flower, F. W. Goldsmith, C. de Gruchy, F. G. F. Hooper, E. H. Parkes, H. Passmore, Beresford Pite, G. H. F. Prynn, W. H. Seth-Smith, J. W. Stonhold, A. B. Thomas, and J. Williams; hon. treasurer, Mr. Hampden W. Pratt; hon. librarian, Mr. C. H. Freeman; hon. secs., Mr. E. Howley Sim and G. B. Carvill; hon. solicitor, Mr. W. H. Jamieson; hon. assistant librarian, Mr. E. W. M. Wonnacott; hon. auditors, Mr. M. Garbutt and Mr. H. P. G. Moule; assistant secretary, Mr. D. G. Driver. The next meeting of the Association will be held on April 30th, when Mr. Hugh Stannus will read a paper on "The Classic Cornice."

**Glasgow Institute of Architects.**—At the usual quarterly meeting of this institute, held in the rooms, Pitt Street, Mr. John Jas. Burnet, A.R.S.A., president, reported that the council had remitted the question as to the lighting of the lower Church of Glasgow Cathedral to a committee of council. He also reported that the Corporation of Sheffield had appointed a jury of three members of the Sheffield Society of Architects as assessors to adjudicate upon competitive plans, and that it had been remitted to a committee of council to consider the position of this institute with regard to Architectural competitions. The president also intimated that the council had appointed himself and the vice-president as delegates to attend a meeting of the Sanitary Congress to be held at Leeds in September. Letters from Messrs. Honeyman and Leiper, acknowledging in gratifying terms the congratulations of the institute on their election as Academicians, were read. Letters from Mr. Gourlay regarding the examination of drawings for the Technical College Prize were read, and it was reported that the prize, which was to be called the Institute of Architects Prize, for the best set of drawings and sketches, had been awarded to Mr. William S. Mayer. The secretary reported that it had been remitted to a committee of council to consider as to a curriculum of Architectural education.

**The Edinburgh Architectural Association.**—The Edinburgh Architectural Association has visited Hatton House, Mid-Lothian. The house, it was explained, has a massive central keep, with later additions round it. In the time of Robert II. John de Haltoun was proprietor, and in a few years it passed to the Lauder family, the Lauders of the Bass, in whose hands it remained for several centuries. The Lauder family were implicated in the assassination of the Earl of Douglas, and incurred the deep resentment of that powerful family, who captured the keep, but were ousted by the timely assistance of the King, who sent the "great bombard," supposed to be Mons Meg, to the help of the Lauders who, again obtaining possession, were permitted to re-edify the keep. Early in the seventeenth century Charles Maitland, brother of the Earl of Lauderdale, and a well-known officer of State in Scotland, became proprietor, and began the extensive additions of which much remains. He appeared, to a certain extent, to have copied his brother's manner of laying out the gardens at Ham, and the work which was carried on by his successor had made the house with its gardens, terraces, sundials, and statuary, one of the most interesting and pleasant in its own part of the country.

**The Royal Scottish Society of Arts.**—A special meeting of this Society was recently held in the hall, 117, George Street, Edinburgh, Professor Armstrong, president, in the chair. The secretary (Mr. W. Allan Carter) read a report by the committee appointed to judge the electric meters submitted in competition for the special Keith prize of £50. It reports that nine meters were sent in. These



were tested at the Central Station, Torphichen Street, Edinburgh, with the continuous and alternate currents. The merits and demerits of the various meters were mentioned, and the committee came to the opinion that while several of the meters possessed many points of novelty and ingenuity which might be capable of further development, none of them were of sufficient merit to warrant the Society in making any award.

**Bristol Association of Clerks of Works, and Builders' Foremen.**—By permission of the Dean, the members of this association paid a visit to Bristol Cathedral on Saturday afternoon. Mr. Hayward conducted the party, and in a very interesting and instructive manner explained some of the most notable facts relating to the founder and benefactors of the monastery, also of the different periods and diversity of style of Architecture in the various parts of the Cathedral. This is the first of a series of visits arranged to be paid during the coming summer to the various places of historical and Architectural interest in the neighbourhood.

**Institution of Civil Engineers.**—The President, Mr. J. Wolfe Barry, presided at the annual dinner of the members of the Institution of Civil Engineers, held in the hall of the Merchant Taylors' Company, Threadneedle Street, on the 31st ult., and proposed "The Navy, Army, and Auxiliary Forces." Sir Frederick Bedford responded on behalf of the Navy, and Mr. St. John Broderick, M.P., for the Army and Auxiliary Forces. "The Institution" was proposed by Sir Lintorn Simmons, to which the President replied.

MR. WILLIAM HUNT, Chief Engineer of the Lancashire and Yorkshire Railway Company, died on the 29th ult., at Crumpsall, Manchester. Under his direction the company has expended over £8,000,000 in widening the railway and in constructing new lines and stations. Mr. Hunt was a native of Banbury, and was 54 years of age. Before entering the service of the Lancashire and Yorkshire Railway Company, he had considerable engineering experience at the East and West India Docks, London, and in the North London and the East London Railway.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BISHOP AUCLAND.**—For laying 2130 yards pipe sewers, and other works in connection therewith, Winton Park, for the Rural District Council. Mr. C. Johnston, Surveyor, 1, Cradock-street, Bishop Auckland. — Geo. T. Manners £1,250 0 0 G. H. Bell, Bishop Auckland\* £1,044 17 0 Geo. Hetherington 1,149 8 0 P. O. Hetherington-Smart Walker 1,050 0 0 *Withdrawn* 914 0 0 \*Accepted.

**BRADFORD (Yorks).**—Accepted for the erection of six houses, Prospect-road. Mr. J. H. Dixon, Architect, 90, Heaplane, Bradford. —

*Masonry.*—J. Thornton and Co., Great Horton £1,050  
*Joinery.*—T. Twyn, Bradford 450  
*Plumbing.*—C. H. Pearson, Bradford 170  
*Plastering.*—A. Taylor, Eccleshill 181  
*Slating.*—G. Wilkinson, Bradford 100

**BRISTOL.**—For the reinstatement of No. 90, West-street, for Mr. J. Upton. Mr. F. Bligh Bond, Architect, Liverpool-chambers, Corn-street, Bristol. Quantities by the Architect. —

Eastbrook and Sons £490 0 J. Browning... £2450 0  
J. James 458 10 E. Love\* 897 0  
T. Lewis 458 10 \*Accepted with modifications.

**CAMBERLEY.**—For the erection of two pairs of cottages at Camberley, Surrey, for Mr. H. W. Harris. Mr. Joseph Greenaway, Architect, 19, Duke-street, Reading. Quantities supplied. —

John Bottrill and Son £1,360 G. Searle... £1,180  
E. Spooner 1,300 E. Field... 1,154  
J. B. Seward 1,294 McCarthy E. Fitt... 1,150  
W. Smith 1,230 D. Taylor 1,120  
Spear and King 1,210 W. Hawkins, Reading\* 985

\*Revised tender, £20, accepted.  
**CARDIFF.**—For the construction of sewers and formation of streets, Penllin Castle Estate, Canton, for Captain J. G. R. Homfray, Messrs. Veall and Sant, Architects, 5 and 6, Arcade-chambers, High-street, Cardiff. Quantities by Architects. —

George Rutter £1,680 5 7 Thos. Rees... £1,335 10 3  
Lattey and Co. 1,668 16 0 E. H. Page 1,294 10 7  
Evans Bros. 1,540 0 0 F. Ashley, Cardiff\* 1,245 15 3  
F. Robbins 1,525 0 0 H. Lewis and Son 1,197 18 6  
Barnes, Chaplin, and Co. 1,344 17 10 \*Accepted.

**CARDIFF.**—For the construction of filter beds, erection of house, &c., at the Heath, for the Corporation. Mr. C. H. Priestley, C.E., Town Hall, Cardiff. Quantities by the Engineer. —

J. Allen £11,570 16 11 T. D. Ridley, Cardiff and Company 10,277 7 10 Middlesboro\* £10,114 17 6  
Turner and Sons 10,132 1 7 \*Accepted.  
[Engineer's estimate, £10,548 ss. 4d.]

**CARDIFF.**—For the erection of a superintendent's house, Roath Park, for the Corporation. Mr. W. Harpur, C.E., Borough Engineer, Town Hall, Cardiff. Quantities by the Borough Engineer. —

Knox and Wells £1,073 2 5 John Blythe... £286 14 0  
E. Turner and Son 981 11 3 James Allan... 879 3 9  
G. Griffiths 940 10 0 Cadwallader and Hockridge... £48 4 7  
Handford and Elworthy 940 5 0 W. T. Morgan\* 825 0 0  
Williams & Hoare 916 0 0 \*Accepted.

[All of Cardiff.]  
**DORCHESTER.**—For additions, &c., to "Junction" Hotel. Mr. A. L. T. Tilley, Architect, 16, Cornhill, Dorchester. —

Rendell and Compton £1,235 0 W. I. Hutchings... £1,162 15  
Barrett and Son\* 1,134 0 \*Accepted.

[All of Dorchester.]  
**DUKINFIELD.**—Accepted for the erection of school buildings, for the School Board. Messrs. Eaton, Sons, and Cantrell, Architects, Ashton-under-Lyne. —

*Building.*—J. Gibson and Son, Dukinfield... £28,446  
*Plumbing, &c.*—H. Rigby, Dukinfield... 462

**GLOUCESTER.**—For the erection of show-rooms, &c., George-street. Mr. E. Read, City Surveyor, Guildhall, Gloucester. —

Wm. Jones £23,242 0 Enoch Clatterbuck, W. J. Bloxham 3,073 0 Gloucester £2,477 10  
Gurney Brothers 2,740 14 \*Accepted.

**HARWICH.**—For the construction of a concrete reservoir, &c. Mr. H. Ditcham, Borough Surveyor, Harwich. —

Pedrette and Co. £263 0 Moran and Son £2580 0  
Smith, Beaumont, Mackenzie and Son, Clacton-on-Sea\* 525 15  
and Dawson 605 0 \*Recommended for acceptance.

**IPSWICH.**—For alterations and additions to the "Cock and Pye" Hotel, Ipswich, for Messrs. Tollemache, Limited. Mr. John S. Corder, Architect, Ipswich. Quantities by Mr. J. S. Corder. —

Grimwood and Sons £1,195 0 Graydon... £1,090 0  
Catchpole 1,195 0 Parkington and Son, Ipswich\* 1,050 0  
Roper 1,166 10 \*Accepted.

**KEIGHLEY.**—Accepted for paving, flagging, &c., Parson and Nible-streets, for the Corporation. Mr. W. H. Hopkinson, C.E., Borough Engineer, Municipal-buildings, Keighley. —

*Parson-street.*—W. Baker, Gladstone-street, Keighley... £2689 0 2  
*Nible-street.*—W. Baker, Gladstone-street, Keighley... £291 6 10

**LEEDS.**—Accepted for the erection of twenty-one houses, New-road-side, Horsforth, for the Leeds Industrial Co-operative Society, Limited. Mr. J. P. Kay, Architect, Prudential-buildings, Leeds. —

*Bricklaying and Masonry.*—W. Flesher and Sons, Yeadon £2,133 10  
*Joinery.*—T. Baldwin, Horsforth... 796 0  
*Plumbing.*—T. Brearcliffe, Horsforth... 138 0  
*Plastering.*—L. Routh, Yeadon... 283 10  
*Slating.*—W. Atkinson, Kirkstall-road, Leeds... 176 7  
*Painting.*—L. Riley, Horsforth... 52 10

**LEEDS.**—Accepted for alterations, &c., Headingley Pumping-station, for the Corporation. Mr. Thos. Hewson, City Engineer, Municipal-buildings, Leeds. —

Wade, Bros., Leeds £2827 2 6  
**LONDON.**—For additions to villa residence at Oakleigh Park, N. Mr. R. Beresford Pite, Architect, 2, Oakleigh Park, N. —

A. A. Webber... £23,255 Faulkner and Son... £22,865  
Matthews Bros. 3,070 F. T. Chinchin... 2,850  
Lawrence and Son 2,889 P. S. Robertson... 2,550

**LONDON.**—For the erection and completion of the Broadway Theatre, Deptford, for Messrs. David Allen and Sons. Mr. W. R. G. Sprague, Architect. —

Martin, Wells, and Co. £25,759 W. Downs... £23,642  
J. W. Baker 25,718 Harris and Wardrop... 23,570  
Lawrence and Sons 24,335 Howell J. Williams... 23,456  
Dove Bros. 24,400 Foster and Dickson... 23,136  
Patman and Fotheringham 24,284 Burman and Sons... 23,080  
McGormick 24,155 Wilkinson Bros... 23,571  
S. R. Lambie 24,073 Gray Hill... 23,313  
Kirk and Randell 23,765 Walter Wallis, Balham\* 21,157

\*Accepted.  
**LONDON.**—For making up private roads, for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor. —

Queensmore-road, Hillfield-Park, 2nd Section. 1st Section. 3rd Section. Hatherley Gardens. —

Williamson and Son £1,490 £282 £1,033 £594  
Jackson and Son 1,471 969 1,011 577  
W. Griffiths 1,373 917 943 544  
T. Adams, Wood Green (accepted) 1,381 885 913 537

**LONDON.**—For the erection of two houses and shops in Marmion- and Tagbridge-roads, Clapham Common, for Mr. Charles Storey. Mr. John Job Wood, Architect and Surveyor. Quantities supplied. —

Russell... £1,275 0 W. Bilham... £1,140 10  
Nicks and Co. 1,142 0 [Surveyor's estimate, £1,156.]

**LONDON.**—For the erection of six semi-detached villa residences, Shakespear-road, Drayton Park, Hanwell. Mr. W. A. Fisher, Surveyor, 16, Pinstury-circus, E.C. —

T. Morgan and Son £5,905 A. Tattersall and Co. £3,450  
J. Christie 3,698 J. Payne and Sons, Hemel Hempstead\* 3,420  
F. W. Edwards 3,660 \*Accepted.

**LONDON.**—For additions to the Nursing Institute at the Homeopathic Hospital, Great Ormond-street. Mr. William A. Pite, Architect. —

Leslie and Co. £5,148 Garrett and Son... £4,725  
A. A. Webber 4,320 T. Boyce... 4,617  
Faulkner and Son 4,348 F. T. Chinchin... 4,496  
Matthews Bros. 4,733

**LONDON.**—For the construction of sewers, &c., St. Giles's District, for the Board of Works. Mr. George Wallace, Engineer, 197, High Holborn, W.C. —

E. Parry £2,057 C. W. Killingback and Pedrette and Co. 1,990 Co., Camden Town (accepted) £1,897  
Neave and Son 1,937  
Thomas Adams 1,905

**LONDON.**—For exterior painting and interior cleaning of the Eglinton-road schools, for the School Board for London. T. J. Bailey, Architect. —

Johnson and Co. £450 0 0 W. Hornett... £254 0 0  
G. Barker 373 0 0 C. Foreman... 334 0 0  
W. Banks 365 13 6 J. H. Hodgkin... 333 0 0  
T. Cruwys 364 0 0 E. Proctor\* 320 0 0

\*Accepted.  
**LONDON.**—For exterior painting and interior cleaning of the Everington-street schools, for the School Board for London. T. J. Bailey, Architect. —

E. T. Folley £249 0 0 T. Cruwys... £268 0 0  
W. Hornett 390 0 0 Marchant and Hurst 360 0 0  
F. G. Minter 390 0 0 W. R. and A. Hide... 357 10 0  
F. T. Chinchin 385 0 0 W. Chappell... 355 0 0  
C. Gurling 383 0 0 W. Hammond\* 348 0 0

\*Accepted.  
**LONDON.**—For exterior painting and interior cleaning of the Hagley-street schools, for the School Board for London. T. J. Bailey, Architect. —

W. Hooper £258 0 0 T. Cruwys... £283 0 0  
W. Hammond 345 0 0 W. Brown... 287 0 0  
F. G. Minter 300 0 0 W. R. and A. Hide... 257 10 0  
W. Hornett 291 0 0 F. T. Chinchin... 257 5 0  
W. Chappell 285 0 0 E. T. Folley\* 247 0 0

\*Accepted.  
**LONDON.**—For interior painting of Greenwich (Powis-street) Schools, for the School Board for London. T. J. Bailey, Architect. —

J. H. Hodgkin £251 0 0 E. Proctor... £225 10 0  
G. Summers 243 0 0 W. Banks... 219 17 6  
A. J. Penn 245 0 0 Holding and Son... 197 0 0  
Jones and Groves 239 12 0 C. Foreman\* 172 0 0

\*Accepted.  
**LONDON.**—For exterior painting and interior cleaning of the Hagley-street schools, for the School Board for London. T. J. Bailey, Architect. —

W. Shummar £2450 0 J. F. Holliday... £2390 15  
A. W. Derby 390 0 J. Kybett... 327 0  
J. T. Robey 375 0 G. Barker... 299 15  
W. Silk and Son 344 0 S. H. Corfield\* 264 0  
W. Lawrence 341 7 \*Accepted.

**LONDON.**—For interior cleaning of Mina-road Schools for the School Board for London. T. J. Bailey, Architect. —

W. J. Goad £2415 J. F. Ford... £2344  
W. and H. Castle 334 Johnson and Co. 336  
H. Line 349 B. E. Nightingale... 326  
W. Smith 349 Holliday & Greenwood\* 296

\*Accepted.  
**LONDON.**—For exterior painting and interior cleaning of Salter's Hill Schools, for the School Board for London. T. J. Bailey, Architect. —

A. J. Acworth £2330 17 6 E. P. Bullard & Co. £2290 0 0  
Rice and Son 312 0 0 E. B. Tucker... 254 0 0  
Maxwell Bros., Ltd. 310 0 0 H. Somerford and J. and C. Bowyer... 295 0 0  
H. Leney 281 7 0 Holliday & Green-J. Garrett and Son 278 0 0 wood (accepted) 214 0 0

**LONDON.**—For exterior painting and interior cleaning of St. Dunstan's-road schools, for the School Board for London. T. J. Bailey, Architect. —

W. Brown £2358 0 0 C. Gurling... £2330 0  
F. G. Minter 351 0 W. Chappell... £239 10  
T. Cruwys 348 0 W. Hammond... £329 0  
E. T. Folley 337 0 F. T. Chinchin... £323 7  
W. Hornett 337 0 W. R. and A. Hide\* 308 10

\*Accepted.  
**LONDON.**—For exterior painting and interior cleaning of Woodland-road schools, for the School Board for London. T. J. Bailey, Architect. —

A. J. Acworth £2366 4 9 Maxwell Bros., Ltd. £275 0 0  
Rice and Son 342 0 0 H. Leney... 265 7 0  
J. and C. Bowyer 319 0 0 Holliday & Green-E. P. Bullard & Co. 319 0 0 wood 249 0 0  
J. Garrett and Son 304 0 0 E. B. Tucker\* 238 0 0  
G. Kemp 232 0 0 \*Accepted.

**LOWESTOFT.**—For the erection of an hotel at Carlton Colville, near Lowestoft, for Messrs. E. and G. Morse. Mr. Chas. Crosier, Architect, Victoria-chambers, Lowestoft. Quantities by the Architect. —

F. C. Allen's Exors. £2,227 18 J. Youngs and Son, J. Blunderfield 2,125 0 Norwich (accepted) £2,096 0  
W. Knights 2,107 15 G. Eley... 2,092 0  
Swatman Bros. 2,109 0 C. R. Cole... 2,064 0

\*Couldn't execute the work in the time stated.  
**MITCHAM.**—For the erection of new laundry and other buildings at Mitcham. Mr. C. Evans-Vaughan, Architect. —

Willmott and Sons £5,894 Wall and Co. £2,193  
W. Wallis 6,516 W. Reason... 6,157  
F. T. Chinchin 6,249 Gregory and Co. 5,655  
Bulled and Co. 6,195 Lorden and Son 5,418

**MORLEY (Yorks).**—Accepted for the erection of club premises, Fountain-street, for the trustees of the Working Men's Club. Mr. S. B. Birds, Architect, 47, High-street, Morley. Quantities by the Architect. —

*Masonry.*—D. Furness, Morley £2960 0  
*Joinery.*—Eddeson Bros., Kirkstall, Leeds 542 0  
*Plastering.*—E. Wilson, Morley 96 0  
*Slating.*—John Atkinson and Son, Leeds 94 10  
*Plumbing.*—J. Snowden and Son, Ossett 90 0

Total £1,782 10  
**ORPINGTON.**—For alterations and additions to "The Gables" Orpington, for Mr. C. Straker. Mr. Horace R. Hide, Architect, 17, Gracechurch-street, London, E.C. No quantities supplied. —

R. A. Lowthion £1,019 J. W. Owen... £2890  
F. P. Duthoit 933 J. Taylor and Sons... 825

**PENZANCE.**—Accepted for the execution of paving work, Western Promenade. Mr. Geo. H. Small, Borough Surveyor, Public Buildings, Penzance. —

Jas. Runnalls, Penzance £1,803 19 9  
**READING.**—For the erection of a nurses' home at the Reading Union Workhouse, for the Guardians. Mr. Joseph Greenaway, Architect, 19, Duke-street, Reading. Quantities supplied. —

McCarthy E. Fitt £1,550 0 John Bottrill and Collier and Catley... 1,489 0 Son... £1,356 0  
W. Bourton 1,462 0 W. Stokes... 1,378 0  
G. H. Tucker 1,441 0 T. Pilgrim... 1,375 0  
G. Dixon 1,427 10 W. Hawkins... 1,335 0  
H. Higgs and Sons 1,410 0 D. Taylor (accepted) 1,300 0  
G. Searle 1,409 0 [All of Reading.]

**RUABON (Wales).**—For the erection of eight houses at Cefn, Ruabon, for Mrs. Price Roberts. Mr. J. W. Jones, Architect, Brook Lea, Acrefair, Ruabon. Quantities by Architect. —

J. T. Jones £1,693 R. Hopley, Cefn, Ruabon\* £1,580  
J. Davies 1,592 bon\* \*Accepted.  
J. Carden 1,590

**ST. LEONARDS-ON-SEA.**—For alterations and additions, repairs, sanitary, hot-water, and other work at "The Grange," Maze Hill, St. Leonards-on-Sea, for the Trustees of St. Peter's Home, Mortimer-road, Kilburn. Messrs. C. A. Pigott and Oxley, Architects and Surveyors, St. Leonards. —

P. Jenkins £2,334 0 F. G. Hatton... £2,250 0  
C. Hughes 2,306 16 T. Salter... 2,238 0  
Eldridge and Crutenden 2,291 0 C. Harman... 2,162 0  
J. Simmons 2,275 0 A. H. White\* 2,152 0

\*Accepted.  
[All local builders.]  
**SHIPLAKE.**—For the erection of an entrance lodge at "Fairholme," Shiplake-on-Thames, Oxen, for Mr. Hy. M. B. Davies. Mr. Joseph Greenaway, Architect, 19, Duke-street, Reading. Quantities supplied. —

John Bottrill and Sons £2390 W. Bourton... £2435  
G. Searle 490 W. Hawkins... 425  
W. Stokes 449 D. Taylor... 396

[All of Reading.]  
**SURBITON.**—For the execution of road works, Douglas and four other roads, for the Urban District Council. Mr. Sam. Mather, C.E., Victoria-road, Surbiton. —

Sidney Hudson £4,696 4 11 S. Kavanagh, Free and Sons 4,996 0 Surbiton\* £3,877 0  
W. Adamson 4,897 0 \*Accepted.  
[Surveyor's estimate, £3,816 19s. 10d.]

**YNYSHIR (Wales).**—For the erection of a chapel, cottage, &c., Wattstown, Rhonda, Glamorgan, South Wales, for the trustees of the Saron Congregational Chapel. Mr. Edwin Jones, Architect, Cymmer, Porth. —

C. Jenkins and Son £2679 9 Henry Williams... £2576 15  
William Spratt 658 0 Thomas and Farr, Porth (accepted) 570 0  
David Richards 630 0



## INDEX OF ILLUSTRATIONS AND CONTENTS.

## ILLUSTRATIONS.

	PAGE
Supplement: Scottish Plaster, Kellie Castle, Fife. Measured and drawn by R. S. Lorimer.	
Remains of a Byzantine Palace, Constantinople	117
Church Street, Berwick	119
Whittinghame Tower	119
Wintoun House	120
Marchiston Castle	120
Kellie Castle, Fife	121

## CONTENTS.

	PAGE
The Brick Famine	117
Important London Housing Schemes	117
The Borgia Apartment	118
St. Lawrence, Jewry, and St. Michael	118
Some Recent Archaeological Discoveries	118
Scottish Plaster Work, By R. S. Lorimer	119
Architecture in Relation to the Handicrafts, By T. G. Jackson, R.A.	122
"London Church Architecture of the Victorian Era," by T. Francis Bumpus	125

	PAGE
Bricks and Mortar	127-129
The County Council and its Works Department	129
Professional Items	130
Correspondence	131
Society Meetings	131
SURVEYING AND SANITARY SUPPLEMENT:	
Hospitals, By Frederick Batchelor, M.R.I.A.I.	xxxiii
The Sheffield Refuse Destructor	xxxvi
Surveying and Sanitary Notes	xxxvi

## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
April 9	<b>BUILDINGS—</b> Bovey Tracey, Devon—New House	Mrs. Hellier	S. Segar, F.I.A.S., Architect, Newton Abbot.
" 9	Bradford—Three Houses	Leeds School Board	Rycroft and Fritz, Bank Bldgs, Manchester-rd., Bradford.
" 9	Leeds—Setting back Wall	Kensington and Chelsea School District	City Engineer's Office, Municipal-buildings, Leeds.
" 9	London—Enlarging Schoolrooms	Rev. J. B. Bristow	C. Sharp, 59 Fenchurch-street, E.C.
" 10	Bushmills, co. Antrim—Enlargement of Church	Co-operative Wholesale Society	D. Douglas, Bushmills.
" 10	Bunkery Bridge, Ireland—New Creamery	Corporation	W. L. Stokes, Mulgrave-street, Limerick.
" 10	Burnley—Erection of Memorial	Mr. Joseph Brutton	Borough Surveyor's Office, Town Hall, Burnley.
" 10	Eastbourne—Alterations, &c., to House	Mr. F. C. Ceeve	C. and C. B. Benson, Architects, Yeovil, Somerset.
" 10	Limerick—New Gate Lodge	Rev. W. G. Jones	J. P. Evans and Co., 131, George-street, Limerick.
" 10	Pwll, near Llanelly—Rebuilding, &c., Chapel	Corporation	D. L. Jones, Architect, West-end, Llanelly.
" 10	Burnley—Memorial, Scott Park	Corporation	Borough Surveyor, Town Hall, Burnley.
" 10	Monmouth—Engine House	Corporation	Bramwell and Harris, Engineers, Great George-street, S.W.
" 12	Bath—Extension of Buildings	Bath Corporation	F. H. Moyer, 3, Wood-street, Bath.
" 12	Ebbw Vale, Mon.—New School	Aberystwith School Board	George Rosser, Architect, Victoria-buildings, Abercarn.
" 12	Londonderry—Five New Houses	Mr. Thomas Nicell	E. J. Toye, Architect, Strand, Derry.
" 12	Lurgan and Belfast—Station Building	G.N. Railway Company (Ireland)	Company's Engineer, Amiens-street Terminus, Dublin.
" 12	Mortlake—New Stables, &c.	Barnes Urban District Council	G. Bruce Tomes, Council Offices, High-street, Mortlake.
" 12	Stafford—Alterations, &c., to Guildhall	Corporation	W. Blackshaw, Borough Hall, Stafford.
" 12	Broadstairs—Covered Seat, &c.	Jubilee Memorial Committee	J. Newling, Brockley Dene, Broadstairs.
" 12	Lewisham—Repairs at Workhouse	Lewisham Union	Union Offices, High-street, S.E.
" 12	Bristol—Warehouse, Bristol	Parrell and Sons	C. Scammell, 12, John-street, Bristol.
" 12	Monmouth—Buildings, &c.	Town Council	Bramwell and Harris, 5, Gt. George-st., S.W.
" 12	Mountain Ash, Wales—Workman's Hall, &c.	Mount Ash Reading-Rooms Committee	William Jones, Secretary, Oakwood, Aberllynor-road.
" 13	Pontypridd—School	School Board	A. O. Evans, Architect, Post Office-chambers, Pontypridd.
" 13	West Ham—Buildings at Abbey Wharf, Stratford	West Ham County Council	Lewis Angell, Engineer, Town Hall, Stratford, E.
" 13	Ipswich—Alterations to Tower House	Ipswich School Board	J. S. Corder, Architect, Tower-street, Ipswich.
" 13	London, W.—Erection of Casual Wards	Guardians of Paddington	F. J. Smith, Architect, 17a, Gt. George-st., Westminster.
" 13	London—Casual Wards	Paddington Guardians	F. J. Smith, 17a, Great George-street, S.W.
" 14	Felling, Durham—Rebuilding Hotel		H. Miller, A.M.I.C.E., Felling.
" 14	Riverstown—New Schoolhouse		Rev. Andrew Quinn, Riverstown.
" 14	Thwing, Yorks.—New Farm Buildings		H. O. and F. O. Piercy, The Elms, Lowthorpe.

ADCOCK, Mr. W. J., Builder, Dover.

"I have proved your invention easy of application. Both my joiners and apprentices could fix the apparatus without difficulty after having inspected a model."

CRICKMAY & SONS, Messrs., F.R.I.B.A., London, S.W.

"The Patent Windows supplied for Sir Edward Walters' house at Salisbury gave us every satisfaction. We shall continue to use them."

JONES, Mr. PETER, Sloane Sq., London.

"I am glad to be able to bear testimony to the great utility and general usefulness of the N.A.P. Sliding Windows. I am very pleased with them, and should be sorry to be without them."

LUCAS & AIRD, Messrs., Contractors, London.

"Cheap, simple, and effective. We are using some 1200 sets of your fittings on these exceptionally tall buildings."

MORGAN, ISTD & MORGAN, Messrs., Contractors, Southampton.

"A very clever arrangement, and one which will certainly come into daily use."

PERRY & READ, Messrs., F.R.I.B.A., London.

"It is with pleasure that we are able to inform you of our entire satisfaction with the 'N.A.P. Windows,' we shall continue to

specify them."

Write for Full Particulars to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.



G.A. WILLIAMS & SON.





BLINDS





21. QUEEN'S ROYAL BAYSWATER LONDON. W.



## STIFF &amp; SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS  
CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS  
DAMP-PROOF COURSE, ARCHITECTURAL TERRA-  
COTTA, VASES, &c.

For Illustrated Price Lists apply to

JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—(Continued).</b>			
April 14	Kettering—Provision and Erection of Band Stand	Urban District Council	T. R. Smith, Market-place, Kettering.
" 14	Redruth—Infirmary	Rev. Ll. Lloyd Davies	Sampson Hill (Board's Architect), Redruth.
" 15	Llanwono, Wales—Rebuilding Church		E. M. Bruce Vaughan, F.R.I.B.A., Architect, Cardiff.
" 15	Oban, Scotland—New Municipal Buildings		Alexander Shairp, Architect, Oban.
" 15	Castleford—Wall, &c.	Castleford Urban District Council	Green, Surveyor.
" 16	Belfast—Extension of Shop Premises	Messrs. Arnott and Company, Limited	J. J. Phillips and Son, Architect, 61, Royal Avenue, Belfast.
" 17	Enniskillen, Ireland—New House, &c.		Thomas Elliott, Architect, Enniskillen.
" 19	London, N.W.—Underground Conveniences	St. Pancras Vestry	William N. Blair, C.E., Vestry Hall.
" 19	Witham, Essex—New Infirmary	South Metropolitan School District	7, Duke-street, Chelmsford.
" 20	Hythe, Kent—New Church and Schools		Rev. C. Norman, Holmlea, Hythe.
" 20	Tredington—Hospital	Tewkesbury Rural District Council	James Villar, Architect, 1A, Cambray, Cheltenham.
" 20	Tewkesbury—New Isolation Hospital	Tewkesbury Rural District Council	James Villar, Architect, 1A, Cambray, Cheltenham.
" 20	Walton, Cumberland—Erection of Stone Bridge	Rural District Council	County Surveyor, &c., of Cumberland, at the Court, Carlisle.
" 21	Leeds—Abutments, &c., for Bridge	Corporation	City Engineer's Office, Leeds.
" 21	Mitcham—Laundry House, &c.	Holborn Union	C. E. Vaughan, 25, Lowther Arcade, Strand, W.C.
" 21	Birkenhead—Twenty-five Cottages	L. and N.W. and G.W. Joint Railways	Engineer, Birkenhead Station.
" 22	Bermundsey—Pulling down Buildings	St. Olave's Union	Newman and Newman, 31, Tooley-street, S.E.
" 26	Llangollen—County School	County School	H. Leather, Andrew-buildings, Queen-street, Carlisle.
" 26	Chatham—Town Hall and Municipal Buildings	Corporation	G. E. Bond, Architect, High-street, Rochester.
" 29	Hythe—Church and Schools		Rev. C. Norman, Holmlea, Hythe.
" 30	Newquay—New Headland Hotel		Silvanus Trevel, F.R.I.B.A., Truro.
May 3	Cairo—Prison and Police Barracks	Egyptian Government	Service Administrative Offices, Cairo.
No date.	Kendal—Six Houses, The Lound	Kendal Co-Operative Society	J. Hutton, Architect, Kendal.
"	Somerset—Schools, Lansdown View	Tiverton-on-Avon School Board	Silcock and Reay, Architect, Bath.
"	Leeds—Factory, Ashley-road, Burmantofts		W. A. Hobson, Architect, 82, Albion-street, Leeds.
"	Ilkeston—Public Offices, Market-place		C. W. Hunt, Architect, Ilkeston.
"	Ashton-under-Lyne—Six Houses, Nelson-st., Hooley-hill		J. H. Burton, Architect, 2, Guide-lane, Hooley Hill.
<b>ENGINEERING—</b>			
April 10	Dawlish—New Pier	The Dawlish Urban District Council	Clerk, Urban District Council, Dawlish, Devon.
" 10	Fochriw (Wales)—Heating Chapel		Rev. James Jones.
" 10	Dawlish, Devon—Pier	Urban District Council	Clerk, Council Offices, Dawlish.
" 12	Alnwick—Pipe-laying (about 360 yards)	Alnwick Rural District Council	H. W. Walton, Alnwick.
" 12	Helensburgh—Pier Works, &c.	Police Commissioners	J. and A. Leslie and Ried, C.E., 72A, George-st., Edinburgh.
" 12	Stafford—Alterations to Pumping Machinery	Corporation	W. Blackshaw, Borough Hall, Stafford.
" 12	Stretford (Lancs.)—Repair of Eyeplatt Bridge	County Council	William Radford, 19, Brazenose-street, Manchester.
" 13	London, E.C.—Engines	South Indian Railway Company	Company's Offices.
" 13	London, S.W.—Washing, &c., Machine	Commissioners for Public Baths	Clerk to the Commissioners, 171, King's-road, Chelsea.
" 13	Nottingham—Drainage Works	Town Council	Arthur Brown, Guildhall, Nottingham.
" 13	Southmolton—Weighbridge	Town Council	John Daye, C.E., Town Hall.
" 13	West Ham—Pumping Engine, Boiler Houses, &c.	Corporation	L. Angell, Town Hall, Stratford, E.
" 13	Harbour Work Extensions at Ostende	Provincial Administration	Brussels, 17, Rue des Augustins.
" 14	Lerwick (Scotland)—Waterworks	Commissioners	J. A. Leslie & Reid, Engineers, 72A, George-st., Edinburgh.
" 14	Edinburgh—Reservoir on the Talla Water	Water Trustees	J. Wilson, Engineer, 72A, George-street, Edinburgh.
" 14	Ashton-upon-Lyne—Construction of Embankment, &c.	Joint Committee	G. H. Hill and Sons, 3, Victoria-street, Westminster.
" 14	Buxton—River Works	Buxton Urban District Council	W. H. Grieves, C.E., Town Hall, Buxton.
" 14	Sheffield—Heating, &c.	Health Committee	Charles Wike, Town Hall, Sheffield.
" 17	Romford—20-h.p. Steam Engine, &c.	Urban District Council	E. Winnill, Engineer, Britton's Farm, Hornchurch.
" 21	Leeds—New Steel Girder Bridge	Corporation	City Engineer's Office.
" 24	Redruth—Winding Engine	Basset Mines, Limited	Nicholas Trestrail, C.E., Redruth.



## JONES &amp; WILLIS,

MANUFACTURERS OF

## Wrought Metal Work, Architectural Carving and Joinery

For Ecclesiastical Purposes, Domestic and Public Buildings,

## Lighting Appliances, &amp;c.

Estimates given to Architects' own Designs.

Work can be inspected during execution.

OFFICES AND SHOWROOMS:—79, Edmund Street, Birmingham; 43, Great Russell Street, London, W.C.  
Concert Street, Bold Street, Liverpool.

WORKS:—Eagle Works, Hornsey, N.; Porchester Street, Birmingham.

DAMP WALLS CURED. BY MASONRY PRESERVED  
SZERELMEY STONE LIQUID,

Which absolutely Waterproofs and Preserves Bricks, Stone, Plaster, Cement.

IT HAS STOOD THE TEST OF TIME.

Approved and Adopted by Her Majesty's Government for MANY YEARS.

EASILY APPLIED, SMALL COST, RELIABLE.

FORTY YEARS' EXPERIENCE.

## PORCELAIN PAINTS

For Interior and  
Exterior Decoration.  
Beautiful Glazed  
Surface.

Do not Chip.

Non-Poisonous.

## SZERELMEY'S

HIGH-CLASS PAINTS.

## IRON PAINTS

For Wood or Iron.

GREAT

- DURABILITY.

Prevent Corrosion.

Offices and Works: ROTHERHITHE NEW ROAD, S.E.

Telegrams:  
"SZERELMEY, LONDON."



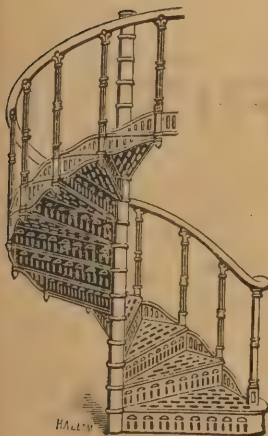
## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>IRON AND STEEL—</b>			
April 10	Leicester—Iron Flooring, &c.	Gas and Electric Lighting Committee	Alfred Colson, Engineer, Leicester.
" 12	Faversham—876yds. of 3in. Cast-iron Gas Mains	Boughton Bleas Gas and Coke Co., Ltd.	F. W. Fuller, Secretary, 20, West-street, Faversham.
" 14	Lancaster—Principals, &c., 60ft. by 30ft.	Streets Committee	Borough Surveyor, Lancaster.
" 15	Bucharest—Rails (2665 tons)	Direction of Roumanian State Railway	Rue Chateaudun, 28, Paris.
<b>TIMBER—</b>			
April 13	Carmarthenshire—Pitch Pine Flooring for Hospital	Governors	The Secretary.
" 20	London—Oak Fencing	County Council	Parks Department, County Hall, Spring-gardens, S.W.
<b>ROADS—</b>			
April 9	Mold, Flint—Materials, &c., 1 Year, March 31, 1898	Flintshire County Council	W. H. White, City Engineer, Oxford.
" 10	Newark—Carting	Claypole Rural District Council	C. D. M. Frinder, Brant Broughton, Newark.
" 10	Rochester—Construction of New Road, &c.	Trustees of Watts's Charity	J. W. Nash, Surveyor, High-street, Rochester.
" 10	Stamford—Repaving, &c.	Urban District Council	James Richardson, Borough Surveyor.
" 10	Clown, Derbyshire—Slag, &c., ending Dec. 31	Clown Rural District Council	H. J. Gower, Surveyor, Post-office, Whitewell, Chesterfield.
" 12	Rugby—Cattle Market Extension	Urban District Council	D. G. Macdonald, A.M.I.C.E., Surveyor.
" 12	Ham, near Richmond—Materials, &c.	Urban District Council	W. Warner, Surveyor, Ham Common.
" 12	Hebburn—Street Works, &c.	Urban District Council	Surveyor's Office, Argyle-street, Hebburn.
" 12	Ilford—Metalling, Levelling, Paving, &c.	Ilford Urban District Council	H. Shaw, Surveyor, 7, Cranbrook-road, Ilford.
" 12	Walsall—Footways (about 9000 square yards)	Corporation	Borough Surveyor's Office, Bridge-street, Walsall.
" 13	Southgate—Works and Materials	Urban District Council	C. G. Lawson, Council Offices, Southgate.
" 13	Willesden—Road-making and Paving Works	Willesden District Council	O. C. Robson, Dyne-road, Kilburn, N.W.
" 14	Frien Barnet—Coal-Engine Slack, Gravel, Granite	Urban District Council	— Reynolds, Beaconsfield-road, Friern Barnet, N.
" 15	London, S.W.—Paving, &c., Two Roadways	Metropolitan Asylums Board	Steward, Fever Hospital, Seagrave-rd, Fulham, S.W.
" 15	Fulham—Paving and Kerbing	Metropolitan Asylums Board	Stewards, Western Hospital, Seagrave-road, Fulham, S.W.
" 17	Pocklington, Yorks.—Stone, Repairing Roads for 1 year	Rural District Council	Thomas Robson, Clerk, Pocklington.
" 17	Longridge, near Preston—Paving, Sewering, Flagging, &c.	Urban District Council	T. S. M'Callum, Engineer, 4, Chapel-walks, Manchester.
" 19	Rochford, Essex—Materials	Rochford Rural District Council	Frederic Gregson, Clerk, Southend-on-Sea.
" 21	Southwark—York Stone	Southwark Board of Works	The Clerk, Vine-street, Tooley-street, S.E.
" 27	Leyland, Chorley, Lancs.—Carting, &c., 1 year	Highway Board	Clerk, District Surveyor, Leyland.
<b>SANITARY—</b>			
April 12	Greenock—Outfall Sewer	Greenock Board of Police	Office of Public Works.
" 12	Monmouth—Sewage Disposal and Lighting Works	Town Council	Bramwell and Harris, Engineers, 5, Gt. George-st., S.W.
" 12	Penrith—Sewage Works	Rural District Council	C. N. Arnison, Clerk, St. Andrew's-place, Penrith.
" 12	Alnwick—Cast-iron Pipes and Laying	Rural District Council	H. W. Watson, Council Offices, Alnwick.
" 13	Southampton—Brick and Concrete Sewers	Corporation	W. B. G. Bennett, Municipal Office, Southampton.
" 13	Nottingham—Drainage Works	Corporation	A. Brown, C.E., Guildhall, Nottingham.
" 14	London, W.C.—Materials and Jobbing Works	Strand Board of Works	5, Tavistock-street, Covent Garden.
" 14	Stowmarket—Drainage Works	East Stow Rural District Council	John Taylor, Sons, and Santo Crimp, 27, Gt. George-st., S.W.
" 14	East Stow—Construction of Sewers, &c.	Rural District Council	Taylor, Son, and Santo Crimp, 27, Gt. George-st., S.W.
" 15	Nenagh, Ireland—Sewage Works	Guardians of Nenagh Union District	R. P. Gill, C.E., Nenagh.
" 17	Whitworth, Lancs.—Earthenware Pipe Sewers, &c.	Whitworth District Council	Leonard Hinnell, M.I.C.E., 41, Corporation-st., Manchester.
" 17	Landridge—Sewering, Paving, &c.	Urban District Council	T. S. McCullum, 4, Chapel-walks, Manchester.
" 20	West Bridgford, Notts—Sewers, &c. (about two miles)	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 22	Woking—Drainage Works	Urban District Council	J. Taylor, Sons, and Santo Crimp, 27, Gt. George-st., S.W.
July 31	Oporto, Portugal—Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
April 16	Horncastle (Lincs.)—Designs for an Ornamental Erection	£10, £5	Corporation.
" 17	Guernsey—Plans and Designs for Assembly Hall, &c.	£100, £50	States of Guernsey.
" 21	Long Buckley (Northamptonshire)—Competitive Schemes for Water Supply	30 guineas	Rural District Council.
" 30	Halifax—Designs for Police Station and Court House	£50, £25	Corporation.
" 17	Langport—Sewerage and Sewage Disposal Scheme	£20, £10	Rural District Council.
" 30	London—Church Extension	£10	Mr. Marrow, 2, Finsbury-square.
May 1	Crompton, Lancs.—Designs for Public Baths	£30, £20, £10	Crompton Urban District Council.
" 1	Tonbridge, Kent—Technical Institute and Free Library	£31 10s., £21	Urban District Council.

THE

ST. PANCRAS IRON WORK COMPANY,  
ENGINEERS & IRONFOUNDERS.Manufacturers of  
**IRON STAIRCASES**  
(Straight and Spiral),**IRON ROOFS, FOOT BRIDGES,  
IRON DOORS,  
VERANDAHS, BALCONIES,  
PORCHES, GATES & RAILINGS.  
GENERAL WROUGHT & CAST-IRON WORK.**

LARGE SHOWROOMS AT

**The St. Pancras Iron Works,**

PANCRAS ROAD, LONDON, N.W.

Close to King's Cross, St. Pancras and Euston Stations.)

N 2

APRIL NUMBER.

THE

## Architectural Review.

PRICE 6<sup>d</sup>. NETT.**NOTICE.**

*In consequence of the unprecedented demand, the whole of the copies have been issued, and the Publisher begs to request that purchasers will apply to their Newsagents, as no further copies can be obtained at the Offices,*

*Effingham House,**Arundel Street, Strand.*



# FOR SCHOOLS Etc., SANITARY APPLIANCES, SEE ADAMS & Co.'s CATALOGUE.

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

THE LEEDS FIRECLAY CO. LIM

THE Burmantofts Works LEEDS

TELEGRAMS Burmantofts LEEDS and Burmantofts LONDON

CLAZED BRICKS

TERRA COTTA

FAIENCE

TILES

SANITARY WARE

POTTERY

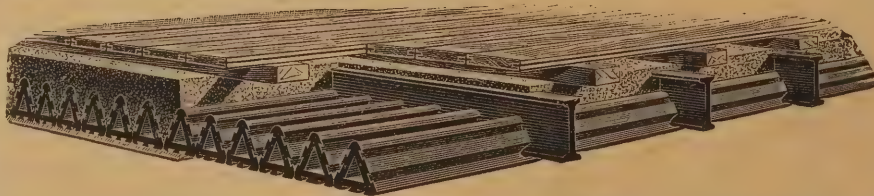
SPECIALTIES

MANTELS FIRESIDES & HEARTHES

SHOWROOMS & OFFICES, 16 Charterhouse St. LONDON. E.C.

## HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders.

CONSTRUCTIONAL STEEL AND IRONWORK.  
GRANITIC STEPS AND PAVING, ASPHALT, &c.

HOMAN & RODGERS, ENGINEERS

LONDON { Offices: 17, GRACECHURCH STREET, E.C.  
{ Works: HATCLIFF, E.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

MANCHESTER { Offices: 10, MARSDEN STREET.  
{ Works: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



# Surveying and Sanitary SUPPLEMENT.

APRIL 7TH, 1897.

## HOSPITALS.\*

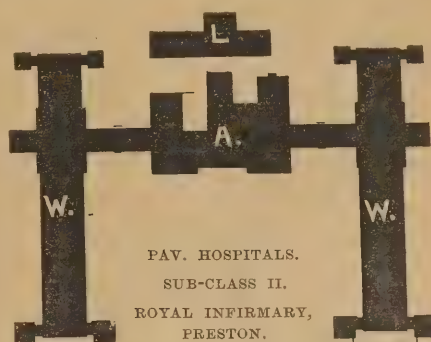
By FREDERICK BATCHELOR, M.R.I.A.I.

IT would be impossible to bring within the scope of a single lecture the variety of subjects which would naturally be included in so comprehensive a title as Hospitals and Hospital Construction; as, for example, the history of hospitals, the classification of modern hospitals, methods of administration, principles of construction, and the several systems of lighting, warming, and ventilation, &c. Upon each of these branches of our subject volumes could and have been written. Perhaps, as the members of the senior class of design are now about to engage upon designs for a cottage hospital, I may here mention the following as being most valuable books on the subject: Burdett's "Hospitals and Asylums of the World," Saxon Snell and Mouatt's "Hospital Construction and Management," and Burdett's "Cottage Hospitals." Burdett's work is of especial value on account of the very excellent portfolio of plans, both of hospitals and lunatic asylums, which accompanies the volumes on Administration, Construction, History, and Bibliography. I wish to state here that I am indebted to Mr. Henry Burdett for much of the information

others the sick were cared for, and the wounded healed. The latter bore the name of "Broin Bearg," the house of sorrow. This example of the princess was widely followed throughout Ireland, and the ancient laws of this country sanctioned the providing for the sick "a physician, food, proper bed, furniture, and a proper house." It is a fact that

IRELAND HAS ALWAYS LED THE WAY in the founding of charitable institutions. To take a long stride from ancient to very modern history, it is interesting to note in passing that Dublin stands second in the United Kingdom in the proportion of hospital beds to the population which it provides, being 6.39 per 1000. This proportion is only exceeded by London, which provides 7.59, of which 1.91 are voluntary only. Edinburgh, which stands third, has 3.80; Glasgow, 3.44; Manchester, 2.83; and Liverpool 2.24. Of Continental cities, Rome occupies first place with 18.28, all the Italian cities being proportionately high. Hospitals were not founded in England until very long after their establishment in the sister isle. It is possible the Romans may have introduced a similar system of gratuitous medical relief as that to which they were accustomed in their own country, but we have no authenticated record of any such system. The earliest hospital of which we

many others of our now large and flourishing institutions had, like St. Bartholomew's, their beginning—probably due to the same access of religious fervour which found vent in the Crusades, and gave the impulse to the found-



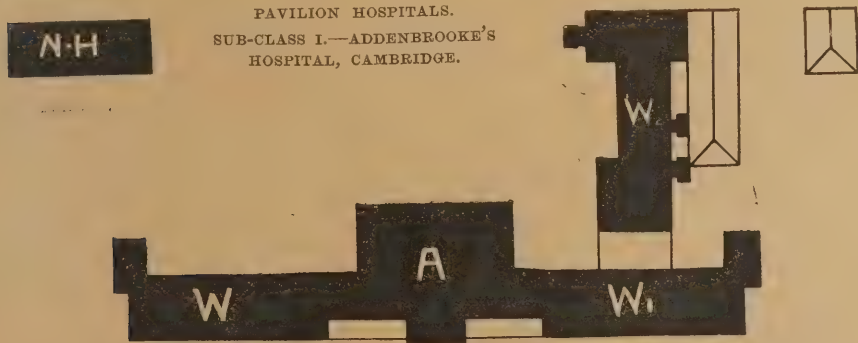
PAV. HOSPITALS.  
SUB-CLASS II.  
ROYAL INFIRMARY,  
PRESTON.

ing of charitable and religious institutions on the Continent. They were then called "hospitia" (hence our modern word hospitals), and were established generally for the reception and relief of lepers whose malady was one of the scourges of Europe. These leper hospitals were very commonly in England and Scotland known as Spitals, hence the frequency of such names of places as Spital, Spitalfields.

### MODERN HOSPITALS.

The leper hospitals and other kinds of the old hospitia disappeared with the improvement of our social conditions, and substitutes for them on a broader scale began to be established in the modern form of hospitals. Of public establishments under this general designation there are now, as is commonly known, three distinct classes: (1) Hospitals for the reception and treatment of the sick and hurt, hospitals for the board and education of children, and hospitals for the reception and permanent board of poor old persons of both sexes. It is, however, with the first-mentioned class alone we have to deal, and in this class are comprehended, besides the general hospitals, lying-in hospitals, consumption hospitals, ophthalmic and orthopedic hospitals, children's hospitals, and for the latest innovation dental hospitals, each with its peculiar accommodation and staff of officials. Independently of these are hospitals for the treatment of mental maladies, popularly known as lunatic asylums, also asylums for the reception and treatment of naturally imbecile children. To these must be added the isolation hospitals for the treatment of cholera, smallpox, scarlet-fever, and other infectious diseases, which have been established in recent years by every energetic sanitary authority, out of the rates. Besides these institutions under civil administration are those hospitals which are maintained by the States of civilised countries for the military and naval services. In the United States, where every medical college has its

PAVILION HOSPITALS.  
SUB-CLASS I.—ADDENBROOKE'S  
HOSPITAL, CAMBRIDGE.



which I hope to lay before you this evening. As regards the history of hospitals, the real beginnings of a now universal system have to be sought for in books dealing mainly with other subjects, wherein an occasional allusion points to some more or less embryonic hospital of the past. Speaking of Britain (or greater Britain to be more correct) I may mention that long before the Cross became a sacred symbol, hospitals were in existence in Ireland. In 300 B.C. the Palace of Emania was founded in Ireland by the Princess Macha, "of the golden hair," and continued to be the chief royal residence in Ulster till it was destroyed in 332 A.D. To this were attached two houses, in one of which the Red-branch Knights hung up their arms and trophies, while in the

have reliable information is St. Bartholomew's. It was founded between 1123 and 1133 by Rahere, the jester of King Henry I., who, like the Chicot of history and the Jacques of poetry, grew tired of fooling, and joined a religious order, and obtained from his old master, the King, a grant of an empty space of ground in the suburbs of London called Smithfield. There he built a Priory, and on the south side of this he erected a hospital. The original "Bart's," though on a smaller scale than the present, was meant to fulfil a wider scope. It was meant not only for "poor diseased persons until they got well," but for the reception of obstetric cases, and it also provided for the maintenance of all children born in the hospital until they reached the age of seven, if their mothers had died there. It was about this time, that is to say, about the twelfth and thirteenth centuries, that

\* A lecture delivered to the members of the Architectural Association of Ireland.—ED.]



own hospital, or the right to teach in the wards of public institutions, there are also many hospitals or asylums for inebriates, for opium users, and those addicted to other narcotics.

#### IMPROVEMENTS.

Until the middle of the nineteenth century, the organisation and management of

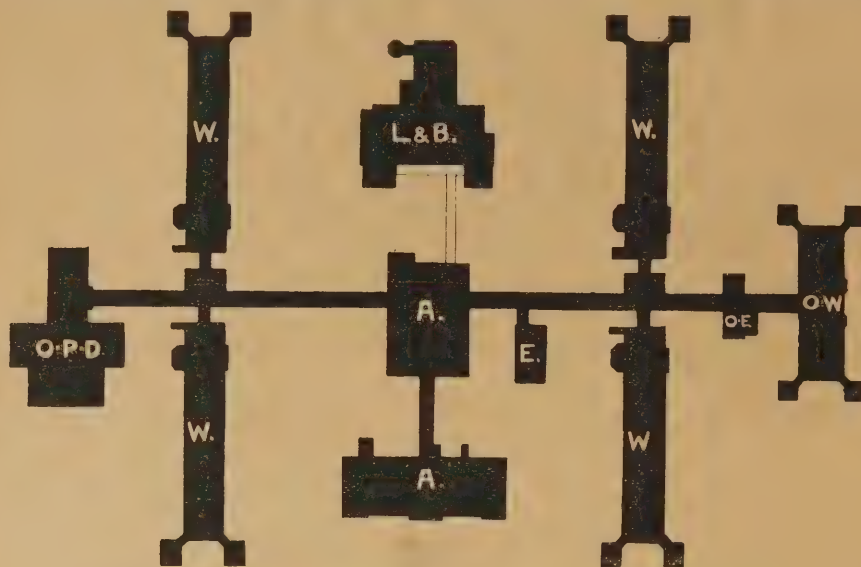
class. The administration is central between two well-proportioned wards of two stories, the upper wards containing nineteen beds, and the ground floor, with ward, fifteen beds. The sanitary blocks at the ends of the wards are not properly disconnected from the wards. The out-patients' department occupies the ground floor of the south ward. A wing projecting eastward from the southern pavilion was added

formerly used as infectious wards, but they are now occupied as a children's hospital.

Amongst other hospitals of the class, I may mention the Ayr County Hospital, the Bolton and Macclesfield Infirmarys, and the London Temperance Hospital in Hampstead Road.

**SUB-CLASS III.—The municipal pavilion**  
(A number of pavilions arranged on one or both sides of a corridor.)

The Derbyshire Royal Infirmary has a most instructive history. The original infirmary was built in 1806, and was constructed on what was at that time considered to be the most perfect system of ventilation and sanitation. The building consisted of a large rectangular block three stories in height, and was warmed and ventilated by means of a "Cockle" stove in the basement; the fresh air supply to this stove was brought from the summit of a tower in the grounds about 70 yards distant, by means of a brick channel 4ft. square, and was distributed all over the hospital by means of subsidiary ducts built into the walls. In the course of time it was found that the ventilating shafts were in direct communication with the drains, and that rats had free access to the building, which had in fact "become saturated with septic poison, so that it was impossible to undertake with safety the simplest operations." It was, therefore, decided to erect an entirely new hospital, the foundation stone of which was laid by Her Majesty the Queen on May 22, 1891. This new hospital, as will be seen, consists of four wards of twenty-four beds arranged on both sides of a central corridor. With the front and rear administration blocks and the laundry and boiler houses in three separate blocks on the central axis, one end of the corridor terminates with two small ophthalmic wards of six beds each, and with the ophthalmic operation room in connection; the other end of the corridor is occupied by the out-patients' department. The general operation room is also off the main corridor. There is also a detached nurses' home. Some of the buildings I have



PAVILION HOSPITAL SUB-CLASS III.—DERBYSHIRE ROYAL INFIRMARY.

hospitals, and the nursing of the sick in Great Britain, and in most parts of Europe, were, except in some few instances, extremely defective. Public opinion was then aroused on the question, and certain principles laid down on hospital construction and hospital nursing which have been recognised and adopted to a greater or less extent since that time. These principles may be briefly summed up under three heads: Construction, Administration, Nursing. Under the first head, "Construction," will naturally be included the general planning and classification of hospitals according to the arrangement of their wards. The determination of the special form of plan to be given to a hospital depends on several considerations. The area, conformation, and shape of the site must necessarily influence in a very marked degree the disposition and form of the buildings to be placed upon it. Climate, again, is an important factor in the consideration of hospital planning, the requirements in England and those in India, for example, being of a very different nature. In all hospitals, however, whether they are in the tropics or in Europe, on an ample site in the country or on some much restricted site in a town, the ward is the most important feature, and the one in relation to which all the other parts must be grouped. And in adopting a system of classification for the more intelligible ordering of the subject, such as Burdett suggests, it will be found that the most marked and essential difference between one group of hospitals and another lies in the position of the wards in relation to one another and to the other parts of the building.

#### CLASS I.—PAVILION HOSPITALS.

In this class are included all hospitals which have their wards constructed on what is known as the "Pavilion" system—that is, in which the ward is a parallelogram entirely detached, on at least three sides, with windows on both of its longer sides facing each other, and attached to the main block at one end only. This class is again divided into six sub-classes, as follows:

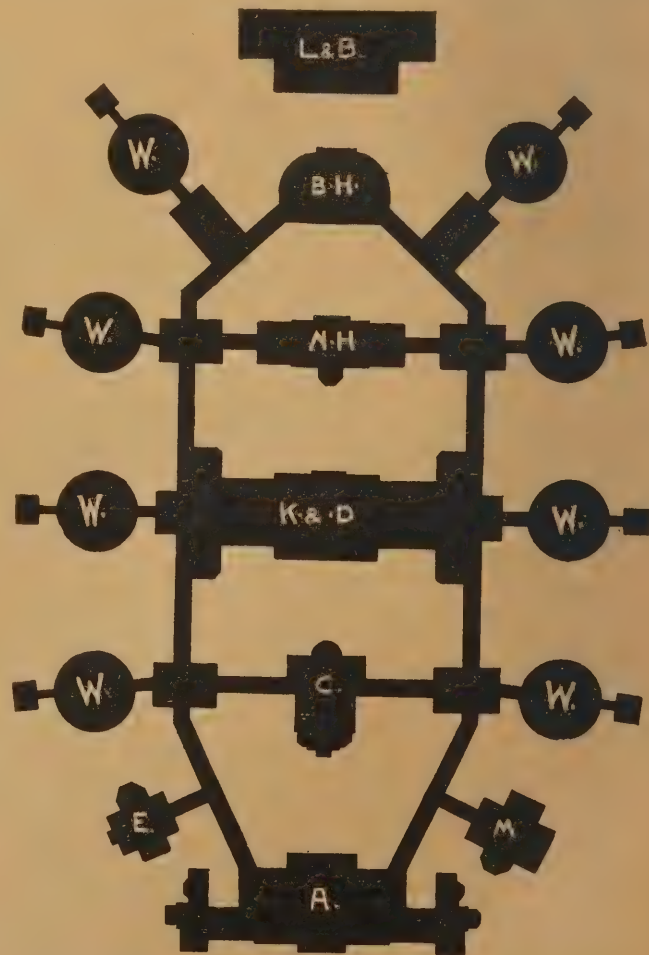
**SUB-CLASS I.—The single pavilion or straight plan.** (Two pavilions placed end to end with the administration interposed.)

Addenbrooke's Hospital, Cambridge (see illustration), as originally designed by Sir Digby Wyatt in 1864, was a typical hospital of this

subsequently; it is occupied on the ground floor by an extension of the out-patient department and special wards, and on the first floor by small wards, those at the extreme end being for isolation purposes, and with separate staircase. There is a detached nurses' home, giving accommodation for twenty-four nurses. Other hospitals of this class are: The South Infirmary, Cork; Donegal County Infirmary; Burton-on-Trent Hospital; and the German Hospital, Dalston.

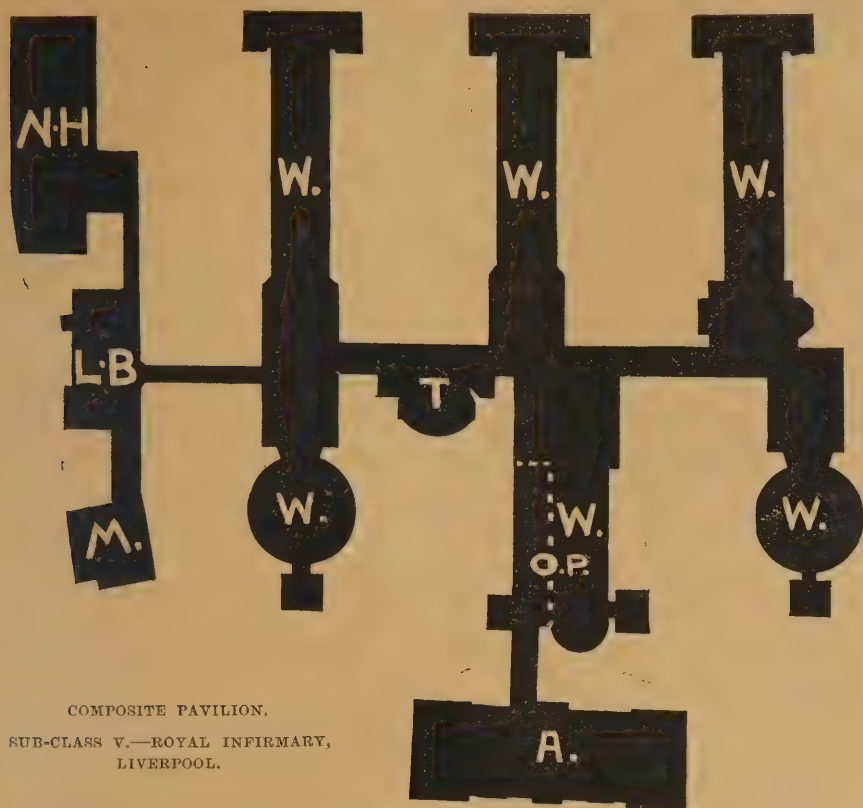
**SUB-CLASS II.—The double pavilion.** (Two pavilions joined together by corridor with a central administration block.)

I have illustrated the Royal Infirmary, Preston, as an example of this class. The central administration block faces south, and is separated from the two ward blocks by corridors 40ft. in length. Each ward block is divided into two unequal parts by a continuation of the corridor, the staircases being placed at the points of division. The south wards contain twenty-four beds with properly disconnected sanitary blocks at the south end, and with a loggia arranged between the two projecting blocks. The north wards are casualty wards for eight beds, and with two rooms for single beds adjoining. In addition to the buildings illustrated, there is a group of three pavilions placed parallel to each other and connected by covered ways. These were



PAVILION HOSPITAL SUB-CLASS IV.—CIVIL HOSPITAL, ANTWERP.





mentioned are not yet built, but are included in the scheme.

There are a very large number of hospitals of this class, all more or less modern. I may mention St. Thomas's Hospital, London, the Hospital for Incurables, Dublin, Leeds Infirmary, and the Royal Infirmary, Edinburgh.

SUB-CLASS IV.—Circular wards, either isolated or connected by administration block.

The new Town Hospital, Antwerp, was the first hospital arranged with circular wards, and was designed by M. Backelmaus, of Antwerp, but carried out by his pupils, MM. Bilmeyer and Van Riel. The ward pavilions are eight in number, and two stories in height, connected together, and to the administration, chapel, and dispensary blocks, by a corridor on the ground floor and a flat roof on the first floor. Each pavilion consists of three parts:

- (1) An entrance block containing three separation wards, the main staircase, a lift, and service rooms.
- (2) The ward block for twenty beds with Sisters' room in centre.
- (3) The sanitary block, containing water-closets, baths, lavatories, and kitchen.

The bath house is very complete, and contains several medicated baths, in addition to the ordinary baths.

Other hospitals of this class are at Hastings, and the Victoria Hospital, Burnley.

SUB-CLASS V.—A combination of circular with rectangular wards.

The Liverpool Royal Infirmary, erected in 1888-9, from the designs of Mr. Alfred Waterhouse, is a good example of this class. It would appear as if the exigencies of the site necessitated the adoption of the circular wards on the north side of the central corridor. In other respects the plan is similar to others in the multiple pavilion class. The Great Northern Central Hospital is another hospital of this class.

SUB-CLASS VI.—Isolated pavilions, with no connecting corridors.

Most of the examples of this type are to be found on the Continent and in America, and, as a rule, a much larger site, in proportion to the number of beds, is obtained than is usual with either of the before-mentioned classes. The essence of this system is the separation of the wards from the rest of the hospital, and

the perfection of the system is attained when not only each pavilion is cut off from the administration and other pavilions, but when each pavilion is but one story in height.

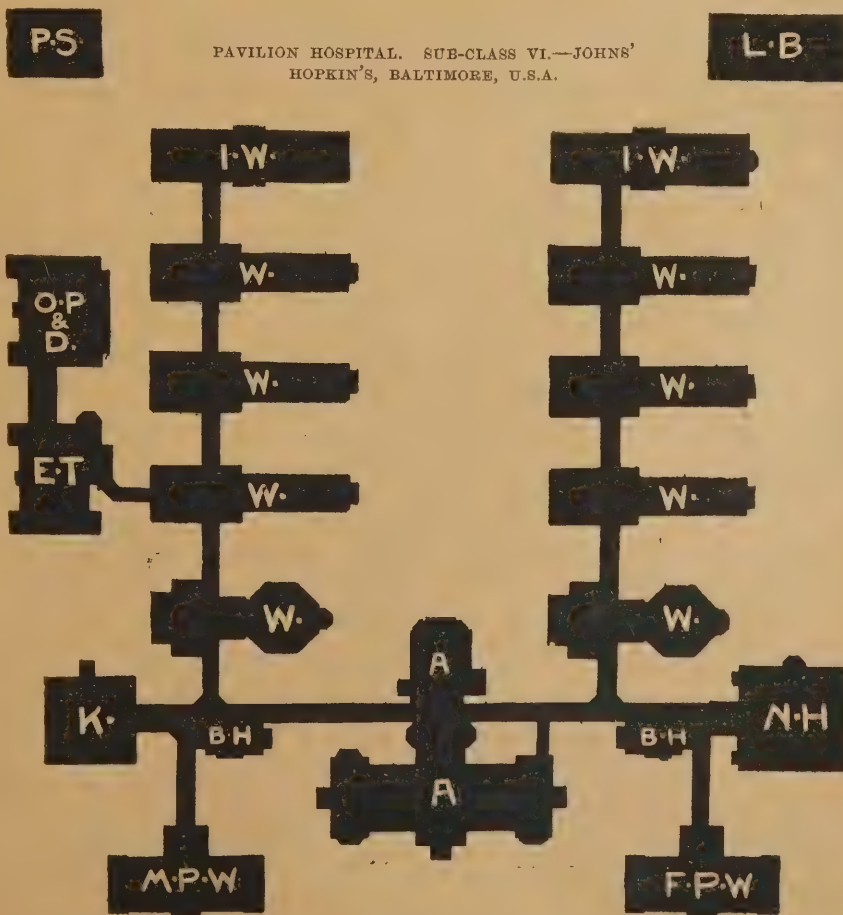
The Johns' Hopkin's Hospital, Baltimore, U.S.A., is probably the most perfect hospital in the world, and is the result of the utmost care, forethought, and research. Sixteen years were fully occupied in designing and completing the hospital, which consists of twenty-one buildings, twelve of which are

ward blocks—five of these blocks on the south side still, however, remain to be built. They consist of a ground story and a basement, and are connected together by a covered corridor, which is on the level of the ground floor of the administration buildings, and on the basement floor of the ward pavilions. A reference to the block plan will show in what way the several buildings are occupied. Other hospitals of this class are the Friedrichshain Hospital, Berlin, the Cantonal Hospital, Aarau, Switzerland, and the Municipal Hospital, St. Denis, Paris.

(To be continued.)

NOTE.—Index to Plans.—A, Administration; W, Wards; I W, Isolation Wards; O W, Ophthalmic Wards; M P W, Male Paying Ward; F P W, Female Paying Ward; O P D, Out-Patients' Department; D, Dispensary; E T, Operating Theatre; E, Operating Room; P S, Pathological School; M S, Medical School; B H, Bath House; N H, Nurses' Home; K, Kitchen Block; L B, Laundry and Boilers; M, Mortuary.

A BILL has been deposited in the Private Bill Office of the House of Commons by the Southwark and Vauxhall Water Company, to enable the company to increase the quantity of water it may take from the river Thames. The preamble recites that by an agreement between the company and the Thames Conservators, made in 1886, it was arranged that the former might take in any twenty-four hours from midnight to midnight any quantity of water from the Thames not exceeding in the whole 24,500,000 gallons. The demands upon the company have increased, and during recent years it has from time to time taken more than that quantity. An injunction was accordingly issued, at the instance of the conservators, by the Queen's Bench. The Bill proposes that the company may take from the Thames as much water as may be required for the purpose of fulfilling obligations imposed by statute up to 45,000,000 gallons per day; but there is a proviso that the company shall not take more than 24,500,000 gallons per day when the flow of water over the weir about to be constructed by the conservators across the river at Penton Hook is in such day less than 300,000,000 gallons.





### THE SHEFFIELD REFUSE DESTRUCTOR.

THE fires were lighted at the new works in Lumley Street last week, and a method of refuse destruction has been commenced which will, it is said, revolutionise the system of disposing of rubbish. The "Warner's Perfectus Destructor," which has been erected for the Corporation, is guaranteed by the inventor to dispose of either wet or dry nightsoil, by a method which will not cause inconvenience or annoyance to the public. In 1892, the idea of a destructor on modern principles was adopted, and a piece of land was secured in Lumley Street, by the side of the canal. Messrs. Goddard, Massey, and Warner, of Nottingham, are the contractors for the mechanical part of the work, the system employed being named after a member of that firm. Messrs. Longden and Sons were the contractors for the buildings, and the work was commenced two years ago. The site certainly lends itself to the purpose for which it has been adopted. The carts containing the refuse will be driven in on a level roadway and, over a small bridge, will go round to the top of the destructor, where the contents will be tipped on to a sort of platform, in which there are six holes or "hoppers," through which the rubbish will be shovelled into the six cells, where the process of combustion goes on. Several feet lower than the feeding holes are the furnace fires, at which the stokers work, and from these outlets the "clinkers," or the residuum after the burning process, are drawn out and wheeled round to a shed, in which there is a grinder, and waste is thus prevented, as the burnt refuse, when ground, is supposed to be excellent material for mortar. There are, too, fanners driven by an engine, which will regulate a draught by which the fire may be accelerated. Another important feature is the fact that sufficient heat is supplied from the destructor to generate the steam required for two engines, one of which drives the fanners, and the other works the mortar grinder, so that the refuse burns itself and grinds itself into a useful commodity. At the present there is only one boiler, but there is room in the shed for three others, and the destructor has been so constructed that other cells may be added. Thus, with the extension of the work of the destructor, provision may be made for turning the heat produced to other useful purposes. In addition to the engine-shed there is a store-room, with an office partitioned off, and through this room also runs a shafting from the engine to which a belt for a lathe, or any other machine may be attached. A very large portion of the site is still unoccupied, and, of course, it will be quite possible at any future time to conduct other operations on the land, or to work dynamos for electric light by the heat from the furnace, and the close proximity of the canal will be a decided advantage. There is no residential property close by, and the chimney stack is 180ft. high, and is connected with the furnace by a long underground flue, in which the dust is much distributed before it reaches the chimney. The flue can be easily cleaned, trap-doors being let in the side for the purpose. The present capacity of the destructor will allow of 60 tons being burned in twenty-four hours—that is to say, ten tons per cell, and the residuum is at the rate of 15cwt. from ten tons. With regard to the cost, the site (5a. Or. 10p.) cost £7763; the building contract was £6002; Messrs. Goddard, Massey, and Warner's contract was £2207; the paving of the road leading to the premises cost £4166, and some £300 must be added for paving round the building, making a total in all of £21,208.

At Hornsea, the District Council proposes to borrow £1300 for works of water supply, and £300 for works of street improvements.

The Public Health Committee of the Derbyshire County Council has held an enquiry into the proposal to erect a Joint Isolation Hospital for the use of the Bakewell Rural District Council and all the Urban Authorities within the Union.

### Surveying and Sanitary Notes.

MR. R. O'BRIEN-SMYTH, C.E., Inspector Local Government Board, has held an inquiry at the Town Hall, Blackrock, as to the sufficiency of a scheme framed by the Town Commissioners of Blackrock for providing new dwellings for persons of the labouring class to be displaced out of an area which had been declared unhealthy under the Working Classes Act, 1890. —Mr. R. Finlay Herron, secretary to the Commissioners, stated that they proposed to erect twelve three-story houses and ten two-story houses, with suitable sanitary accommodation. —Evidence was given to show that in all 109 persons would be displaced; that in some cases as many as eight persons were living in one room, and that all the houses were of a most wretched description. —The Inspectors suggested tiled floors in the living rooms, instead of concrete, which was more difficult to keep clean, and absorbed moisture, and intimated that he was satisfied the scheme was sufficient and suitable.

THE Bath Sanitary Committee has agreed to allow £2750 in the estimate for the ensuing year for sewer work. This is £500 higher than last year's estimate, but it has been explained that £450 was for excavating and cleansing the river banks.

WITH regard to the proposed scheme for North Walsham waterworks, a correspondent writes: It has been suggested that the sinking of more wells here is a very pressing necessity. It is true that by this means the supply would be increased, but it is also true that the quality would not be improved. All the water drawn from the depth of the existing wells is more or less contaminated, as it is all derived from springs on the same level. It has been ascertained that to sink isolated wells to such a depth that pure water could be obtained, would be a more costly method in the long run than the erection of what are commonly known as waterworks. Therefore, under the guidance of an eminent engineer, the District Council has now before it a scheme for such waterworks. The cost of the scheme at present under consideration is approximately estimated at about £4000. Should this be adopted, it is proposed to raise the sum required by a loan, extending over a period of sixty years. The interest on this sum, and the annual reduction of the loan, would be met by a charge on the rates. To those to whom the idea of waterworks and the consequent charge upon the rates is unwelcome, it may be pointed out that the well-nigh universal adoption of waterworks in all urban districts proves that no other method can be suggested which meets the necessity of the case so well.

THE Engineer to the Commission of Sewers (Mr. D. J. Ross) has issued his report on the works executed by that body during the last twelve months. The report states that the total length of sewers constructed during the period under review was 351ft., while no fewer than 232 premises were thoroughly drained. Referring to the proposed widening of Cheapside at its junction with Newgate Street, the engineer says: "The importance of widening Cheapside at this spot may be gathered from the fact that observations taken of the traffic on June 19th, 1896, show that 16,650 vehicles passed through the junction of Newgate Street and Cheapside during the twelve hours from 8 a.m. to 8 p.m., the width at that spot being only 27ft. 7in. from kerb to kerb." The number of arc lamps for the lighting of the City by electricity has increased to 493. The consumption of gas by the incandescent burner is 4ft. per hour, whereas the ordinary flame burner consumes 5ft. per hour, while the cost per annum of the former averages £4 7s. 3d. each, as against £3 6s. 4d. for the latter. The cost of the water used in cleansing the streets, &c., was £3720 16s. 10d., as against £3425 16s. 8d. during the previous year. Beneath the City

streets there are nearly one and a half miles of subways, the total length of mains, tubes, &c., amounting to seven and a half miles. During last year 4717 workmen and others were admitted, under supervision, to these subways. The work of cleansing the streets is, as the engineer points out, well done. Its extent can be understood when it is considered that over a million people and nearly a hundred thousand carriages enter and leave the City daily, and that out of that number more than three hundred thousand persons pass the day within the City. The quantity of water used during the year for washing the streets and courts was about 24,169,642 gallons, and the number of nights when it was used was about 259.

A FRESH scheme for protecting the eastern foreshore of Brighton has been prepared by the Works Committee for the approval of the Town Council. A scheme was brought up two months ago for erecting a sea-wall and a concrete groyne, at a cost of about £36,000, but was deferred for various reasons. The amended scheme will cost only one-third of the former estimate—namely, £12,000. It provides for two groynes, each of them being only 450ft. long from the south side of the road. Instead of a sea-wall of more durable material, a timber breastwork is to be provided of an inexpensive character, as it is hoped that it will soon be buried by the shingle.

THE foundation stone of the new public baths in course of erection in Kingston-on-Thames was laid on the 31st ult.

COLONEL J. T. MARSH, R.E., Local Government Board Inspector, held an inquiry at the Stonehouse Town Hall recently into three applications by the District Council: (1) for sanction to borrow £5500 for the purchase of the premises known as Pomeroy's Corner, for the purpose of setting back the frontage and improving Chapel and Edgcombe Streets, (2) for permission to raise a loan of £1300 for the purchase of premises in Strand Street for use as a stoneyard and depot; and (3) for the provisional order under section 303 of the Public Health Act, 1875, to partially repeal and amend the East Stonehouse Water Act, 1893, so as to provide for the abandonment of so much of the scheme for the supply of water by the Corporation of Plymouth to the District Council as was contained in clause two of the agreement scheduled in the Act, and substitute other agreed provisions, and to empower the District Council to borrow money to carry out works pursuant to such provisions. It was explained that the property the Council sought to acquire in Strand Street was Lucas's Wharf, fronting the Pool. At present it occupied a stoneyard in Newport Street, under a yearly tenancy. But it was liable to ejectment in the event of the site being required for building operations, and it was considered desirable in the interests of the town to purchase a depot. The leasehold interest in the property could be purchased for £868, and Lord Mount Edgcombe had agreed to sell the reversion for £300, so that for £1168 the Council could acquire it as a freehold property. The balance between that amount and the sum sought to be borrowed was required for adapting the premises for the purposes of the Council. Discussing next the application to borrow £5500 for the improvement of Pomeroy's Corner, it was explained that the Council originally intended to widen both Edgcombe Street and Chapel Street at that junction by setting back and curving the line of frontage at Pomeroy's Corner. Not only would a great improvement to the neighbourhood be thereby effected, but the Plymouth, Stonehouse, and Devonport Tramway Company, whose cars serve the three towns, would be enabled to substitute a double line for the single line which at present traversed that part of their route, and to improve the curve which now, owing to the angle of the corner, was extremely sharp. Including the freehold, the total cost of the property would be £4850, and the balance of the loan asked for was required to set back the property and carry out the necessary alterations in the roadway.





### The New English Art Club.

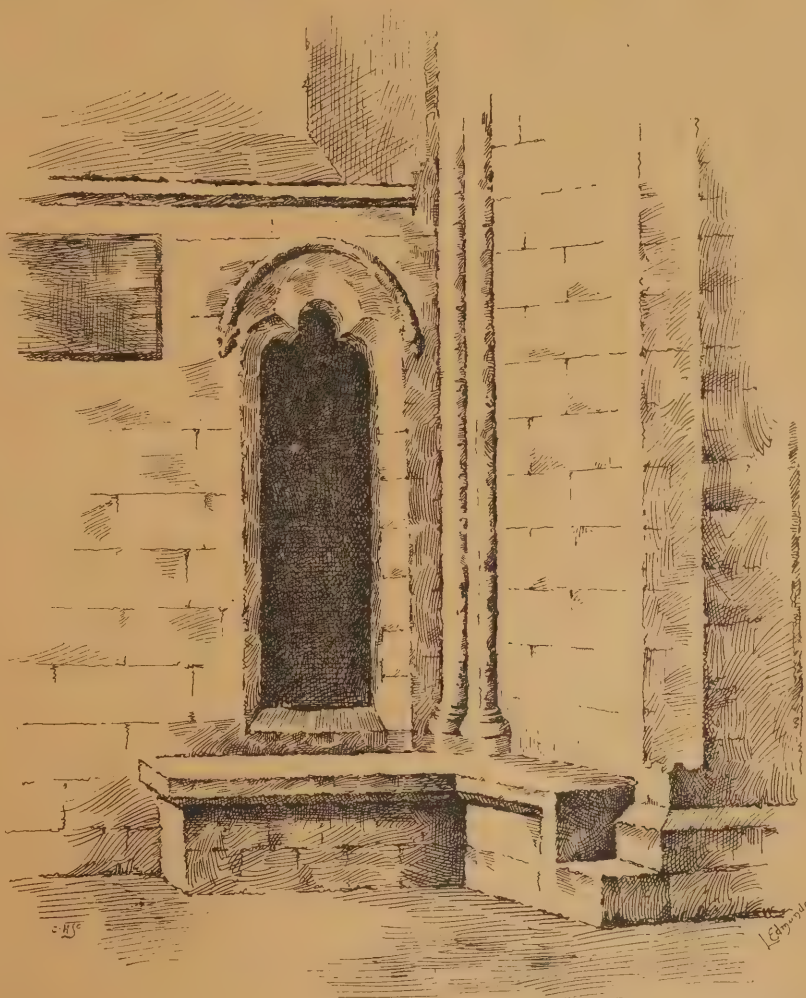
WE are accustomed to look to the Dudley Gallery twice a year

for the latest thing in "impressionism," whether in the treatment of incident, in Architecture and landscape, or in portraiture. The present exhibition of the New English Art Club shows a good average of clever work rather than any great and memorable masterpiece. No such distinguished guests as Whistler or Sargent grace the walls, but most of the leading spirits of the club—P. Wilson Steer, Henry Tonks, Moffat Lindner, Walter and Bernhard Sickert, Arthur Thomson, R. Anning Bell, and C. W. Furse—are strongly represented; while the black-and-white school—led by Phil May, Bernard Partridge, and Will Rothenstein—are regrettably absent. W. Sickert sends an imposing and elaborate painting of St. Mark's, Venice. Bernhard Sickert's "Ponté della Trinità" is set in a more poetic key, but his brush is still more sympathetic in "Poole Harbour" and "The Quay, Boulogne." A comparison of these four works with George Thomson's "Westminster Abbey" on the one hand, and on the other with W. H. Y. Titecomb's pearly Venetian visions, or the "Stockholm" of Jane Inglis, will illustrate forcibly, though by no means unkindly, the difference between an Architectural painting and a picture. However powerful and valuable a close front view may be painted, as one may say "without prejudice" (which often means without emotion), it rarely becomes pictorial, save under some happy accident of mist or sidelight requiring the finest artistic qualities to utilise at a few feet's distance; and as expressions of the spirit of an Architectural style, such aspects as this of St. Mark's and Westminster Abbey are colourless and void. Ecclesiastical Architecture, above all other, seems to demand space and atmosphere before it will reveal itself with any dignity or charm. A dwelling-house is more amenable to intimacy of treatment—witness the beautiful old homestead in the foreground of "The Minister's Daughter," by James Charles, in which the mellow tenderness of every brick invites us closer to the hospitable door. The "Dover Castle" of J. L. Henry and the "Christchurch Bay and Harbour" of Moffat Lindner are fine in a yet different way. Several of the portrait-painters have attempted difficult mirror effects with varying success. "Mrs. Cane," by C. W. Furse, is notable not so much for the double portraiture obtained by the looking-glass as for the daring and yet remarkably tolerable discord between the mauve curtain and the lady's cloak of rich electric-blue. But this is a year of blatant blues with variations in violet; and the eye that can endure G. Thomson's "Blue Gown" has little else to fear. "Blind Man's Buff," by Henry Tonks, is a remarkably vigorous study of an "Early Victorian" drawing-room, glassy, and slippery, and cold, with shot silks and shiny chintzes and mirrors in twisted gilt curls. In catching the indescribable sheen of such a room, the Artist has done a cleverer thing than any direct mirror-painting. R. Anning Bell's "Mother and Child" is unsurpassed for simplicity of drawing and purity of colour, and among the large number of exhibits occupying the walls of the gallery no one should miss the brilliant little pencil study, "Stitching," by A. H. Studd. It is worth more than a passing glance.

### Two Unsolved Problems.

IN a recent issue we dealt at length with the important question of extending the Government Offices. But there are two other questions, perhaps of greater importance and more pressing than this extension scheme, calling for a practical solution at the hands of the Government. The vexed question, "How is the Wallace Art Collection to be housed?" yet remains unanswered, though innumerable suggestions have been made on the subject—and the much-needed completion of the South Kensington Museum is a topic of animated controversy, growing in popularity almost daily. The Wallace Collection is too great a bequest to the nation to approach the subject indifferently, or to deal with it otherwise than in a liberal spirit. Representative of almost

that Hertford House should be adapted for retaining its treasures; secondly, it is suggested that an annexe should be built to the National Gallery; and, thirdly, that an annexe be built to the South Kensington Museum. Of course, much might be said in favour of each of these alternatives, but, considering all the facts, we are inclined to think that the proposed annexe to the National Gallery is the project most heartily to be recommended. It would certainly be the most costly, inasmuch as, if carried out on any pretensions scale, it would involve not only the taking over of St. George's Barracks, but the demolition of several houses in the neighbourhood of St. Martin's Street. And it is this latter necessity which induces us to favour the National Gallery proposal, for by the removal of the houses in question an un-



Early English Doorway  
LANDAFF (ATHE)RAL

SKETCHED BY L. EDMUNDS.

every school of painting, and numbering masterpieces by Reynolds, Gainsborough, Watteau, and Greuze, the Wallace Collection is undoubtedly unique; and whether we are prepared to accept the enormous estimates of its pecuniary value which have been so extensively set forth, it is positive that many pages of English history will be written ere the artistic wealth of the country is again so handsomely enhanced as by the Lady Wallace's bequest. Why not, then, a suitable home for the treasures? A suitable home will no doubt be provided in due time—or perhaps undue time. The Government cannot overlook the necessity, for it is a condition of the gift. Where, then, can the collection be contained? So far, the Government has three alternatives. Firstly, it is suggested

doubted source of danger—by reason of their proximity—would also be removed. St. Martin's Street would have to be carried down to Pall Mall, and it is clear that, were such a project carried out, not only would the isolation of the National Gallery be secured, but a very real improvement would be effected. The question of cost would certainly be a somewhat serious matter. But ought the Government to base its actions too largely on economic considerations in dealing with this unprecedented gift to the nation? To both the other alternatives there are weighty objections. The South Kensington Museum sorely needs every inch of available building space for the proper display of its own Art treasures, and Hertford House is not at all suited to contain a public collection, nor



is it clear how some of the difficulties in the way of its becoming suitable are to be overcome. The question is for the Government, and the Government only, and one would like to hear of practical steps being taken towards a solution. And then as to the second problem—what is to be done with South Kensington Museum? The question has been discussed and re-discussed, and we seem as far off a solution as ever, though it is greatly to be hoped a due sense of the fitness of things, as well as the exigencies of space, will lead to, if not the erection of a building worthy of its important purpose, at least the completion of the present Museum. "It is not in the least necessary to have an ornate and costly building such as the soul of the modern Architect delights in," said the Times in a leading article a few days ago, but surely the Museum should be imposing enough to give some impression of its national importance!—And we would inform the Times correspondent that a good design is not more costly than a bad one.

#### BUILDING ACTIVITY IN LEEDS.

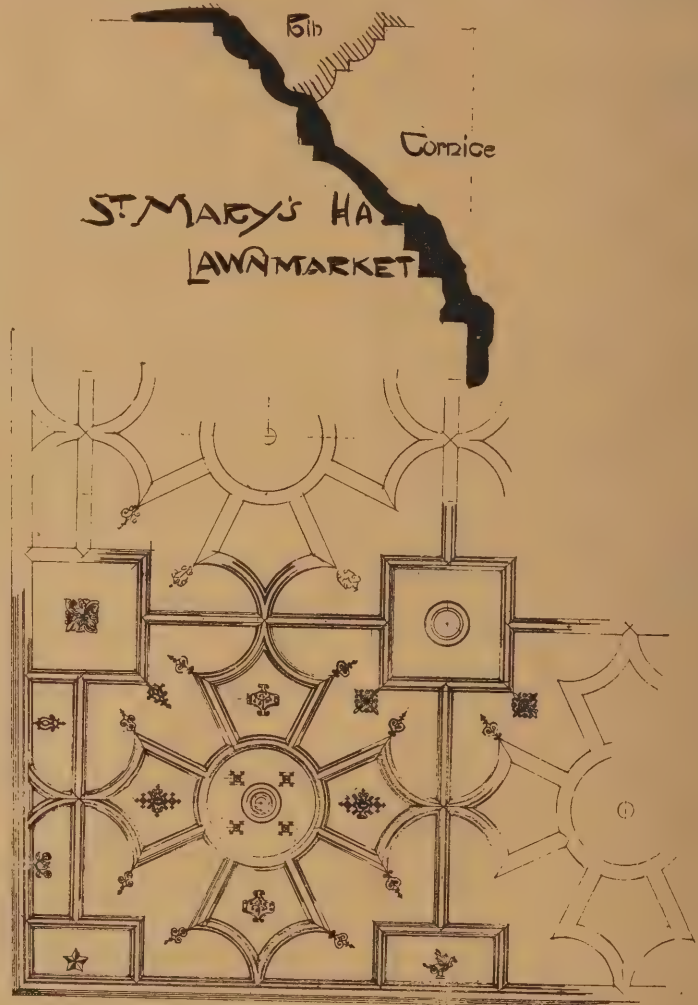
NEVER since Leeds was built were Architects and builders so busy as they are now, and are likely to be all this and part of next year in that quarter of the centre where the railway stations, the new Post-office, and the principal hotels are. Most of the many enterprises by which this central district is being transformed have been briefly mentioned in these columns from time to time; other projects are now being mooted which hitherto have only been the subject of rumour. The old Post-office is to be pulled down forthwith, and a slice of the site thereof having been added to Infirmary Street, the remainder of this "highly eligible" space will be submitted to public competition. Quite within sight of the ancient edifice last mentioned, three new banks are in various stages of progress. Two of them, externally, seem to be approaching completion; the other is rapidly appearing above the level of Boar Lane at the bottom of Park Row. Further down Bishopgate Street

#### A GREAT GAP

has been created at the south-eastern corner of the Queen's Hotel, which is to be filled by an extensive addition to that inn. A little further eastward, the Griffin Hotel is having a big wing added on the southern side. Important as these undertakings are, Architecturally and otherwise, they are, of course, overshadowed by the enlargement of the New Station, which appears to be making headway on the slow-and-sure system. The new platforms at the north-east corner are nearly all covered in, and new booking-offices are gradually ascending upon the site of the old parcels and superintendent's offices. The construction of the cab rank has not yet been started, and the offices occupied by the stationmaster and the lost luggage department still impede passengers in search of their trains. Nevertheless, a vast deal more space, light, and air are being provided both for the public and the railway officials, and further improvements are to be taken in hand. This forward movement has also extended westward to the surroundings of the Great Northern Station. The hotel of that company is to be enlarged and further adapted to present-day requirements, and the foundations and basement of the Hotel Metropole, in King Street, are nearly completed. East Leeds is not an attractive suburb. Nevertheless, the probability is that the near future will see a considerable part of this outlying district converted into one of the popular residential quarters of the city. Two circumstances are making for that end. One is the extension of the tramway, and the other the scheme for abolishing the insanitary area. The first item on the programme of improvements is the clearance of old, unhealthy property verging on York Street, and with it the widening and practical reconstruction of that thoroughfare. That is a matter which the inhabitants may reasonably expect to see

carried out at a comparatively early date. As for the tramway, the York Road portion is already in course of construction; half of it, indeed, is nearly finished. Within measurable distance, therefore, it will be possible for residents on the road to Halton to get into Leeds by a quick service of trams in a few minutes; and the fact that there will be a decent thoroughfare to leave town by, must inevitably bring many to live in this neighbourhood who at present avoid it. Compared with some other localities, East Leeds has not developed to any very great extent. Within the past year or two, however, building enterprise has been noticeable. The demolition of the Marsh Lane tunnel led to a good many structural alterations; and the opening out of

Growth of this kind is inevitable. Apart from the question of doing away with the insanitary area there are the railway developments to be considered. In the valley, by Knostrop, the North-Eastern are laying down extensive sidings for the purpose of their new goods depot connecting with the Great Northern Railway Company's Hunslet branch; and in course of time East Street, which is on the direct route to Knostrop, will require widening. So far the most important feature in the general project is the near provision of a good wide, cleanly road from the covered market to the country, and the certainty that the adjacent main streets will have to be similarly improved. At the point where the York Road tram has its present terminus five roads meet;



SCOTTISH PLASTER: DRAWN BY JOHN MURRAY.

the Park and the Ivy House Estate has been another gratifying feature.

#### THE NEW TRAMWAY,

which measures rather short of two miles from end to end, will have its terminus near the entrance to Ivy House estate—at the corner of Victoria Avenue, to be precise. Already about a hundred new, neat dwelling-houses look out upon the trim grass borders and young trees of this avenue, and there is room for twice as many more. A little farther on a large portion of the estate, which the Corporation has sold to various persons, is being laid out in streets, and it is not difficult to foresee the time when, the tramway completed, houses will spring up on every side. There appears to be plenty of land available for building purposes. Here, too, it is proposed that the Corporation shall erect working-class dwellings to accommodate occupants of the insanitary area when they are turned out of their present homes. Nearer the town, namely, on Richmond Hill, which is about the same elevation as the Ivy House estate, though more thickly populated, an open space of some half dozen acres is already being covered with new cottage houses and shops.

one of them—Burmantofts Street—is being widened for the tramway connection with Roundhay Road, and it would seem that the turn of Quarry Hill and Marsh Lane also is bound to come. At this particular meeting-point a spacious square will be formed by the removal of the Shoulder of Mutton Inn, which the Corporation has now acquired.

THE second volume of Mr. Edwin O. Sachs' monumental work, "Modern Opera Houses and Theatres," will be issued early in May. The liberal support afforded by the subscribers has enabled the author to materially extend his original programme, and no less than 300 well-known play-houses will be dealt with. Sixty theatres of recent date representing Austria, France, Germany, Great Britain, Greece, Holland, Italy, Roumania, Russia, Spain, and Switzerland, are now fully described on 200 large folio plates in the first two volumes, and there are nearly 1000 views, sketches, and diagrams distributed in the text. Mr. B. T. Batsford, of High Holborn, is the publisher, and the third volume will be ready in December.



## Scottish Plaster Work.

(Concluded from page 122.)

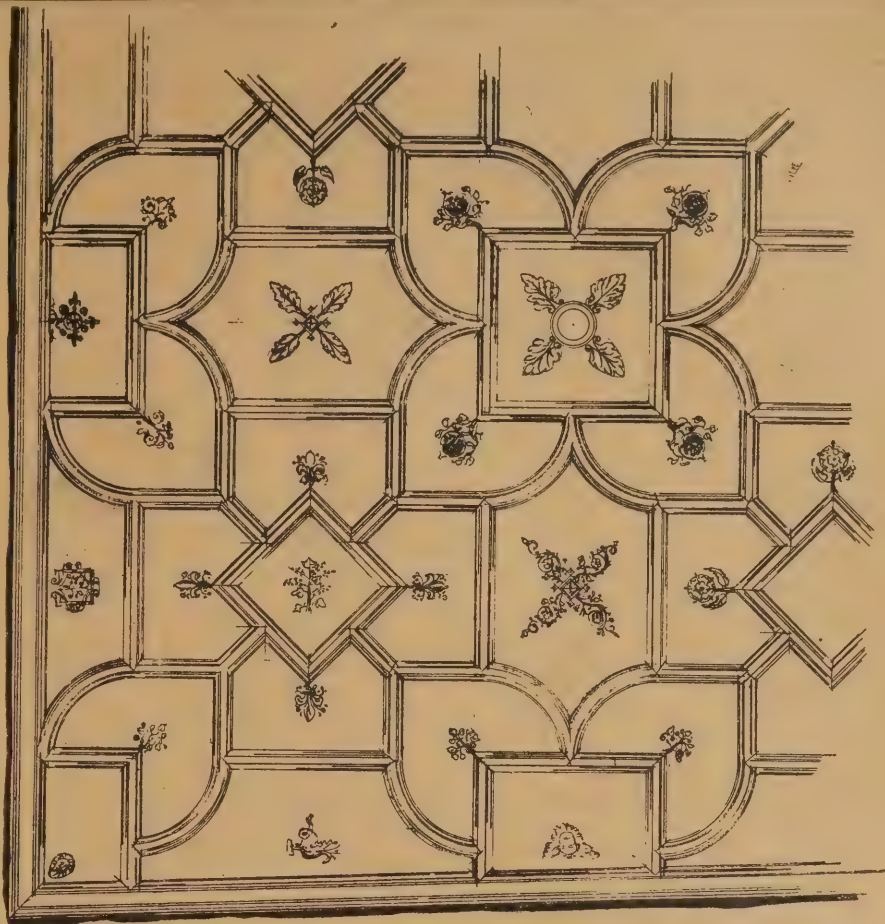
By JOHN MURRAY.

The illustrations of Keltie Castle have been kindly lent by Mr. R. S. Lorimer; the whole of the others are from original drawings by Mr. John Murray.

THE great variety of effect gained by the use of broad and narrow ribs, heavy and elaborate, and also comparatively simple, is very marked in the examples at Binns Castle, Linlithgow. One is composed of plain ribs forming squares and circles. The ornament is of simple design, and is chiefly composed of stars, crescents, and monograms. The other ceilings in the same house are very heavy in detail and ornament. In one room there is a deep frieze of festooned fruit and foliage. In another room the ceiling is coved, and the ribs curve downwards and terminate with decorated pendants, as at Moray House; in fact, the whole detail bears a considerable resemblance to Moray House work.

There is another style apart from the rib and strap work, and of it there are fine examples at Hatton House, Saughton House, Holyrood, and several other places. There was one example in Edinburgh, in what used to be Bartholomew's printing and map-mounting offices at the head of Chambers Street. I do not know whether it is still preserved or not. At Hatton House there is a large central oval with festooned fruit and foliage, and the central portion left for painting and decoration. The portions outside the oval are filled with fruit and flowers in very high relief.

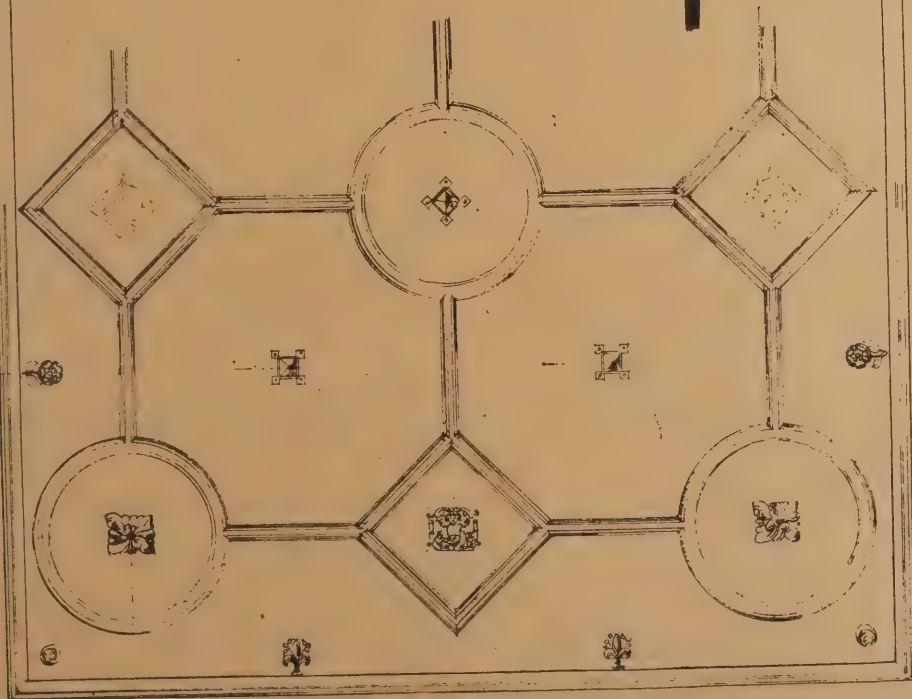
I think I have exhausted most of the ex-



ST. MARY'S HALL, LAWN MARKET.

Corrice

FRENCH AMBASSADOR'S  
HOUSE: COWGATE:



DRAWN BY JOHN MURRAY.

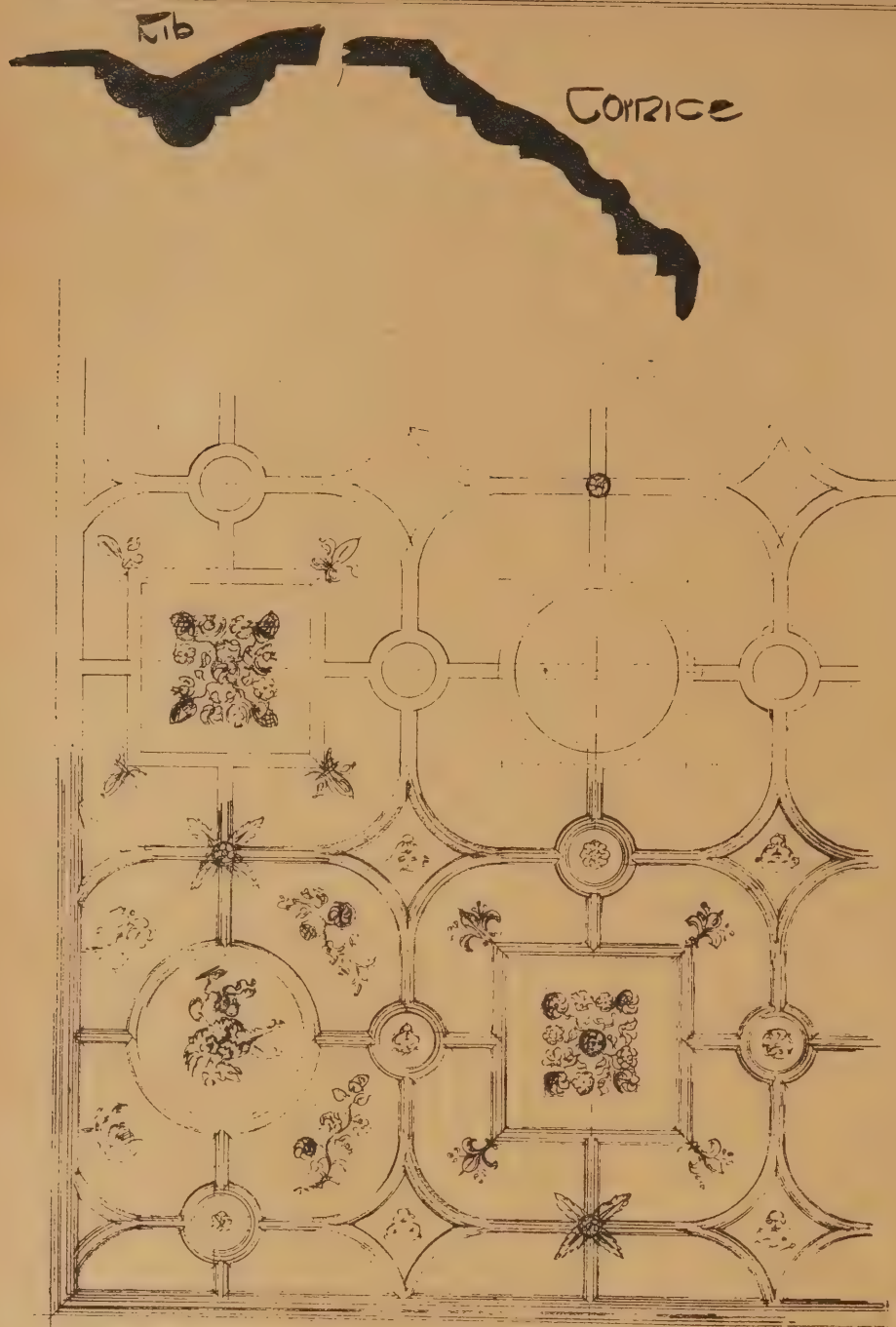
amples preserved to us in country mansions, and will make a few remarks on those that were executed during the same period in Edinburgh. Possibly some will remember the block of old timber-fronted houses that stood at the corner of the Lawn Market, and the West Bow, although it is some time since it was taken down: about 1878-79. There they stood as they were erected some 335 years before. It is not to it that I would draw your attention, but to the house next, which was also demolished about the same time. On the second floor of that tenement there were two ideas for interlaced ceilings. The ribs were plain moulded, the one about 3in. broad and the other about 3½in.

Of the many town mansions (at that time) of the prosperous city merchants of the sixteenth century, Baillie Macmorran's is one of the very few that survives. It is reached by Riddle's Close from the Lawn Market. In one of the rooms on the first floor there is a well-preserved decorated ceiling. The ribs themselves are plain, and run in the form of squares and circles, and the panels thus formed are filled in with modelled stucco. I give an illustration from a drawing of this ceiling, which was one of a set that gained the first prize given by the Architectural Association a number of years ago. I also give two more examples from St. Mary's Hall, Lawn Market, of the dates 1645 and 1646. The pattern formed by the ribs in one is exactly similar to the one in the tenement in Lawn Market, of which I have already spoken. The other is of slightly different design, and both have enrichments, but not of a heavy nature.

In what used to be the French Ambassador's private chapel, there was a ceiling of very simple design. It was formed of circles and diamonds alternately. The ornament was small and there was little of it.

From Croft-an-Righ or Field of the King, we have another ceiling typical of the style prevalent during the early part of the seventeenth century. There is a marked similarity, too, between it and the one in Baillie Macmorran's house, both in ornament and forms taken by ribs. To quote a paragraph from





CROFT-AN-RIGH. DRAWN BY JOHN MURRAY.

"Domestic Architecture of Scotland," it says: "No satisfactory history of this house is known. The Earl of Moray is supposed to have resided here in 1564, but it appears to us doubtful whether it is as old as that period." It is also supposed to be the house purchased by William Graham, Earl of Airth (who died in 1694) from the Earl of Linlithgow." Then again the history of Holyrood states that it is an edifice of the sixteenth century, and was the residence of Regent Moray, and with its gardens was "gifted, along with several adjoining properties, by James VI. to a favourite servant of the name of French." This all goes to show that the ceiling is of a later date than the building itself.

As a last example, I would mention a house in the Grass Market, which was taken down in 1877. Here, the ceilings were much heavier in detail and ornament than the strap and rib style, and more inclined to the style of Hatton House, &c. The centre panel was in the form of an octagon, and the corners left were filled in with a shield, lion rampant, and scrolls.

With regard to the later style of plaster work as executed by William Adam and his son Robert, I will add a few remarks. William Adam practised as an Architect in Edinburgh early in the eighteenth century. He died in

1748, and was buried in Grey Friar's Churchyard. During his career he erected many notable noblemen's mansions throughout Scotland. The style he adopted was purely Classic, and for about a century after his time it retained a firm hold as the prevalent style for all buildings, for those of even the very least pretensions. Let us take Drum House, for instance, as an example of his work. It is in close proximity to Edinburgh, about four miles distant. The plaster work here is of the most elaborate kind. The dining-room ceiling is also very rich with effective and delicate detail; this room is also after the style of Hatton. A portion of it is divided off by Ionic columns and flat arches, perhaps a revival of the screens in the halls of old castles. The archivolt and soffits of the arches are enriched. Of the younger Adams' work we have many examples in Edinburgh in houses in York Place and Queen Street for instance. Many of the ceilings of the outer lobbies are ornamented. Large ovals with festoons of flowers round the ovals are common. Some are just composed of festoons and a large central ornament, others again are of diamond shape. There is great variety in forms and designs, which drawings only could adequately describe.

Now I will go over briefly the principal

points that present themselves to us in the work I have just tried to explain. In the early Scotch Renaissance work, the use of the broad and narrow ribs lends great variety to the designs of the period. There is also some variety in detail; beads, cavettos, ogees, and segments of circles are all used in the formation of the ribs. The section of the Berwick rib is quite an exception. In the forms made by the ribs there is a great similarity. This is generally the case down to the examples at Hatton House, &c., which are pure Italian. Those at Drum House have a distinct French feeling about them. In studying the work it is seen that there is a tendency towards heavier detail and ornament from about 1640. The ceiling of the house in the Grass Market is an example of this. There seems to have been a change of feeling about every twenty-five years.

Some ribs were run by the hand with the use of rods as guides; others, again, were run by means of a crude mould. The ornament was also hand-wrought, and is easily distinguished from cast work now used. It was chiefly done by Flemish Artists and Italians, assisted, of course, by native workmen. The designs are also due to these foreigners, I believe. The raw material was stuck on the walls and ceilings, and modelled where it was intended to remain. The free, wavy lines are very marked, as compared with the straight lines and sharp outlines and regularity of cast ornament. I do not say that hand-wrought work is preferable to cast work, although, perhaps, more artistic. Personally, I much prefer the sharp and clear outlines gained by casting. It adapts itself better to the Decorator's Art, too.

We find a marked similarity in the ornament. Perhaps the drawings, like the workmen, went the round of the jobs. That might save expense, too, which would probably be as great a consideration then as now.

I have taken note of, I might say, four different styles; the Early Scotch work, with ribs and strap work, the style of work at Hatton, which forms the link between the early work and that at Drum House, which is again a mixture of Hatton, and the Italian work of the younger Adam.

Of the four styles I think that of Hatton is the best, and the one to use if the money were forthcoming. The ribs and strap work have had their day. The work of the younger Adam is very fine and light, and easily marred by layers of whitewash, and would necessarily need a lot of cleaning.

I would like to say in closing that I think plaster work is worth as much study as either wood or stone detail. Good plaster detail, mouldings, and ornament will hold their own with any other branch of our Profession, and they go far in giving a refined air and rich appearance to the interiors of all buildings.

[In our last issue this Article was attributed in error to Mr. R. S. Lorimer. The illustrations of Kellie Castle only are by Mr. Lorimer, the Paper being by Mr. John Murray, as also the whole of the other illustrations.—Ed.]

The foundation stones of a new Wesleyan Chapel for the village of Cropton, near Pickering, were laid last week. The building is estimated to cost £630.

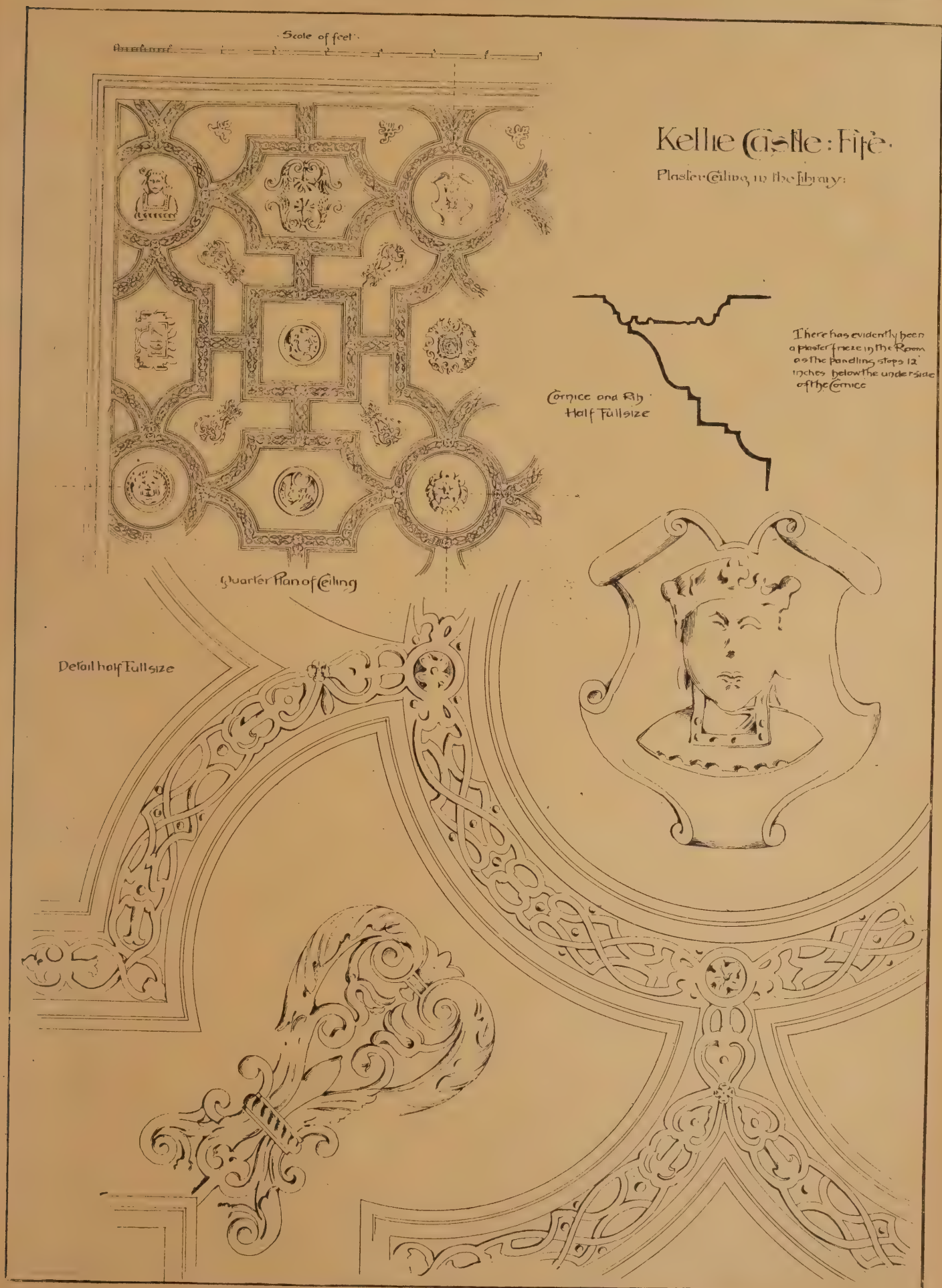
An effort is being made to raise £9000 in order to build two new chapels in Kingsley Park and Wellingborough Road, Northampton, two rapidly growing districts of the town.

It has been decided to build a new room in the Protestant Hospital at Nice for the use of British patients, to be called "Queen Victoria's Ward," in commemoration of the Diamond Jubilee.

The inhabitants of Poulton, near Fleetwood, have adopted a commemorative scheme for improving the streets by purchasing and demolishing old house and cottage property. The estimated cost is £3000.

The directors of the Great Western Railway Company have sanctioned a series of important extensions at the Llanelli railway station, including the extension of the covered way as far as the water-crane. The work will cost little short of £1000.







## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
April 14th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A CORRESPONDENT calls attention to the singular effect which the recent beautification of the Egyptian Hall of the Mansion House has had upon the marble statues in that noble chamber. These statues, he remarks, gleamed snow-white so long as the hall was in its old sombre condition, but now that a light and pleasant design of decoration has been carried out they appear—at all events by daylight—a dull grey, as if moulded in putty. The change seems to have been brought about by the light chocolate or terra-cotta colouring of the niches in which the statues are placed. The only means of restoring the beauty of the statues would seem to be a darkening of the niches, but as they are at present in harmony with the general scheme of colour, an interference with them may have unexpected consequences. It is singular that these statues should have been overlooked, seeing that they form so fine a feature of the hall.

MR. PENNELL has won his action for libel, and the damages have been assessed at £50. The verdict seems to be a proper and just vindication of a distinguished Artist, whose methods in every form of black-and-white work could hardly, we imagine, be seriously impugned. If in the matter of what is or is not a properly produced lithograph, Mr. Whistler—one of the two or three great Artists of the century—agrees with Mr. Pennell, the matter really requires no further discussion. A "transfer" lithograph does not involve any subtraction from the skill of the Artist, or any substitution of mere mechanics for that essential skill. The effect of the two processes, as Mr. Shannon and Mr. George Moore admitted, could not be distinguished. Therefore, to state of Mr. Pennell that he had been using a "debased instrument," and to suggest commercial dishonesty, was to say, in other words, that Mr. Pennell, an original Artist of great repute, was akin to a kind of photographer. Mr. Pennell submitted this technical but important issue to a British jury, and has obtained from it a complete vindication of his status as a Craftsman. That seems to us a proper issue of the trial. Newspapers have much to bear, and far too heavy a burden falls upon them in connection with the general work of free criticism. But there is no reason why the individual contributor should be relieved of his personal responsibility for judgments that affect that precious possession—the integrity and the good faith of the Artist.

MR. J. MCNEILL WHISTLER, interviewed with reference to the action brought by Mr. Joseph Pennell referred to in the previous paragraph, says:—"To say that, because an Artist has been known to produce a work of Art upon stone, the work of the same Artist upon paper is an attempt to impose on the public an inferior substitute for what he had done on stone, is as though it should be urged that a canvas by Rembrandt were foisted upon the collector in lieu of a panel, with its peculiar qualities, by the same master.

The really monstrous issue brought before the jury was built up on the overweening insular naiveté of one whose dangerous knowledge has emboldened him in his lifetime to attempt the reputations of distinguished Artists, and to produce himself one lithograph on the very paper he condemns. Such colossal impertinences doubtless may darken the horizon of the Artist in England—yet there are in their wake compensations of grotesque joy beyond the wildest conceptions elsewhere. Who shall forget the little Arcadian interlude when there stayed in upon us the long unhopdfor 'Expert'! A sunny sense of hay and innocence pervaded the court as the ingenuous one, with the sweet emptiness of purpose that had brought him, aimlessly browsed his way into the fatal box. The gods alone, for the great glad laughter of those they love, could have prepared the beautiful bewilderment of court, counsel, and jury, as he stood beaming at the bar. 'Naught do I know of lithography—but I did know Degas!'—thus to us all. Angry counsel rose indignant at this late introduction of new and foreign 'process,' and the kind creature was straightway led forth to other meadows."

REGRET has often been expressed that Sir Christopher Wren's plan for the rebuilding of London after the great fire was not carried out, and it is quite certain that no accident of less magnitude than a gigantic earthquake will give any future generation an opportunity of reconstructing the City. Perhaps this is not altogether a misfortune, for, although the fine broad straight avenues and streets that were contemplated by Wren would have added greatly to the dignity of the First City of the World, the stiffness and conventionality of the plan would have sapped all individual efforts for the beautification of the main thoroughfares, and in the end London would probably have been less interesting, although possibly more impressive. It seems almost like sacrilege to imagine Fleet Street, with its labyrinth of courts and alleys, as a great central avenue leading from Charing Cross to Ludgate Circus. Still, it must be confessed that it is a great pity that Ludgate Hill was not constructed straight down from the western front of St. Paul's Cathedral, so as to open up a view of that noble pile standing at the top of the hill. Such a course is, however, now impossible, and the City loses the finest and most impressive view of St. Paul's that could have been obtained. As it was clearly impossible to straighten Ludgate Hill, the only thing that remained to be done was to widen it and improve it in every other possible manner. During the last ten years the appearance of the thoroughfare has entirely changed, and, were it not for the railway bridge, which spans the lower end of the road, the improvement would be much more noticeable.

THE usual weekly meeting of the London County Council was held on the 6th inst. at the County Hall, Spring Gardens, Dr. Collins presiding.—Mr. Beachcroft moved that the consideration of the report of the Special Committee on the Works Department, which we published in our last issue, should be adjourned until after the Easter recess. He pointed out that the General Purposes Committee, on the previous day, had considered the matter and had come to the conclusion that such a course was desirable. There were two other appendices, besides that already circulated, and it was thought that the Council should have time to consider the whole matter before it was discussed.—The motion for the adjournment was agreed to.

IN the Chancery Division, Mr. Justice Kekewich recently delivered judgment in the case of Viscount Hill v. Bullock, which involved the question whether a trustee in bankruptcy could remove for the purpose of selling for the benefit of the bankrupt estate of the late Viscount Hill a natural history museum. The plaintiffs in the action are the present Viscount Hill, the tenant for life in possession, and the trustees of the marriage settlement. The articles in dispute were in the ancestral mansion at Hawkstone, Shropshire. It was

alleged that these articles which had been collected by the plaintiff's predecessor in title had been made fixtures and heirlooms in consequence of the cases containing the specimens being attached and let into the walls, the specimens being supported in the cases by wires and screws.—Mr. Justice Kekewich, in giving his judgment, said it had been practically admitted by the plaintiffs that things which were generally treated as personal chattels and capable of being removed without injury to the structure belonged to the defendant in his capacity of trustee in bankruptcy. As to the question whether the contents of the museum belonged to the defendant, or must be treated as part of the freehold, he thought there was no difficulty in removing the wooden trays which carried most of the specimens, and therefore the contents of the cases must be regarded as movable personal chattels, unless they could be brought within some recognised exemption from the general law of fixtures. He held that they could not be brought within the exemption.—It was arranged that there should be a declaration that the cases were fixtures, but that their contents were movable, and belonged to the defendant. The question of the cost of restoring fixed tables that had been removed was referred to a local arbitrator.

THE terms of Lady Wallace's bequest to the nation have now been announced. The gift includes the pictures, porcelain, bronzes, artistic furniture, armour, miniatures, snuff-boxes, and works of Art which are placed on the ground and first floors and in the galleries at Hertford House, on the express condition that the Government for the time being shall agree to give a site in a central part of London, and build thereon a special museum to contain the collection, which shall always be kept together, unmixed with other objects of Art, and shall be styled "The Wallace Collection." The bequest does not include personal and modern jewellery, trinkets, and effects, nor ordinary modern furniture or chattels, but comprises the Louis XIV. balustrade at Hertford House, which the executors are directed to replace by an ordinary modern structure, so that the original shall be used in the new museum.

AN interesting and valuable piece of old silver plate has lately come into the possession of Messrs. D. and M. Davis, of Livery Street, Birmingham. It was sent by them to the Assay Office for inspection, and on examination was found to be the head of a beadle's staff, the Latin inscription on which had been partially obliterated by filing. Enough remained, however, to show that it had at some time been given to the parish of Bermondsey. An acknowledged authority on old plate was communicated with, and the staff was identified as one given to the Bermondsey National and Parochial Schools in 1720 by George Isaake, apothecary, and until some few years ago known to have been "in safe custody" at the parish Church of St. Mary Magdalene. The right to the staff having been so satisfactorily made out, Messrs. D. and M. Davis have restored it to the parish to which it belongs.

PICCADILLY will be considerably improved by an alteration which the Duke of Devonshire has sanctioned in the blank wall which at present hides his town residence from the street. The gates of Chiswick House are to be transported to Piccadilly, and placed in the centre of the present brick wall, which the liveliest imagination could hardly describe as picturesque. Workmen are now engaged in the requisite preparations.

IN about two and a half years' time the new Egyptological Museum at Cairo, the foundation stone of which has been laid by the Khedive, will be completed. The work, which was originally commenced in the spring of last year, but unavoidably postponed, is being carried out by a firm of Italian contractors resident in the town, but the air-tight cases for the Royal mummies have been ordered from England. A further museum of Arab Art, and a library of Arab literature, is also in course of construction.



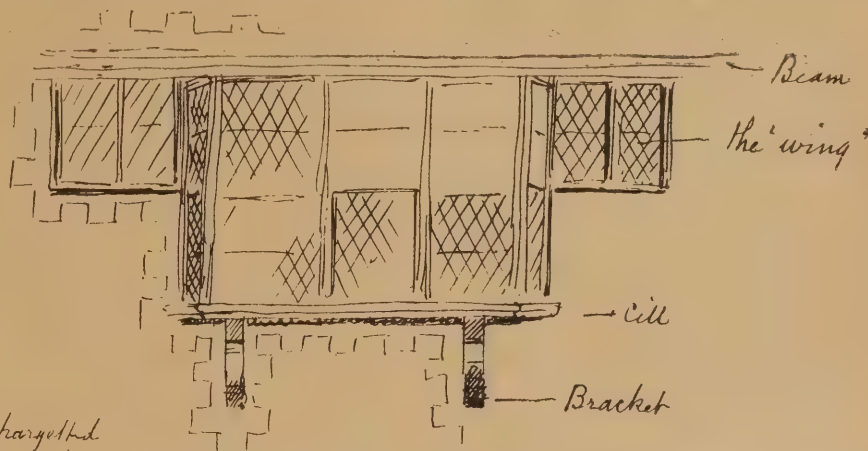
VAUXHALL temporary bridge has now advanced to a stage at which it may be stated with some confidence that it may be open for traffic towards the end of the year. The pile-driving is all completed, and drawings are now in course of preparation for the remainder of the work. Some modification of the original plans for carrying out the work has had to be made, and there is now a clear waterway in the middle of the stream of 150ft., instead of 70ft. as at first intended. It was found that the drift of the tide rendered navigation difficult and dangerous, and the central pier which was to have remained has been removed, and the whole of the 150ft. will be spanned by girders. This has involved a considerable addition to the calculated cost, but as the structure is to serve first for the rebuilding of Lambeth bridge when that at Vauxhall has been completed, it is, of course, very important not only that it should last some years but that it shall not present any serious obstacle to traffic. The original cost was to have been £30,000. The alterations are estimated to bring it up to £42,800.

MR. J. T. PILDITCH, the Surveyor of Battersea, has presented a report to the Vestry as to the effects of certain works which the London and South-Western Railway Co. propose to carry out. The railway company desires to widen the line for a considerable length, and has scheduled a good deal of Battersea property. If the present plans are adopted, the old Battersea Grammar School on St. John's Hill will be demolished; the railway company will acquire a large portion of the works of the Battersea dust destructor; five public-houses will have to be pulled down, 392 houses will be demolished, and 3920 persons will have to find new homes. The railway company will take a large portion of the Latchmere Allotments, as sites for artisans' dwellings, in which to house the displaced families.

THE fifth lecture of the supplementary course on Hellenic Architecture was delivered by Mr. William J. Anderson at the Glasgow School of Art. The lecturer looked away from the historical and social influences, which, though none the less real, were beyond the purview of the Artist of the time, and endeavoured to take the standpoint of the master confronted with a particular problem. Applying this treatment to the Propylaea, the object of the building was considered, the nature of its site, the alignment which Mnesicles, its Architect, decided upon in its relation to the Parthenon and to the Acropolis wall, the angle of which its axis bisected. This unusual position appears also to have been designed to give within the gates a stoa of equal length on each side, and without, two halls occupying each the same space, but of a varying arrangement, controlled by the position of the bastion carrying the Nike Temple. The various obstacles preventing the accomplishment of the scheme, and resulting in the present irregular arrangement, were considered in so far as they can be read in the building itself, while the fitness of the Architecture and the beauty of its details and painted decoration were shown by many illustrations. The Erechtheum was treated similarly, and, from its arrangement and other circumstances, regarded as a megaron in honour of Erechtheus, a monument and museum of many cults rather than a temple sacred to a god or gods, and in addition to photographs of its present state, restorations of its exterior and interior, illustrations of its relation to the complete Acropolis were exhibited. Additional examples of the culmination in Attica were illustrated in the Hall of Initiation into the Eleusinian mysteries and the temple of Apollo at Phigalia, the latter being included on the ground that it was the work of a great Athenian Architect. The second part of the lecture was devoted to the Greek theatre and games—the buildings of the theatre, Stadion and the Palestra, and in this connection were shown and explained plans and restorations of the huge assemblage of buildings at Olympia, the Apotheosis of athletics.

AUSTERFIELD Church, near Bawtry, is to be restored. The quaint old fabric is interesting

from its connection with the Pilgrim Fathers. Here was baptised William Bradford, "the first American citizen of the English race who bore rule by free choice of his brethren." The Norman font at which the holy rite was performed 300 years ago may still be seen, and the parish register shows the original record of that event. Bradford's descendants are permitted to erect a brass plate in the Church to the memory of the renowned Governor, and a suggestion has been made to build a new aisle on the north side as a further memorial. Some very interesting Norman work was last year discovered by Mr. Hodgson Fowler in the north wall, in the form of five pillars supporting three arches, and it is probable that there was a north aisle originally. The work of renovation is estimated at about £1550, towards which something like £1150 has been either



subscribed or promised, including a sum of £38 from America. The cost of the north aisle would be, probably, about £250.

Few provincial cities have made such vigorous municipal progress during the last few years as Bath. After building an entirely new suite of baths, the corporation has now completed a large pile of municipal buildings and a new School of Art and Technical Instruction. The city also—unlike London—is lighted with electricity in all the principal streets, and the Corporation proposes to complete its work by erecting a free library.

Now that the attention of the Sewers Commission is about to be paid to what has been described as the "objectionable hoarding" on Ludgate Hill, it is to be hoped that the inquiry will be extended to other hoardings that have disfigured the City for an utterly unnecessary length of time. There are not a few that constitute a standing eyesore, and answer no useful purpose save that of bringing in a certain sum annually as advertising stations. To mention but one, there is that looking on to Giltspur Street and facing St. Sepulchre's Church.

An old house which stands in Brockwell Park at Herne Hill has been turned by the County Council into a refreshment room. For the walls of the largest room in this building, Mr. Henry Strachey has designed a series of decorative pictures, with subjects chosen from haymaking. There are five of these panels, of which the best represents the hayfield at dawn. A mower in front is sharpening his scythe; the cold blue of the steel is echoed in a pool of water, and repeats itself more faintly in a chilly background of mist; to the left of the picture, on the second panel, a workman passes with his rake poised on his shoulder. In the companion picture of evening, boys build up a haystack, with the village houses soft in the subdued light beyond them. The panel facing the windows, which shows haymakers reclining in the grass by a stream, busy over five o'clock tea, is seen to great advantage.

OXFORD has lost all her exterior pargetting ("pressed-work" is, perhaps, the wiser term), except in one house, 41, Castle Street, and that

is weak in body and surface. On the south of the new Ashmolean Museum, fastened to a wall, are four very good panels from a house once Falkner's, now the Birmingham Bank, Corn Market, Oxford. They are worth seeing, and have been, long ago, coloured a warm orange. In the City Buildings Museum are (or will be very soon) four bits from the late police cells, taken down in February this year. One bit, from under a beam, is almost elegant; and the square panel used as a frieze round the early room much resembles a Venetian design in a book dated about 1620. The master of University College possesses a delightful drawing of an inn, called "The Three Tuns," which had some interesting pressed-work on its second story; it stood just west of the Shelley Memorial. A little house in the Hamel, St. Thomas's parish, was

decorated with a frieze of sibylls, not by the dozen, but by three repeated; of poor drawing, and the lettering inverted. Six, or two threes, of these now stand over the two entrance doors of Christ Church Library. There is good pressed-work on several ceilings in Oxford, as at No. 3, Brewer Street, now a carpenter's shop; Bishop King's house, St. Aldates; at Alban Hall, in a room over its former gateway; and at Corpus Christi College, in a similar position. The examples of imitative coin-work, and imitative timber-work, in Oxford are not numerous, but No. 23, Pembroke Street, with its coin-work, also supplies the sole remaining example of a window once tolerably common in Oxford, and locally called a "winged" one. They have special advantages, and are picturesque. All the specimens noticed run from 1611 to about 1650; perhaps a spurt given to exterior decoration of houses by the Royal visit of James I. They seem worth recording as a serious endeavour of the seventeenth century to decorate surfaces we now leave in bare ugliness, or line-out stiffly to imitate ashlar-work.

UNDER the auspices of the Corporation of London, an exhibition of pictures by painters of the British school who have flourished during Her Majesty's reign was opened, on the 6th inst., in the Art Galleries of the Guildhall. It affords a fairly complete view of the progress of painting during the Victorian era. The Queen herself lends Lady Butler's "Roll Call," Frith's "Ramsgate Sands," and Sir David Wilkie's "Penny Wedding," three pictures which in themselves cover a period of half a century. The Prince of Wales contributes Edward Hughes's portrait of the Princess of Wales. The Corporations of Birmingham, Leeds, Liverpool, and Manchester send some of their choicest treasures; the Mess Committee of the Royal Artillery lend Oulless's portrait of Lord Roberts, and the Sussex County Council Frank Holl's of the Earl of Chichester. Many of the most popular pictures in England are to be seen on the walls of the gallery: Millais' "Chill October," "Ferdinand and Ariel," and "The Huguenot"; Rossetti's "The Beloved," Watts's "Aurora," Poynter's "Faithful unto Death," and "Dragon of Wantley"; Long's "Babylonian Marriage Market," Seymour Lucas's "Intercepted Despatches," Burne Jones's "Bath of Venus," Alma Tadema's



"Women of Amphissa," Leighton's "Cymon and Iphigeneia," Orchardson's "Young Duke," Fred Walker's "Old Gate," and others familiar to this generation as household words. Mr. Luke Fildes is represented by his portrait of Miss Ethel Ismay, Mr. Wyllie by "Bawdsey Ferry" and "Black Diamonds," Mr. Sargent by the portrait of Mrs. Hugh Hammersley, and Mr. Boughton by "Snow in Spring."

Few things have so strikingly advanced in commercial value in recent years as engravings of the Early English school printed in colours. A collection of such has been dispersed at Sotheby's during the past few days. Some very high prices were realised. The most remarkable lot in the sale, however, was an ordinary impression of Walker's engraving of George Romney's portrait of Mrs. Musters, in the finest possible condition, with large margin, which realised what is probably a record price, namely, £180. Condé's engraving of R. Cosway's portrait of Mrs. Fitzherbert, in colours, sold for £74; and J. E. Smith's rendering of his own picture, known as "What You Will," very finely printed in colours, £75; "Thoughts on Matrimony," after J. R. Smith, by W. Ward, in colours, a very fine example, £41; "Louisa," drawn and engraved by W. Ward, in colours, £41; a moderately good example of Bartolozzi's engraving of Sir T. Lawrence's celebrated portrait of Miss Farren, in colours, £27; and "The Fortune Teller," by Sherwin, after Sir Joshua Reynolds, in colours, £20.

THE irrepressible Kaiser has just been guilty of yet another pictorial indiscretion. Upon a plinth in the middle distance is displayed a medallion portrait of the grand old Emperor William I. To the left of the foreground stands the usual mailed figure, representing, of course, the illustrious Designer himself. The right hand grasps a sword with downturned point, whilst the other waves a laurel-branch over the venerable warrior's head. Germania becomingly kneels on the opposite side, and offers, upon a cushion, what looks very much like a set of spirit decanters in an elegant case, though the object may be intended for a mediæval crown. Below are scattered wreaths, banners, and other suitable properties, and nine very fine and large sun-rays swoop down from above without illuminating certain dim outlines in the background which may be trees or demons. On the lower margin appears the signature "Wilhelm, R.I.," beneath the words "To the memory of William the Great."

A CURIOUS find has been made at a London bric-à-brac shop of a famous bust of Mrs. Harriet Beecher Stowe, the author of "Uncle Tom's Cabin." Dr. Wallace Wood, who occupies the chair of History of Art in the New York University, when in London recently, called at the shop of a dealer in Art pictures, &c., and asked if the dealer had any heads—heads exemplifying perfect types of intellect and culture. Two days later the dealer sent for Dr. Wood, telling him he had the bust of a countrywoman of his that had been sent to the exhibition of 1857. When it was sent to his apartments the doctor was greatly surprised and pleased to recognise it as a bust of Mrs. Stowe. The doctor wrote to Mrs. Stowe's daughter, Miss H. B. Stowe, of Hartford, who explained that the bust was executed by Miss Susan Durant, an American student in Paris, in November, 1856.

NEW YORK is about to see "Homes for Women who Work" erected on an enormous scale. A series of five blocks of buildings are about to be erected and adapted to the requirements of women who earn their own living. The first four of this series, the Business Women's Home, the Women's Hotel, the Art Students' Home, and the Model Tenement, are completed. The Architects are Miss Mary Gannon and Miss Alice Hands, and it is said to be the greatest Architectural work ever undertaken by women. These "Homes" are to be fitted with every conceivable convenience, and are arranged in groups of six rooms, having a bathroom, &c.,

to each group, although the rooms are let singly.

A NUMBER of interesting decorative objects, the property of the late president of the Royal Academy, will be offered for sale next month. They include a magnificent Architectural cabinet with silver figures, formerly in the possession of King Charles I., and introduced in the picture of "The Princess Elizabeth in the Tower;" also two carved chairs, formerly the property of the Chinese giant Chang.

A CORRESPONDENT, calling attention to the present state of London Bridge, says:—"The roadway has now been for some five or six weeks in the hands of paving contractors, who, apparently, are doing their work in a most desultory fashion. Instead of taking up one side and doing it thoroughly it is being done in patches over and over again, with the result that the traffic is always blocked. When the Tower Bridge was finished we believed that the traffic would be always clear, but at the present moment it seems to be nobody's business to look after the work, and business men whose residences are on the Brighton line have to lose their trains in consequence."

An important sale of pictures by old masters, chiefly Dutch and Flemish, but including some good Italian and Early English works, took place recently at Messrs. Robinson and Fisher's rooms, King Street, St. James's. To a large proportion of the many buyers and amateurs present the interest centred in an exceptionally fine example of the forcible Art of Franz Hals, a half-length portrait of a man in black with a white ruff and black hat, dated 1679, and measuring 2ft. 10in. by 2ft. 2½in. After a starting bid of 1000 guineas, it fell to Messrs. Agnew at 3350 guineas. So seldom do pictures by Franz Hals come into the market, that there are scarcely two dozen on record as having been sold by auction in this country, and no other has nearly approached such a figure. Seven years ago a portrait of a man reached 1900 guineas; and, in the same season, a painting of the Artist's wife brought 1750 guineas.

THE preliminary steps for securing a site for the new War Office have now been agreed to by the House of Commons. The site selected is the piece of land almost opposite to the Horse Guards which for many years has been lying derelict. It is certainly large enough, when cleared of the remaining buildings, to afford ground space for a magnificent block of offices. That their erection will be a striking improvement to Whitehall may safely be assumed, and it is also indisputable that the War Department is badly in need of new offices.

SOME details of the scheme known as the City and West End Railway, for the construction of an underground line, six miles in length, running between Cannon Street and Hammersmith Broadway, to be worked by electricity, recently came before a Select Committee of the House of Commons. The route will pass, by way of Kensington High Street, Knightsbridge, Piccadilly, Strand, and Ludgate Circus, to Cannon Street. The only question the Committee has to consider is whether the present scheme should be sanctioned, or a rival plan, or both. The proposed City line will have fourteen stations, and a two-and-a-half minute service of trains is to be organised, the journey occupying twenty-six minutes. The generating station and works will be situated on an admirable site, eighteen acres in extent, on the river bank at Hammersmith. A capital of £3,150,000 is proposed, with borrowing powers of £1,050,000, the cost per mile working out a little more than in the case of the Central London, which was explained by the fact that the station sites were a little more costly. The estimates amount to £2,880,000. Sir Benjamin Baker, engineer to the line, was called, and said he did not anticipate any difficulty in the construction from an engineering point of view, nor would there be any vibration or danger to property in the working.

An interesting find was made a few days ago at the Grey Friars Monastery, Cardiff, the ruins of which are being excavated, under the direction of Mr. C. B. Fowler, Architect. At the north-west corner of the Church of the monastery, outside, but close to the north wall, there was found about 4ft. beneath the surface some 200 pieces of original fourteenth-century glass, which no doubt formed one of the windows of the Church, and was hidden or thrown in a heap at this spot when the Church was demolished. All the pieces have been carefully taken out, and Mr. Fowler has promised to let us have a drawing of them for reproduction in these columns shortly. The designs illustrated comprise the foliage of the oak, ivy, sycamore, and acanthus, with pretty borders of other leaves, and birds—the dove and the eagle. This find is much more interesting, and the pieces in a better state of preservation, than was the case with the glass unearthed at the Black Friars, for the latter appeared to have been subjected to the action of fire, and easily crumbled.

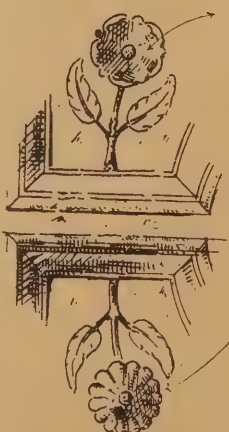
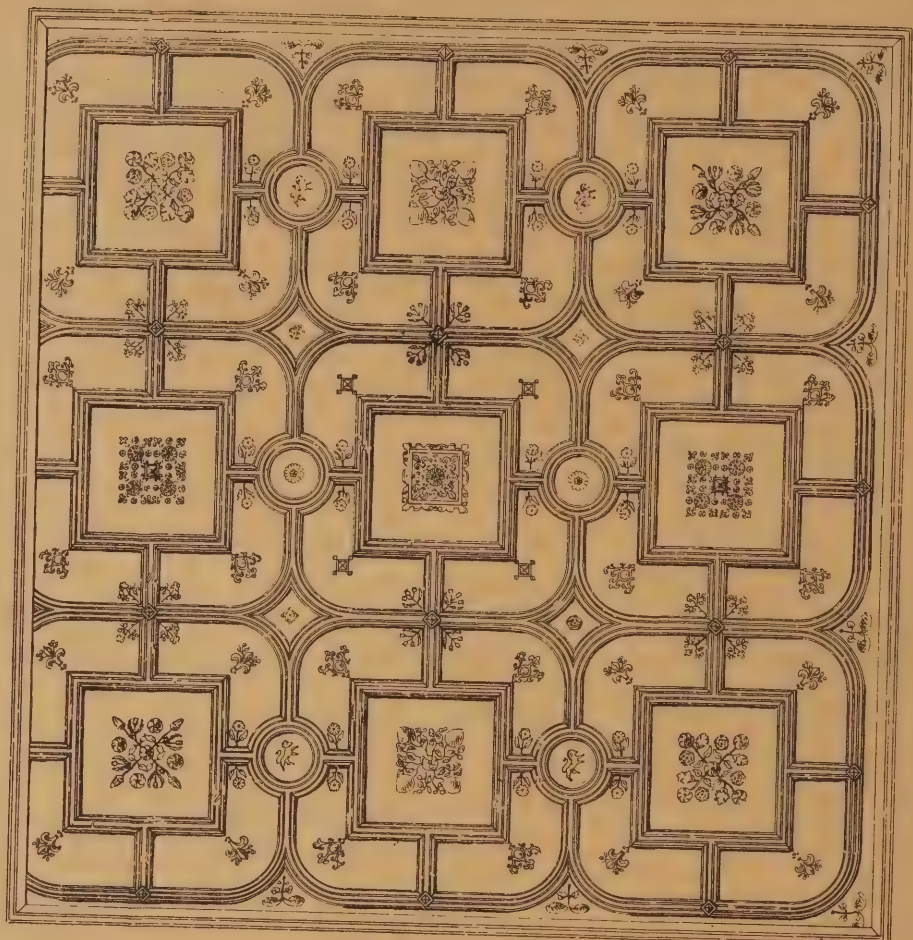
As the Egyptians, Etruscans, and Greeks were artistic, so, it seems, are the Abyssinians. A great organ has been ordered from Berlin for the Cathedral of Adis Abeba, the residence of the Emperor Menelik, and a celebrated Russian painter, Vladiscow, is going there to paint the Negus as he appeared at the battle of Adowa. The Cathedral of Adis Abeba is composed of two Churches, one inside the other. The outside one is open to all the faithful, while the inner is reserved for the sacred persons of the Negus and his family. The Emperor Menelik, it seems, has an artistic fancy. He wished the outer walls of the inner Church to be decorated with religious pictures, and ordered, under the first Crispi Cabinet, the pictures in Italy, sending the measures of the walls and the windows which break them.

THE offices of the Prudential Assurance Company form a striking feature of the street Architecture of nearly all the towns of England. One firm of Architects has designed the whole of this company's buildings, Messrs. Alfred Waterhouse, R.A., and Son. New buildings which have just been completed at Sheffield occupy a fine corner site in Pinstone Street, adjoining St. Paul's Churchyard, and the style, externally, may be described as a free treatment of Renaissance Architecture. The lower stage of the external elevation consists of a colonnade of pilasters surmounted by an entablature which runs the whole length of the façade. The gables are on a curved outline, flanked by hexagon finials rising from hexagon ribs, which divide the top story of the front into several bays or compartments. The frontage, which is five stories in height, is composed of Edwards's red bricks and red Ruabon terracotta. There are two entrances, that on the left, leading into the Prudential Company's offices. The somewhat peculiar shape of the ground presented difficulties, but at the same time it led to the adoption of an arrangement of plan in which corridors were entirely absent. All the sets of rooms on the upper floors open directly off the staircase landing, and the passenger lift communicates with the same landing on every floor. The general contractors are Messrs. George Longden and Son, to whom the principal share of the work has been entrusted. The other sub-contractors are: Plumbing and glazing, J. B. Corrie and Co., Sheffield; sanitary fittings, &c., Morris and Ingram, Manchester; steel work in floors, Handysides, Derby; cement stairs, A. Walker, Leeds; ceramic mosaic floors, Craven, Dunnill, and Co.; ornamental ironwork, Hart, Son, and Peard, London; electric lighting, Belshaw and Co., London; tiling and slating roofs, Proctor, Sheffield; heating, Ashwell & Nesbit, Leicester; gunmetal casements, Critall and Co., Braintree; ranges, hot plates, and Marlbro' grates, Steel and Garland, Sheffield; ornamental ceilings and wood mantelpieces, Shuffrey and Co., London; locks and furniture, James Gibbons, Wolverhampton; headlights, J. V. Rowland and Co., Liverpool; plastering, Hodkin and Jones, Sheffield. The hardwood joinery has all been carried out by the general contractors. The cost of the building and land is £25,000.



LIBRARY  
OF THE  
UNIVERSITY OF MICHIGAN





Section

Section



SCALE FOR DETAILS

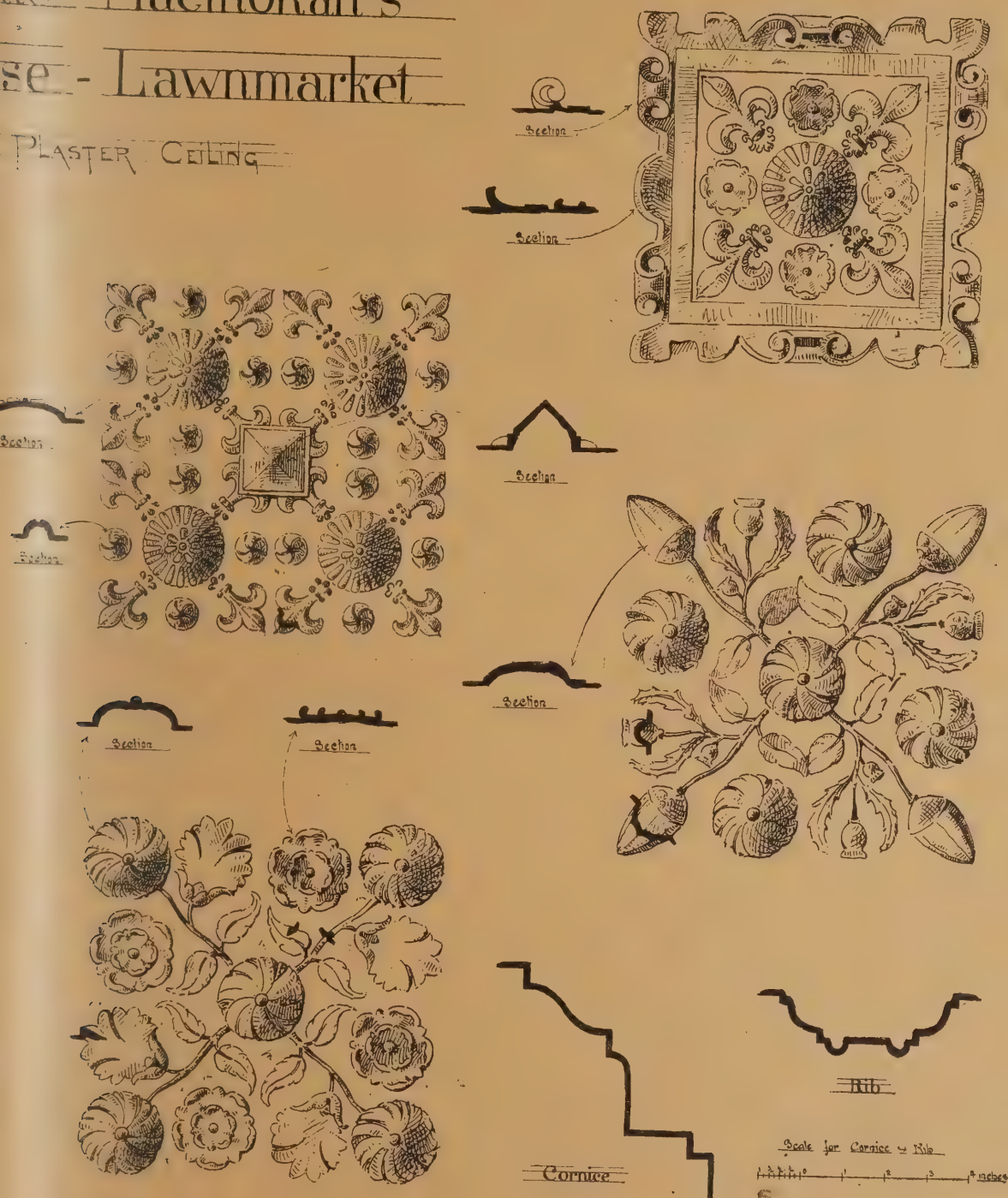
1 2 3 4 5 6 7 8 9 10 11 12 INCHES

SCALE FOR PLAN OF CEILING

1 2 3 4 5 6 7 8 9 10 11 12 FEET



Macmoran's  
Lawnmarket  
PLASTER CEILING





11264  
in 148  
University of Iowa



LONDON CHURCH ARCHITECTURE  
OF THE VICTORIAN ERA.\*

(Continued from page 126.)

By T. FRANCIS BUMPUS.

Author of "London Churches Ancient and Modern,"  
"Ecclesiological Notes from North Germany," &c.

STANDING in the plot of ground enclosing the Church of St. Peter, Vauxhall, on the north, and looking up at its semi-circular apse of brick, pierced with single lancets high up in the wall, and capped with its fleuriated iron cross, we may imagine ourselves in Murano, and not in the prosaic dinginess of Lambeth. Raised at a time when the foreign Gothic mania was at its height, St. Peter's, Vauxhall, presents three grand characteristics, all thrown in by Mr. Pearson with great cleverness, i.e., the equal height of the nave and chancel; the consistent roofing of the entire building with stone-ribbed groins of brick, the adoption of plain lancet, or two-light plate-traceried windows, with huge foliated circles; and the introduction of a blank story between the arcade and clerestory, destined for simple pictorial enrichment. On entering St. Peter's, Vauxhall, we are arrested by an impressiveness which few London Churches of its date succeeded in producing; from the western door to the altar the view is unbroken, and the eye is charmed with the fine vista terminating in the groined apse; based, I cannot help thinking, upon that in the Church of Notre Dame at Dijon. Here the triumph of the Architect's skill is perceptible. The clerestory is lighted by tall lancets filled with rich stained glass by Lavers and Barraud; but in which the figures are somewhat attenuated. Immediately below them is a low open arcade of very Lombardic character, through which the triforium windows peer very felicitously; then under these we have a series of fresco paintings, so arranged that the Crucifixion occurs immediately above the reredos. It is, however, a matter of much congratulation that the rage for exact reproduction of Continental Architectural detail has passed away. The wholesale importation of features unsuited to our climate, and the apparent disregard shown for our own beautiful examples, were much to be regretted. Still, while the style of Church put up, suitable for the requirements of our ritual, show in Architectural detail no tame copyism of Mediæval work, I am happy to say that *bizarries* are yearly becoming less common.

## OTHER LONDON CHURCHES OF 1860-70.

Before saying a few words on the Churches built in London since the return of Architects to more strictly English forms, it may be interesting to give you the names of a few Churches erected between 1860 and 1870, of more than ordinary interest. Conspicuous among these are White's noble Church of All Saints, Notting Hill, finished after long delay in 1861; and his small but very clever brick one of St. Saviour, Highbury, completed in 1866. With the latter may be classed a group of Churches, erected from Mr. White's designs, in the parish of Battersea, and of which St. Mark's, close to Wandsworth Common, may be taken as an excellent example. The skilful manner in which much of the detail is executed in brick is very noticeable, and praise must be awarded, not only to the carving of the pier capitals in a variety of carefully-studied foliage and flowers, but to the air of dignity with which the Architect has contrived to invest his interior by the elevation of his chancel upon a crypt. St. Mary-by-the-Park, another of this Battersea group, is a strikingly abnormal design, presenting many of the same features, but its unfinished state precludes it from competing with the example I have just quoted. Scott's Churches of St. Clement, Barnsbury (red and yellow brick), and St. Stephen, Lewisham (stone), are stately experiments in an English and French type of First Pointed respectively from his

able hands; St. Jude, Gray's Inn Road; St. Stephen, South Kensington, and the cognominal Church on the Green at Hampstead, by Peacock and Teulon, are, although eccentric, not without their effective points; while St. Peter's, London Docks; St. Luke's, Stepney; St. Luke's, Kentish Town; St. Michael's, Paddington, and St. Peter's, Windmill Street, exhibit the proclivities of their various Architects in the direction of coloured material, as well as in a preference for non-English forms.

## BURGES' ONLY LONDON CHURCH.

There is, however, one London Church—probably the most striking and abnormal that this phase of the Gothic revival has yet seen—which I must, for a few moments, dwell upon more fully. It is that of St. Faith, Stoke Newington, partly finished in 1873, and completed by another hand ten years later. Its Architect—William Burges—was, perhaps, one of the greatest geniuses that the century has produced. His works are not numerous,\* but they are all marked by great individuality, originality, and character. He regarded Architecture, in a great measure, as a vehicle for painting and sculpture, and for a particular period of it—the Early Thirteenth Century Style of France—he had a predilection. However commonplace the building might be upon which he had to work—as, for instance, St. Thomas' Church, Clapton, a hideous brick conventicle of the last century, which he was called upon to remodel in 1874—he invariably sought to introduce something artistic into it. In his tastes, Burges was ultra-Mediæval, and when he was commissioned by the Dean and Chapter of St. Paul's to prepare designs for the entire decoration of the Cathedral, it is not to be wondered that he should have produced designs which had immediately to be set aside on account of their incongruity with Wren's masterpiece, magnificent and thoughtful as they were. Pecuniary considerations interfered with the carrying out of Burges' plans for St. Faith, Stoke Newington, to their fullest extent, and although the Church has, within the last ten years, been extended and a west front built to it from the designs of an Artist whose sympathies with the Early French Gothic are the same as Burges', the interior lamentably fails in effect from the infelicity of its fittings and decoration. The Church embraces a nave and chancel of enormous height, terminating in an apse of noble sweep and all contained under one line of roof. There are no lofty pillars or wide aisles. In lieu thereof we find an enormously broad nave, out of which open very narrow passages or vomitoria formed in the thickness of the wall; above these is a continuous row of broad lancet windows, like those we see in the eastern part of the choir at Canterbury Cathedral, and in the eastern parts of Sens and Auxerre. The whole is covered by a very simple wooden coved roof, and a grand wheel-window lights the west front, which is flanked by severe pinnacled turrets. While the idea of the Church is original, there can be no doubt its Designer was influenced by some of those great speluncar Churches in the south-west of France. Clutton, Burges' former partner, had built a similarly-planned Church in 1847 at Bethnal Green,† but there the idea seems more Rhenish. Street's magnificent work—St. Mary Magdalene, Paddington, an admirable instance of how an Architect need never fear to obey that hard word "must"—I mean in the matter of an awkward site—belongs also to this period (1868-1878), as does a pleasing little red-brick Church—edited in a Northern French style—St. Mary Virgin, Primrose Hill.

## LATER WORKS OF PEARSON AND STREET.

Of the English styles resuscitated in the Churches built since the commencement of the "seventies" round London, we have peculiarly noticeable examples in those

\* St. Finbar's Cathedral, Cork; Studley Royal Church, near Ripon; Brisbane Cathedral; decoration of Worcester College Chapel, Oxford; Cardiff Castle, and the remodelling of St. Thomas', Upper Clapton, are among the most important.

† St. Jude's, one of Bishop Blomfield's ten Bethnal Green Churches, built between 1840-1849.

magnificent contributions to ecclesiology from the hand of Mr. Pearson—St. Augustine, Kilburn; St. John, Red Lion Square; and St. John, Upper Norwood—Churches in which the sublime in Architecture has been reached. With them we may class the fine Church by the late lamented Mr. Causton, of St. Philip, Stepney, presenting, as it does, several features in common with Pearson's work. As a type we will take St. John's, Red Lion Square, whose interior is, looking eastward, one of the most truly picturesque in London. The charming "views across" forced upon the visitor from almost every part of its interior have, however, been dictated, not by the promptings of fancy, but by exigencies of site. This was a square plot of ground, bounded north and west, and partially south, by houses. Mr. Pearson was thus driven to adopt an unusually wide nave, having two narrow aisles on either side of it, and opening into a choir, very much narrower, but of the same height. The junction of the broad nave and narrow choir was effected, in this instance, not by the canted bay—a very beautiful feature used in several instances by Mr. Street\* for connecting a wide nave with a chancel of much more contracted dimensions—but by an arch opening into the aisle on either side the great central one, all in the same line. Mr. Pearson's *motif* for this treatment appears to have been the Cathedral of Gerona, in Spain, where the same enormously broad nave and narrow choir is found. At the south-east corner of the site was an irregularly-shaped piece of ground; this suggested the erection of an apsidal chapel and gabled transept, with its south wall sloping away to meet a tower forming the porch. Throughout the Church the detail is of the most delicate description, recalling much of that in the Yorkshire Minsters. Like many another fine London Church built since the Revival, St. John's, Red Lion Square, left the hands of its Architect very inadequately fitted with the *instrumenta* of Divine Worship—inadequately, that is to say, to its structural claims. These, individual munificence has gradually supplanted, and St. John's now stands forth in the possession of some of Clayton and Bell's finest glass—that in the eastern quintuplet of lancets, arranged, like Worcester, in a double tier, being of special beauty; chancel-screen; pulpit; choir stalls; trytick reredos; font, and, in short, all the furniture requisite for a Church of this last decade of the nineteenth century, on a scale commensurate with the fabric. The feature *par excellence* of all these Churches of Mr. Pearson is their continuous brick vaulting. St. Philip's, Stepney, is similarly vaulted. While St. Mary Magdalene, Paddington, was in progress, Mr. Street had accepted the commission to erect another Church, equally sumptuous, in Kennington, i.e., the well-known Church of St. John the Divine, which presents us with a specimen of pure Early Decorated work, all the more interesting since it marks the return of Mr. Street to strictly English forms after his experiment in North Italian at St. James-the-Less, Westminster. Time forbids me to enter into a detailed account of this lovely building, but I may just mention that the absence of clerestory and the employment of tall arcades on slender clusters of shafts was doubtless suggested to Mr. Street by Bristol Cathedral, whose nave he was engaged upon building contemporaneously.

REVIVAL OF LATE DECORATED AND  
PERPENDICULAR.

It is a matter of great congratulation that the poor, once-despised Perpendicular has again found favour, several of the grandest and most striking Churches reared in London of late years having been worked either in that style or in that of its immediate predecessor, the Late Decorated. Splendid examples of the latter exist in Mr. G. G. Scott's All Hallows, Southwark, and St. Agnes, Kennington; Messrs. Bodley and Garner have employed it in their recently completed St. Michael's, Camden Town, and St. Mary-of-

\* Notably St. Saviour's, Eastbourne, and St. John's, Kennington.

\* A paper recently read before the Toynbee Architectural Society.



Eton, Hackney Wick; while St. Barnabas, Dulwich, and the new Parish Church of Hornsey, founded on the model of some of those magnificent Churches bordering on the Wash—such as the Wiggenshalls, Terrington, and Walpole St. Peter's—afford highly pleasing examples of revived Perpendicular. It seems strange that this glorious fifteenth century style should have been so long forgotten. The "Cambridge Camden" Society discouraged its adoption whenever it could; for some it was too horizontal, for others too perpendicular. The Dry-as-Dust stigmatised it as Modern; the Sanctimonious thought it too Secular; Ruskin hated it, in fact almost everybody until within the last twenty years had an ill word for it, except Pugin, Freeman, and Fergusson. For present day town Churches no style is better adapted than the Early Perpendicular, with its light, graceful arcades and its great windows. An age which produced such glories as the towers of Canterbury, Gloucester, Wington, Bishops Lydiard, and St. Cuthbert's, Wells; such naves as Canterbury and Winchester, such a choir as York, such roofs and bench-ends as exist in East and West Anglia, is surely entitled to respect from the most ardent purist. It is a style peculiarly English.

#### SOME RECENT CONTRIBUTIONS TO LONDON ECCLESIOLOGY.

Although there are many Churches erected in London of late years to which I should like to direct your attention for a brief space this evening, such as St. Cuthbert's, Earl's Court; St. John Baptist, Kensington; All Saints, Dulwich; Holy Trinity, Sloane Street; St. Dominic's, Haverstock Hill; and St. James', Spanish Place; to say nothing of another and most interesting and important branch of my subject—the restoration of old Churches and remodelling of debased and inferior ones—I fear I must here leave you. It is, unfortunately, far too common with people nowadays to dismiss a modern Church with a sort of contempt, as hardly worthy of notice, but if such folks give some thought as to the "how" and the "why" of the existence of such Churches, I am sure these buildings will be found to present as interesting a history as those of the Mediæval periods. Let us of the present generation, then, be truly grateful to those who bore the burden and heat of the day in giving us such noble creations at St. Matthias', Stoke Newington, St. Giles', Camberwell, St. Mary Magdalene's, Munster Square, St. Alban's, Holborn, and the North-East London group, whose salient features I have endeavoured to interest you in, and to familiarise you with.

A SHOP in Botcher Gate, Carlisle, has collapsed, owing to building operations on an adjoining site.

A TELEGRAM from Cherbourg states that important works are about to be undertaken on the Ile Pelie, with a view to strengthening the defences of that port. The cost is estimated at 1,100,000fr.

THE largest oak wine vat in the world is being erected in a San Francisco cellar. When finished it will have the proportions of a two-story cottage.

THE new Post-office erected in Bishop Street, Rothesay, has been opened by the Marquis of Bute. The new building, which has been erected at a cost of about £4600, is in the Classic style of Architecture.

THE discovery is reported, by workmen engaged in excavations for the exhibition building at Brussels, of a sarcophagus containing the remains of Attila, the celebrated chief of the Huns, whose final resting-place has been a mystery.

THE British Astronomical Association has accepted the offer of the Royal Botanical Society of a site in Regent's Park for the purpose of erecting a new observatory. The position is a particularly favourable one, as it possesses a very fair horizon, and is easily accessible from all parts of London. The Association will now have to consider the important question of funds for the erection of the observatory.

#### THE ARCHITECTURAL ASSOCIATION.

##### DISCUSSION ON MR. T. G. JACKSON'S PAPER.

(Continued from page 124.)

MR. OWEN FLEMING was the first speaker. He proposed a vote of thanks to Mr. Jackson for his most thoughtful investigation of the problems that face modern Architects anxious to possess that spirit which they all so much admired in Architects of days long passed, and the absence of which in the Architects of the present day they so much deplored. They fully realised the difficulties standing in the way of a return to the idyllic picture of Mediæval times which Mr. Jackson had sketched out, yet there were some Architects who had forsaken the present-day conventionalities of their Art in favour of a nearer approach to the methods of a few hundred years ago. He knew a student who had given up excellent opportunities in order that he might become articled to a mason, and, as a mason, take up his stand on the scaffold; and the speaker ventured to think that that student's work would very appreciably benefit by the course he had adopted. But, in seeking to move on a wider scale, there were certain modern conditions which they could not possibly forget, and the impossibility of obtaining a reasonably accurate estimate of the cost of a building constantly altered during course of construction was not the least obstacle which was in the way of a return to past methods. At the same time there were things they could do, and it was not a little interesting in this connection to note the effort which had been made during the past eight or nine years to introduce more of the practical side into the Architect's work. The efforts had been based on the belief that a purely academical form of education was likely to injure rather than improve the Architect and his works, and among the supporters of this theory were numbered Mr. Jackson, Mr. Lethaby, Mr. Voysey—in fact nearly all those who were earnestly desirous of carrying forward a practical scheme of education. Last year at the School of Design in Handicraft a new system was begun. Instead of trying in a scrappy way to sketch out various buildings month after month, it was resolved to take one building and work it out thoroughly. This year the system had been developed, and although the work of the class had not yet been seen, he was sure that when it was exhibited, as it certainly would be during the next two or three months, one would feel encouraged and led to believe that they were pursuing—he would not say the right road, but a road which led them in the way they wished to go more directly than any other road. They had deliberately put on one side the reproduction of past forms, and had settled down to study the material, and to get at its real nature and possibilities. When they had learned these things, their drawings would simply be diagrams illustrating as far as possible how they thought these materials ought to be treated. He thought the Architectural Association was arriving at one of the most critical periods of its existence. There was going to be a struggle between the academical way of treating Architecture and the practical. They did not object to the Institute examinations; he had undergone the examinations, and spent years in preparation, which he had since come to look upon, in a measure, as waste of time. What he suggested to students was that, as the examinations had to be got through, they should not spend more time in preparation than would just qualify them; they were to just pass and then devote their time to what he called real Architecture—real building. And the way they were going to do it was by a close and harmonious working with the Arts and Crafts School. Mr. Lethaby had told him that to obtain, it was but necessary to ask the Technical Board for a series of good workshops to be placed at their disposal, and he ventured to hope that these workshops would be incorporated in their new premises, for it seemed

very essential to him that they should have their workshops on the premises.—Mr. Hampden W. Pratt, in seconding the vote of thanks, said they had been more and more led to believe that the Architect's education was incomplete unless it embraced considerable knowledge of all the handicrafts with which he had to do, and, although Mr. Jackson would have Architects handle as many trades as possible, yet if pressed he would, the speaker believed, admit that to possess a thorough knowledge of one handicraft was better than a smattering of many. There was, no doubt, a tendency—and technical schools seemed to exhibit it—to have a smattering of many trades, and to go about their work in an amateurish way. He would be sorry if technical education was taken up to a great extent on these lines. If an Architect, however, were to take up masonry or carpentry, and confine himself to one or other of these trades, he would, no doubt, be able to fulfil the conditions expected of him, and derive many advantages from his practical knowledge. Undoubtedly there were many interesting trades to which he might put his hand, but, unless they were to get two years into one, it seemed impossible to attempt anything of that sort. One trade might be studied with very beneficial results, but to attempt more would, he thought, be harmful. He thought the Association was moving in the right direction in bringing a modelling class into such prominence; it was the best class they had, and he recommended it heartily to the students. To set up workshops for carpentry, masonry, and so on, for the use of Architectural students, would appeal to them as an ideal course to pursue, no doubt, but the practicability of carrying it out was perhaps quite beyond their reach. It was satisfactory to see that the sympathies of the Association were in that direction, and, whether it established such shops or afforded facilities for students to go elsewhere, there was not a man present, he thought, but would indorse what Mr. Jackson had said in favour of the Architect working more intimately with the Craftsman. One thing he thought the Association might extend, and that was visits to workshops. Next to working in workshops, the best thing was to visit them. Proceeding, Mr. Pratt agreed with the necessity of making working drawings, but of course there were certain details which could be chalked out on a board just as well as set down on paper. Mr. Jackson had set them thinking, and the question was, "How far can we go towards realising the ideal which he has set forth?" He had brought that ideal within reasonable limits; if he had insisted on labours which meant ten years in the workshop they might have been frightened, but he had put the question before them in a common-sense way, which he felt sure would have the effect of bringing about a greater union between Architecture and the allied trades.—Mr. C. H. Brodie thought there was a middle course to be pursued in this matter—and that was to go out on the buildings with the Clerk of the Works and thus see the work carried through from excavations to the finish. He thought no Architect was really an Architect until he had done that. Taking engineers as a body, they knew vastly more about their work than Architects did about their Art, and this, he maintained, was the result of the members of the former class being bound to spend certain time on works in progress. Until such a system was adopted in connection with Architecture, the members of the Profession would go on blindly—blind men leading blind men. Of course, if they took up some handicraft, so much the better, but, above all, it was essential that they should see a building carried through from start to finish.—Mr. Banister F. Fletcher thought Mediæval methods of Architecture impossible in the present day, but Mr. Jackson's remarks as to knowledge of materials must find general favour, for they could not properly design unless they knew what qualities the material in which the design was to be carried out possessed. The question was, "How are you going to get that knowledge?" And then, as to the relation of the Architecture to the Crafts, he was rather inclined to believe



that no evidence had been shown that it was necessary for an Architect to work in any trade. When they were called upon for a design, they could go to the workshop and see the process of manufacture; if they had not got the ability to note the qualities which the material possessed—well, he was afraid they would not acquire the knowledge by hammering away at a bench. In considering this phase of the question, it was well to see what had been done in the past. What did the Architects of two hundred years ago do? Did Wren, Pugin, Scott, or Street ever go hammering at the bench? They had no evidence of such a thing, and he thought such a training unnecessary. Proceeding, Mr. Fletcher maintained that past forms were as essential to the Architecture of to-day as the English language of two hundred years ago was to the English of the present time. And as to the question of Academic v. Practical—well, he had many apprehensions as to the practical man, for he had never met one who was really much good. They should not be unmindful of the clients' point of view. And they could not get rid of the fact that in the nineteenth century the Architect was very largely a business man, and when approached by a client was expected to protect that client from the builder, and anyone else who might seek an advantage.—Mr. E. W. Allfrey, one of Mr. Jackson's pupils, was the next speaker. How far, he asked, was an Architect to go in his knowledge of a complicated modern building with sculptured decorations, &c? Either the Architect must make the designs himself or leave them to his workmen. If he was to do the designs himself, then he must have great knowledge of many branches. But it seemed to him that the Architect should possess general knowledge, and be able to see where his workmen were at fault in order to put them right. He did not think it was necessary for him to go very far into the craftsman side of the work.—The Chairman (Mr. W. H. Seth-Smith), in concluding the discussion, said, from whatever point of view this educational question was discussed, they felt they could all claim the same motive—the progress of the Art of Architecture. He was sure Mr. Jackson's paper would contribute to that end because, as Mr. Pratt had said, it was so moderate and so eminently practicable in its suggestions. The contrast the author of the paper had drawn between the Greek and the Roman Schools was very interesting, and he gathered from his paper that he differed from both—that he would adopt the medium course, and would have them become more of sculptors than they were, and have them follow more fully the general training which the Sculptor-Architects of Italy enjoyed. He had personally found it a great advantage, when dealing with carving, to go into the sculptor's studio and to handle the clay himself; at such times his only regret was that he was not more skilled in the Art. He did not understand Mr. Fleming in his forecast of the struggle which the Association was to undergo. He saw no signs of any such struggle, because the movement was becoming more and more practicable, and the Association was entering more and more into it. Although Mr. Jackson thought they ought to devote more time to the study of the allied trades, he (the speaker) thought it would be best to draw a moderate course now, and then feel their way. It was quite impracticable to spend a year in the joiner's shop—and they could not learn how to properly handle the tools in less than a year. Personally he preferred modelling to carpentry, for if they were good modellers a great deal else followed naturally. Every young Architect who had the chance would do well in his first work to go and reside on the spot, and conduct the building from start to finish; or, if he could not do that, to obtain an engagement as Clerk of the Works.—The vote of thanks was carried, and, in replying, Mr. Jackson said he had always looked upon the Architectural Association as one of the most hopeful organisations for the advancement of Architecture, and with its studio and the School for Arts and Crafts it was carrying out what he thought was the training of Architects on the best possible

lines. As to the examinations, if the proper way was to get rid of them as lightly as possible, why have the examinations at all? Mr. Pratt had referred to the danger of dabbling in many crafts; but, whilst he (Mr. Jackson) admitted that it was better for an Architect to make himself master of one craft, he did not see any great objection to his dabbling in a great many, for he did not think that in their case "a little knowledge was a dangerous thing." He agreed that it was very desirable that a student should go on buildings either as Clerk of the Works or under a Clerk of the Works. He always recommended his students to adopt this course, for they saw all the crafts at work, and thereby obtained knowledge which they would never acquire in the office.

### THE PRINCIPLES OF PERSPECTIVE AS APPLIED TO ARCHITECTURE.\*

By E. BRADBURY.

IT is hardly necessary for me to explain what is meant by "Perspective"; it is one of the most familiar words to an Architect in his every-day experience, and if not practically used in connection with Design, at all events is perfectly understood by him as indicating the appearance which a building or an object will actually present when it has reached a later stage of its existence than merely being upon paper in the flat. It is, in fact, the representation of the "round" on paper, and as such is mostly used by Architects to give an idea of the appearance of a building before it has actually been erected, such a perspective being, of course, obtained by means of the application of certain rules in the concentration of two or three geometrical drawings, no one of which will give the appearance of the building or object into one drawing which will take in all particulars of a building—plan, elevations, and details. The value of a knowledge, however slight, of the Art of Perspective, it will be evident, is very great to anyone engaged in the Architectural profession. To the student, it is invaluable in enabling him the more readily to sketch an existent building, for then he will understand why certain vanishing lines should take the peculiar direction on his sketching block which is without this knowledge somewhat inexplicable to him. He will, having this knowledge, understand why a line which he knows is perfectly horizontal should take an oblique direction across his paper, and why distances which he knows are exactly similar, should be apparently so different in length when viewed from a near or a distant standpoint. To the Architect in practice the knowledge of perspective is also of immense assistance. A rough little sketch of a house as he has built it in his mind's eye, and which is submitted to his client, will be more telling and more readily understood than the usual form of elevations, however artistically finished and shaded. An Architect can understand and grasp the meaning of the geometrical drawings of a building without any trouble, but to a man who is unused to such things, and who is probably building his first house, they are often almost as meaningless as a Chinese puzzle, and the little sketch in the corner of the sheet will be resorted to by him with great gratitude, as a solution to the meaningless lines (to him) of ridges and hips, and so forth, which he is unable to patch together in their proper position. How useful this knowledge of perspective is you may have gathered from the remarks made by Mr. Drew and Mr. O'Callaghan in their lectures to this Association. You will remember Mr. O'Callaghan's remarks about the appearance of an archivist resting upon a column strong and large enough to carry twice the weight it had upon it; what looks correct when drawn geometrically in front and side elevation may not necessarily be correct when viewed diagonally, and in any building the view which is obtained of any feature is most frequently a diagonal one.

\* A paper read at the Architectural Association of Ireland.

And this is where the value of the Art asserts itself, for even if the Designer knows only the

#### PRINCIPLES OF PERSPECTIVE,

he can tell how an object will appear when viewed from any position, and thus save himself from error. To the Architectural assistant the whole of the reasons stated for the study of perspective apply with even more force, for, as a student, he will find it of use to himself, and, as an assistant, his usefulness will be largely increased by such knowledge. No Architect need be without this knowledge, for the rules of perspective drawing are few and simple. I need hardly say that I do not propose to give you accurate instructions in the Art, so that you can immediately sit down and work up a perspective drawing of your latest design. There are two methods by which a perspective representation of a building may be obtained, which are equally correct, and which, I believe, have about an equal number of adherents. One of these, and the oldest, is that which is generally known as the plan method, and the later process involves the use of vanishing and measuring points, but does away with the awkward plan. In the use of the first method, if you wish to make a perspective view of a building which is at all large, it is necessary to clear the office of everyone but yourself, and to keep it hermetically sealed against intruders, because if the office boy gets in you may find your "eye" shifted, and not be able to get it into its socket again, and the drawing will be an utter failure; for by this plan method the eye is an essential feature throughout the whole process of setting up the perspective. But by the other method you only need an "eye" for a very short time, and after that may dispense with it. By the plan method it is also necessary to make a special drawing of the plan, both a tedious and wasteful trouble, which is avoided by the use of the measuring-point method, in which the ordinary drawings are quite sufficient. Personally, I have used both methods, but I have come to the conclusion that the measuring-point system is by far the least troublesome, and is more correct than the plan method, and I now never resort to the latter. Therefore, I propose to deal only with the system which I have adopted. In any method of perspective representation the same general rule is followed of "interception," if I may use the term. By this, I mean that a sheet of glass, or other transparent material, an imaginary sheet at all events, is supposed to be placed between the spectator and the object or building which is to be represented. By tracing upon this imaginary sheet the lines of the building, we obtain what is called a perspective drawing. This imaginary sheet is called the

#### PICTURE PLANE.

It must be distinctly understood that these two planes—the ground plane and the picture plane—are each indefinite in area; that the ground plane can, if necessary, extend all round as far as the horizon, and the picture plane as high as the clouds and as low as the lowest depths of the sea. You will see that the nearer the picture plane is to the object, the larger the perspective representation will be. Another general rule is that all lines which are parallel to one another will converge towards and vanish in the same point. Thus, if standing in the centre of a long straight street, you will notice how all the long horizontal lines—the pavements, the eaves of the buildings, window-sills, &c.—all appear to approach one another, and that, if continued, would meet in one distant point; the lines below the level of the eye seem to rise as they get farther from the spectator, and the lines above the eye-level to descend. And this introduces another rule, which is that all horizontal lines vanish in a point or points situated at the same level as the eye. The reason of this is that the line of the horizon is at the eyes' level; if you stand upon the sea-shore the surface of the sea appears to rise from you until it meets the clouds exactly at your eyes' level. It must be borne in mind that all horizontal lines will vanish in this line of horizon. Thus, as I have already said,



horizontal lines above the eye-level will descend in their perspective representation, and lines below will descend. I mention this the more particularly because I have noticed in very many perspectives that this most essential rule was evidently not known to the author of the drawing, and a sketch is very much injured by its non-observance. But now to get to the more practical part of the subject—the actual working out of a perspective drawing on paper. First you must settle on

#### THE SCALE

to which you intend to work; the most useful to use for any ordinary building, such as a villa, is 4ft. to an inch, as it is very convenient to have a scale which is a multiple of the scale to which the geometrical drawings are drawn, which is more often than not, 8ft. to an inch. Moreover, it can be reduced if it be necessary. It is just as well to appropriate the largest drawing-board and the longest T-square you can lay hands upon when you commence your preparations, also a good big sheet of paper. Pin it down about in the centre of the board, and pin it down very securely, too, as it must not be moved until the whole thing is finished. Then draw a horizontal line right across the paper, and extend it on the drawing-board if necessary; this line is the line of horizon, and along it will be your vanishing and measuring points. Then determine the height of the spectator, and set down from the line of horizon that height to scale, and draw another horizontal line. This will represent the ground line, where the picture plane meets the ground plane. Of course, it will be understood that the paper you draw upon represents the picture plane. The next thing to do is to obtain the position of the "eye." This point must be imagined as being swung down from its position opposite to the picture plane to a position upon the picture plane.

#### THE POSITION OF THE EYE

must, of course, be governed by the peculiar circumstances of each case. If it is a small building, 20ft. or 30ft. of a distance from the picture plane will be sufficient; but if it is a large or high building, the position of the eye must be moved proportionately further away. The point on the picture plane immediately opposite to the eye is called the point of sight, and in it vanish all lines which are at right angles to the picture plane. Oblique lines vanish to the right or left of this point, and the vanishing points for all lines are obtained by drawing lines from the eye parallel to such lines until they meet the picture plane, and these points of intersection will be the vanishing points for such lines. Thus, to obtain the vanishing point for a horizontal line, which is inclined to the picture plane at an angle of 45 degrees, you must draw a line from the eye at that angle until it meets the line of horizon. And the same with all other lines; if the building have a great number of gables, it is often useful to get the vanishing points for each side of the gables, but that is too advanced for everyday use, and is very seldom needed. Now to obtain

#### THE MEASURING POINTS

the rule is very simple: "With the vanishing point as centre, and to the eye as radius, describe an arc which will cut the line of horizon, and the point thus obtained will be the measuring point for all lines vanishing in that vanishing point." Measuring points are in reality vanishing points, and their purpose is to produce lines which will constitute the base of numerous isosceles triangles, one side of which is formed by the picture plane, the second by the line to be measured upon, and the base by the measuring line. The theory of the measuring point is rather complex, but the practical application of it is very simple. I do not purpose detailing here the further processes of setting up the drawing; it is merely by the application of the vanishing points and measuring points, and it must be only remembered that all measurements must be made upon the picture plane. Heights are obtained by using the vanishing points as measuring points, and I may say that any point on the

line of horizon may be used to measure heights, and you are not confined to the use of one point, as in measuring upon horizontal lines. It is very often difficult to place the vanishing points within reachable distance of a moderately long straight-edge, and numerous methods are used for dispensing with the actual points themselves. I will not enlarge upon the different methods, but I can decidedly say that if a vanishing point is within reasonable distance, hammer a pin into it and leave it there until you have finished the work. After obtaining the drawing in pencil comes the question of the finishing of it, and this must be left to the taste or talent of the Artist. It can either be finished in pencil, ink line, colour, or monochrome, or these combined. For a detail perspective, or for a drawing which is to be reproduced and printed, a black ink line drawing is the most suitable. By the use of Winsor and Newton's indelible brown ink, or Prout's brown, a most pleasing effect can be produced, but I have no doubt the majority of votes will go for colour; line drawings produce "Architectural" pictures, and colour drawings form "Artistic" pictures. One gives a drawing which is satisfactory from an Architect's point of view, the other a picture which pleases the Artist's eye. Probably, in nine cases out of ten, the best thing to do is to combine the two, but the consideration of such a point must be left to more competent minds than my own. One or two

#### GENERAL PRINCIPLES

may be mentioned which are worth remembering in making any sketch or perspective drawing, referring to the general treatment of the subject. First, as regards the view; never, under any circumstance, have both sides of a building vanishing to either side at the same angle; place yourself always in such a position that one side is seen more than another—if you do not, no matter how well the drawing is finished, it will appear "amateurish," and, to a certain extent, distorted. A very useful angle for the front or principal side of a building to vanish is 30 degrees with the picture plane. Also, except in certain cases (there are, of course, exceptions to every rule), do not place your spectator too close to the building—if you do so, you will get the details on the near portion of it very large, and the details farther away very small; the roofs will not show up to advantage either. In fact, there are numerous reasons why a building, to obtain its full and true effect, should be viewed from a fairly distant standpoint in preference to one close up to it. I admit that a very great number of perspectives taken from a close standpoint are extremely effective and nice, and that in some cases a view taken from such a position is more satisfactory than a distant view. But in the majority of instances it is better to view a building from a fairly distant point in order to obtain its full effect. But in this, as in all matters relating to the artistic considerations of a perspective drawing, no fixed rule can be given, and each sketch must be governed by its own peculiar conditions of design and locality. Then, again, as regards inking-in a perspective drawing, if you want a "picture" by all means make a picture, but do not try to make a picture and at the same time put in every detail of a building; the two things cannot be combined. If you want a "picture" do not use the pen; use only colour or monochrome, and call the production a picture. An Architectural perspective is a very different thing; lines are essential for a detail perspective, whilst very nice effects can be produced by the use of shades and shadows, either in line or tint. Another very useful thing, remember, is this, that shadows are darker than shades. Take, for instance, a porch projecting from a wall of the same material and shade. If a light is casting the shadow of the porch upon the wall, the shadow so cast will be darker than the shade on the side of the porch. Still another point worth remembering is that if a dark surface and a light surface are in juxtaposition, the dark surface will appear darker where it approaches the light surface, and (*vice versa*) the light surface will appear lighter where it approaches the dark. This, of course, is

only an optical illusion, but is so striking as to be capable of being applied with the greatest effect to a pictorial reproduction of any building or object, and so on.

#### KEYSTONES.

LORD BINGHAM has purchased Hereford House, Hereford Gardens, Park Lane. Extensive improvements are to be carried out immediately.

SOME of the chiefs of the Admiralty have inspected the site for the proposed new harbour at Dover. Boats were towed out to sea and moored, with the object of showing the line the new harbour will follow.

Two schemes, one providing for the erection of a People's Hall, and the other for a building to be utilised as a central institution for nurses in the north of England, are under consideration at Liverpool as a Jubilee commemoration.

As a contribution towards the completion of Truro Cathedral, it is proposed that the building of the nave and the lower portion of the western towers shall be proceeded with. The cost will be £45,000, towards which the Building Committee have in hand £22,746.

The Vicar of West Hartlepool (the Rev. W. F. Cosgrave) has just received a letter from Mrs. Gray, widow of the late Major M. Gray, offering to build a Church in the St. Oswald's district of the parish in memory of her husband. It is estimated that the cost of erecting the Church will not be less than £10,000.

A SPECIAL effort is being made to complete Battersea Polytechnic during the present year. When the institute was built, the erection of the great hall was deferred through want of funds. The proposed hall is estimated to cost about £6000; of this amount £2000 is still required.

A STAINED-GLASS window, erected at the east end of St. Giles' Parish Church, Newcastle-under-Lyme, has just been dedicated in memory of the late Alderman Mellard. The window has been supplied by Messrs. Hardman and Co., of Birmingham, the cost being about £1000. The design occupying the seven principal lights is the Crucifixion.

MEMBERS of the House of Commons are likely before long to have an opportunity of personally inspecting the Italian invention of telegraphy without wires. The proposal is to place the terrace of the House and the Members' cloak-room in direct communication, and, as a subsequent experiment, to send messages from St. Stephen's to Dover and from Dover to Calais.

THE Crowhurst, Sidley, and Bexhill Railway Bill, the object of which is to begin a junction with the South-Eastern Railway at Crowhurst, terminating at Bexhill, came before a Select Committee of the House of Lords, and was referred back to the Chairman of Committees as an unopposed bill. The capital asked for by the new company is £135,000, with borrowing powers to the extent of £45,000.

THE Bishop of Exeter, presiding at a meeting at Plymouth, held in furtherance of a movement for providing more Churches for the increasing population of Plymouth and the two neighbouring towns, stated if they could raise £21,000 a commencement could be made with seven new Churches. His Lordship promised £100 for five years, and announced that Lord St. Leven had promised £500 and the site for an additional Church at Devonport.

A FEW choice engravings of the Early English school came under the hammer at Christie's, when some good prices were realised. Bartolozzi's engraving in colours of Sir Thomas Lawrence's portrait of Miss Farren (Countess of Derby) sold for 59 guineas; the pair of prints known as "St. James's Park" and "A Tea Garden," after George Morland, proofs before the borders finely printed in colours, realised together 96 guineas; the engravings of Reynolds's picture of the Marlborough family, by C. Turner, proof before letters, 25 guineas; the Ladies Waldegrave, after the same, by Valentine Green, 51 guineas; and two examples from Wheatley's London Cries, "Primroses" and "Turnips and Carrots," in colours, 47 guineas.



## THE NEW GOVERNMENT OFFICES.\*

By H. H. STATHAM.

MR. H. H. STATHAM said that in that room they were bound to consider the treatment of Government offices from an Architectural point of view, both in regard to the most effective treatment of the buildings themselves, as an important element in our national Architecture, and to those questions of alignment of streets which came under the general head of what were called "public improvements." The subject was one of national importance. In order to appreciate the present position it would be well to look back a little. It was obviously important, both for Architectural effect and convenience of communication, that Government offices should be concentrated, and should be rebuilt from time to time in accordance with a definite scheme to which each new building would be a contribution. Such a scheme, on the grandest scale, had been drawn out by Sir Charles Barry in 1857, not only for the concentration of the Government offices, but for the improved laying out of the whole Westminster and Whitehall district. In 1856 took place the great competition for a plan for the concentration of the Government Offices and for special designs for War Office and Foreign Office buildings, as the result of which the War Office, though there was the most urgent need for it, was abandoned, and Sir Gilbert Scott received the commission for the Foreign Office. It had been attempted to show that the Foreign Office was a complete failure, and a proof of the mistake of erecting palatial Government offices designed by an outside Architect; but this was exaggeration; the faults which it had could easily be avoided in a future case; it was at all events a dignified building, and its quadrangle, of the dimensions of 240ft. by 170ft., was on such a scale as to have a really fine effect. The argument that such buildings would be better produced by the official surveyors of the Office of Works was sufficiently answered by the buildings which were so produced, notably the Post Offices, which were nearly all in a poor and commonplace style of Architecture. In 1882 the competition for new War and Admiralty offices was announced, not on the Great George site, as had been expected, but on a site near Spring Gardens, in which a part of the new building, for economy and to avoid purchasing some street property on the west side of Whitehall, was relegated to the rear of the houses. The opportunity afforded for

## WIDENING THE UPPER END OF WHITEHALL

by throwing back the west line of the street, pressed on the Committee by two eminent Architects, was entirely ignored. The next step was that this scheme was abandoned, the building of the War Office was again postponed, and the Committee of 1887 reported that the Admiralty could be economically provided for by retaining and adding to the old Admiralty buildings. He could not understand how any Government could sanction the retaining of a building with such an interior as that of the old Admiralty; nothing short of entirely gutting it could enable it to be made a satisfactory building, and the Architectural exterior was not worth that. The new buildings, though well planned, represented a design originally commonplace, though rich and costly, cut down to a cheap brick structure with stone dressings; the superficial richness being removed, only the commonplace remained. As a building for the administration of the greatest naval power in the world, it was little short of a disgrace to the nation. Coming to the Parliament Street site, the new proposed buildings there would be well situated parallel with the Foreign Office, but in order to produce their proper effect the design ought to range in its main lines with that of the Foreign Office and harmonise with it in character; to erect an inferior type of building would be to destroy the whole Architectural effect. The alternative proposal to set back the Parliament Street

part of the new buildings at an oblique angle, merely with the object of getting a full view of Westminster Abbey from a point eighty yards higher up Parliament Street, was absurd; it would be spoiling the whole building and throwing away part of a site, already too small, for an almost imaginary benefit. Coming to the question of the War Office, the fact that the money had been voted for the Carrington House site surely did not bind the Government either to build War Offices and no other on that site, or to decline enlarging the site by

## THE PURCHASE OF FURTHER PROPERTY.

It would be quite possible still to build the War Offices on the Downing Street site, and to provide for the Departments, now on that site, on the Carrington House site. This would realise, with some modification, Barry's fine conception of the War Office and the Admiralty Office as symmetrical blocks on either side of the parade ground, the Horse Guards in the centre. Probably none of the buildings on the Downing Street site could be permanently retained in such a case—the interior of the Treasury building even was too old-fashioned to retain; but the little domed vestibule of Dover House ought to be respected in any case, and could easily be worked into a new building. The vote for the Carrington House site had been unexpectedly taken; it was distinctly promised that the Committee would hold further sittings first, and it might be observed that for the first time, he believed, no Architectural evidence at all had been taken on a scheme so important in the Architectural embellishment of the capital. The official plan for the building on this site was a double mistake. In the first place, the shape of the building was to be settled by the irregular shape of the intersecting streets. That was an estate agent's and not an Architect's way of planning; it was reducing what ought to be

## A NATIONAL ARCHITECTURAL WORK

to the level of a block of flats or a monster hotel. In the next place, the site would be overbuilt both for Architectural effect and sanitary conditions; the largest quadrangle, into which rooms would look, was only 105ft by 100ft., for a building five stories high. There was no objection to building up Whitehall Place; it was shown that it was now an unnecessary street as far as traffic connection was concerned. The rest of the building could be planned symmetrically on the greater portion of the Carrington House site, the building line on the south side being brought in a little so as to make Horse Guards Avenue central with the Horse Guards, as it always ought to have been. It was absurd that a street facing a famous building and named after it should have been laid down out of centre with it; such a plan would be laughed at in Paris, but in London the alignment of streets and buildings was utterly ignored. Having got the extra width, they might then also make Horse Guards Avenue a real "avenue" by planting two lines of trees in it. When on the subject of what might be done, it was fascinating to go a little further and sketch out

## A REALLY STATELY SCHEME

for the combined treatment of the Admiralty and War Office. Suppose the old Admiralty removed; the new block already built might be lengthened southward a little, and returned towards Whitehall, with a similar northern block built on the foundations now being laid. On the centre of the fourth side of the quadrangle thus formed, facing Whitehall, would be the First Lord's house, with a columned screen and entrance on each side of it. Opposite to this he would buy up all the east side of Whitehall up to Craig's Court, and plan the War Office with a similar but shallower courtyard facing the quadrangle of the Admiralty, and the Commander-in-Chief's house or staff offices in the centre, facing the First Lord's house. The new block of the Admiralty would be retained in its interior plan but faced with stone to form part of a new and superior Architectural design. The whole west side of Whitehall up to Charing Cross would be set back on a new line to give

it an equal width all the way up, and above all to connect it with the axial line of Trafalgar Square, the Charles I. statue being moved a few feet to get it also on the point of meeting of the axis of Whitehall and the Square. The Mall would be continued through in a straight line into Charing Cross, the space between that and the Admiralty being occupied by street buildings forming the offices of the Woods and Forests and one or two other small departments. Speaking of that reminded him that the official plan showed the Mall continued through in the same way, but evidence had been given before the recent Committee, by Police-Superintendent Beard, that it would be

## BAD FOR HEAVY TRAFFIC

to come out of the Mall on to the slope of Charing Cross, that the exit ought to be taken up at an angle into Trafalgar Square. This, however, was beside the mark; if the Mall were to be given up to heavy traffic it had better remain closed, and the very object of opening it was the straight vista along it. He had spoken plainly on the matter, because it was a subject of national importance.—Mr. W. H. Brewer, in proposing a vote of thanks to Mr. Statham, commented on the importance of the subject under consideration, and said the matter resolved itself into the question, "Are we or are we not to have public buildings?" He agreed that the Admiralty building was not very interesting, but there was one thing connected with it which certainly ought to be preserved, and that was the very beautiful Board Room.—Mr. W. Woodward, in seconding the vote of thanks, severely criticised the scheme brought forward by Mr. Statham, and defended the Office of Works.—Mr. E. W. Mountford dealt with the question more in detail, and remarked that if they could persuade the Government that the new offices should be

## A THING OF NATIONAL ADMIRATION,

and not merely a means of housing Government departments, it would be a grand thing for England, and a still greater thing for London.—Mr. W. D. Caröe said the question what should be done with the Admiralty buildings was one which would soon have to be tackled, and he thought it would be best to build a narrow frontage, and fill up the front of the courtyard shown in the elevation in figure four.—Mr. E. W. Hudson was followed by Mr. John Burns, M.P., who urged that the members of the Sites Committee were not such vandals as might be supposed; as one of the members, he was anxious of considering the reorganization of the Government Offices from the point of view of Architectural harmony and beauty. He disclaimed any intention on the part of the Sites Committee to exclude outside Architects from giving evidence. In fact he would suggest to the Institute that a Council of Architects, resident or practising in London, be formed to formulate their views, not on small details, but as to the blocks of buildings which should occupy the space, between the National Portrait Gallery and the Houses of Parliament, and then select two of their number to lay those views before the Sites Committee. He was sure it was not too late for their suggestions to have that weight which they should have, coming from such a body. Personally, he thought that from Charing Cross right down to King Street there ought to be a fine sweep of Government buildings, the frontage, the height, and character of which he left to Architects. Furthermore, if it were possible, he was in favour of pulling down No. 10, Downing Street, notwithstanding the political and personal associations of the building, and having an easy incline into the park; they should clear the Treasury out of its present quarters and have the War Office where Dover House now stands. He was sure it was not too late to impress upon the Government the wisdom of erecting public buildings in a beautiful, and he might say scientific, manner.—The President spoke of Florence as setting a high example in striving after Architectural beauty, and after putting the vote of thanks to the meeting, called upon Mr. Statham to respond.

\* A paper read before the Royal Institute of British Architects on Monday night.



## Professional Items.

**ABERDEEN.**—The Works Committee of the Aberdeen Harbour Board has at present under consideration an important new proposal with regard to the question of additional shed accommodation at the quays. Some considerable time ago the Harbour Board approved of a scheme for the erection of two new sheds at Regent Quay, one 250ft. long and the other 150ft., and separated from each other by a space of 120ft., mainly to allow of the movement of wagons. Inquiries have recently been instituted, however, as to the shed accommodation in the large ports in the south, and it is pointed out that in the most important ports the system of two-story sheds is largely adopted. The proposal now is that, instead of erecting single-story sheds, the Aberdeen Harbour Board should adopt the two-story system. This would give, on the same ground area, double the amount of storage space. Not only so, but, as it is proposed to make the top story continuous, spanning the space of 120ft. between the two sheds, this would give a very considerable amount of additional accommodation. It is suggested that the sheds be constructed with a granite masonry wall at the street side, with masonry gables and division wall, the front, on both stories, having sliding doors along the whole length. The top story would be carried on a central and front row of steel columns rising from the foundation to the roof, with cross and longitudinal steel girders attached to the columns and resting on the masonry walls. The sheds would be capable of carrying 3½wt. per square foot of floor space on the upper story floor. The cost of two-story goods sheds of the dimensions stated, with lowering appliances, but not cranes, is estimated by the harbour engineer at £6565 and £3940 respectively; and the cost of carrying the top story over the intervening space between the sheds would be £2100 additional—in all, £12,605.

The Finance Committee of the Aberdeen Town Council has had before it plans of a block of buildings proposed to be erected on the east side of Albury Road, at an estimated cost of £6000. The plans were prepared in the office of Mr. G. F. Milne, Architect, 137, Union Street, on behalf of various clients. The Committee expressed complete satisfaction with the plans.

**BIRMINGHAM.**—The Estate Committee of the Birmingham Corporation reports the gift of four panels, designed and executed by students of the School of Art, for the further decoration of the Town Hall. The titles of the panels and the names of the Artists are as follows:—"Instrumental Music," by Mr. Sidney H. Meteyard; "Vocal Music," by Mr. Henry A. Payne; "Lench's Trust Almshouses," by Miss Kate E. Bunce; "Dr. Sacheverel," by Mr. Bernard Sleight.

**BRADFORD.**—The marble presentment of the late Sir Titus Salt, Bart., has been removed from opposite the Town Hall to Lister Park. The monument has been in position for some months near the main carriage drive at the western side of the park, but until the immediate surroundings were completed and suitably planted, full justice could not be done to the site chosen by the removal committee. The work of re-erection of the monument has been executed by Mr. Dawson and Mr. Frank Spencer, monumental masons, Bradford, under the direction of Messrs. Mawson and Hudson, Architects.

**CARDIFF.**—The new Post Office has recently emerged from its forest of scaffolding poles in Westgate Street. The area of the site is 4000 square yards, and the cost of the land and building has been £75,000. The total length of the front is 215ft., and the height from pavement to parapet 61ft. 6in., while the central tower rises to nearly double this height. The building comprises four floors. The basement, which is 8ft. in height, consists of

store-rooms. The ground floor is 24ft. in height, the first floor 14ft. in height, the second floor 16ft. in height, while above this, and forming the base of the central tower, is the third floor, which is taken up by the battery-room.

**DUMFRIES.**—The Provost's Committee recommended the Council at the last meeting to give its support to a scheme recommended by the infirmary directors, to raise £3500 to meet the cost of new buildings at the infirmary and to further endow the institution. The new buildings erected and in course of erection for infectious diseases and nurses' residence the committee proposes to call the "Victoria Hospital, and the three southern counties are to be asked to contribute to the fund. The recommendation was unanimously carried.

**GILDEESOME.**—The new offices of the Urban District Council were opened a few days ago. The offices occupy a building known as Grove House, which, together with several acres of land to be used as a recreation ground, have been purchased by the Council from Messrs. M. and T. Stephenson. Certain structural alterations have been made in the house, and the total cost of the property and the alterations has been about £2500.

**GLASGOW.**—On Saturday afternoon the last class visit for this session of the Architectural classes of the Technical College was paid to the New Art Galleries and Museum, Kelvin-grove Park, by permission of Messrs. Simpson and Milner-Allen, the Architects. The resident Clerk of Works showed the students over the building.

**HEELEY.**—The Primitive Methodists have built a new Church, Sunday School, and Institute in Ann's Road. £1700 was paid for the site of the new Church, but this includes nine dwelling-houses, which are still occupied. A substantial Church has been built on the remainder of the site at a cost of £5000, in which are sittings for about 750 people, commodious schools at the back for 800 scholars, and other rooms. Mr. W. J. Taylor was the Architect. Mr. J. Mason carried out the mason's work, Mr. Thomas Lee the joinery, Mr. Braithwaite the plumbing, Mr. Puttrel the decorating, and Messrs. Wright Brothers the installation of heating apparatus.

**KEIGHLEY.**—The foundation-stones of a new Sunday School, to be erected at the junction of Oakworth Road and Fell Lane, were laid on the 3rd inst. A site 2700yds. in extent has been purchased, and in addition to the school now being built there is ample room for a chapel and minister's house when required. The new building will include an assembly-room, three class-rooms, and a kitchen. The Architect is Mr. John Haggas, of Keighley. The cost is estimated at £1150.

**LEEDS.**—The new South Ward Liberal Club is now nearing completion, and a portion of the premises—the assembly room—will be ready for opening next month. The club rooms are expected to be finished by June. The premises, which are situated in Norfolk Street, are constructed of brick with stone dressings, and are two stories high, with a cottage at one corner for the caretaker. On the ground floor, which is capable of accommodating 600 persons, is a billiard-room, a smoke-room, and a reading-room. In the centre is a hall, and here the bar is located. The assembly room on the second floor is capable of accommodating 600 persons, and is entered by a stone staircase, leading into the vestibule at the Hunslet Lane corner of Norfolk Street. The staircase is surmounted by an octagonal tower, with a bell-turreted roof. Exclusive of fittings, the building has cost £3500, of which £520 was spent on the site. The plans have been prepared by Mr. Windsor Thorp, Architect, of Commercial Street.

The Baths Committee of the Leeds Corporation recommends the purchase by the Town Council of a corner of the West Riding

Athletic Ground, in Meanwood Road, as a site for the fifth set of public baths, which the Corporation some time ago decided should be erected in the Sheepscar and Buslingthorpe district. The area of the site to be acquired is 3748 square yards, and the sum for which the owner has agreed to dispose of it is £2998 8s., or 16s. per yard. The effect of the proposal, if carried out, will be to destroy the fine cycling track which was laid down a few years ago. It is expected that the site will be at liberty in about three months, by which time the Baths Committee hopes to be able to commence building operations. The remainder of the estate, it is said, is to be laid out as building land.

**PERTH.**—St. Mary's Monastery, Kinnoull, erected for the Order of Redemptorists, was begun in the year 1867, when the house, consisting of dormitories, refectory, library, kitchen, &c., was erected. In the following year the church, monastery, chapel, and crypt were built, and now the novitiates' wing, consisting of dormitories, common-room, library, and oratory, has been completed. The site chosen for the building is a very fine one, and the grounds are beautifully laid out in gardens, orchards, terraces, and walks. The Architectural treatment of the chapel is Early English Gothic, and the domestic parts of the building harmonise with that style, with simply moulded and arched doorways and deeply splayed and recessed window openings. The wall surface is of natural faced local stone. The interior, with the exception of the chapel and oratory, is simply treated in keeping with the severity of the tenets of the Order. The construction of the original building, church, and novitiates' wing cost about £20,000, exclusive of the site, altar decoration, furnishings, and fittings. The original building and church were designed by the late Mr. Andrew Heiton, and the novitiates' wing by Mr. A. G. Heiton, Perth. The following tradesmen were employed in the execution of the recent works: Mason, Messrs W. and C. Duncan; joiner, Mr. P. Johnston; slater, Mr. J. Carmichael; plumber, Mr. J. McLeish; plasterer, Mr. A. McRitchie; painter, Mr. G. Muirhead; glazier, Mr. C. Alexander; grates, Mr. A. McGregor; roadways, &c., Messrs. W. and R. Taylor.

**RUTHERFORD.**—A meeting held in connection with Rutherford Free Church during the past few days marks the completion of the improvement works. The painting and decorative work has been carried out by Mr. Edward Copland, Rosemount Viaduct. The roof of the Church, which has been entirely remodelled and heightened, is stained a rich dark oak colour in two shades relieved with gold. The pulpit is entirely new, and of good design, and has been stained in dark oak and gilded, the carvings being picked out in red. The front lobby is treated in blue and gold and terra cotta colour. The seating throughout the Church is all re-stained and varnished. The whole of the windows have been remodelled, and filled with leaded Cathedral glass.

**SWANSEA.**—At a public meeting held for the purpose of considering the proposal to proceed with the additional work of rebuilding the tower and chancel of the Swansea Parish Church, it was explained that the £15,000 required for the rebuilding of the nave had been subscribed, and towards the £10,000 required for the tower and chancel £2453 was promised. It was decided to at once proceed with the rebuilding of the chancel and the tower.

**WHITBY.**—There is on view at Mr. True-man's, Fine Art dealer, Whitby, two large water-colour drawings of Whitby Harbour, showing suggested dock-gates to keep the water in the upper reaches of the harbour for boating and other purposes, the carrying out of which many of the townspeople think would form a suitable Jubilee commemoration. The drawings were executed by Mr. G. Scaife French, Architect, Whitby.



## Trade and Craft.

### ACTION AGAINST A DISTRICT COUNCIL.

The case of *Smith v. Chorley Rural District Council*, heard in the Court of Appeal last week, was an appeal by the plaintiff from the judgment of Mr. Justice Kennedy after the trial of the action with a jury. The plaintiff proposed to build certain houses in the defendants' district, and deposited plans of the houses with the defendants. The defendants considered that the proposed houses amounted to the laying out of a new street, and disapproved of the plans upon the ground that the proposed street was not of the width required by their bye-laws. The action was brought for a *mandamus* to compel the defendants to approve and pass the plans. At the trial the jury found that the plaintiff by the proposed buildings was not laying out a new street. The judge, upon further consideration, held that an action for a *mandamus* would not lie, the proper remedy, if any, being by application for a prerogative writ of *mandamus*. He therefore gave judgment for the defendants. The Court dismissed the appeal, the Master of the Rolls holding that the defendants acted within their jurisdiction in every way.

### A CORPORATION AND ITS CONTRACTS.

Mr. Ernest Baggallay, the West Ham stipendiary, has held a public inquiry at Stratford in connection with allegations that the West Ham Town Council had been corruptly influenced in dealing with the contracts for the electric lighting of the borough. The inquiry arose out of a letter sent to the Corporation in December last from the Electric Construction Company, pointing out that the lowest tender had not been accepted, and that a gentleman had called on them offering to influence a member of the council in their behalf. The company called their secretary, who spoke to a man named Paris calling on them with reference to the contract, and saying he could procure the assistance of a member of the Corporation in obtaining the contract, but that the member would want to be paid for his services. Then Mr. D. Smith, an accountant in the same service, said that Mr. Councillor Hunns called on the company and strongly advised them to go in for the contract, and when asked directly the object of his visit he said he supplied different kinds of goods required in electrical work, and if those at the works were told he was to get a share of the orders he would get them. Mr. Paris and Mr. Councillor Hunns each gave their version of the affair, Mr. Paris saying he hoped to get a commission if he succeeded in convincing Mr. Hunns, as he believed that the Electric Construction Company stood high in the estimation of all engineers. He had no communication with or authority from Mr. Hunns to pay the visit. Mr. Hunns said he called merely in the course of his business, and had no thought whatever of a commission in connection with the contract. After a long sitting Mr. Baggallay said he would reserve his decision.

### MESSRS. LONGDEN AND COMPANY.

We have received from Messrs. Longden and Company, of Phoenix Foundry, Sheffield, a copy of their supplementary catalogue, illustrative of the numerous patterns of mantels, grates, &c., manufactured by them. There are several examples of mantels with Berlin black fronts in floral designs, with set of bricks and fall doors, and others with sliding rack blower; whilst one is shown of a very fine cast, with polished brass egg and dot mouldings fitted fast on. Another striking design is a mantel with a beaten brass panel and mouldings; whilst equally notable interiors are shown elsewhere varying greatly in pattern and treatment. Especially would we mention a series of grates with ornamented metal cheeks, fitted to bricks and fall doors, and in some cases with a warm-air grate, fire-brick body cased in iron, and grating and flap over the fire to regulate admission of fresh air; and also a further series of basket and dog grates, in which Messrs.

Longden and Company seem to have combined, as with their other manufactures, artistic merit with economy. The "Sunbeam" ventilating radiators which are illustrated in the catalogue have been constructed to meet the need for heating by conversion as well as by radiation. The "Sunbeam" has specially large air-tubes running through the parts which become heated, and therefore the passage of air is by no means impeded by friction. With the addition, too, of a closely gilled outer surface, the "Sunbeam" is undoubtedly one of the most powerful radiators now on the market.

### ACTION AGAINST A PARISH COUNCIL.

The Brixton Parish Council has just caused to be published a report of a case of litigation in which the Council had been engaged. In June of last year the Council advertised for tenders for the construction of a small foot-bridge at Torre. The brook at this point was crossed by two cover stones, which were a source of great danger, a child having slipped over these cover stones some time previously and been drowned. A tender was accepted, and the contractor commenced operations. On removing the cover stones a dilapidated wall, which was resting thereon, fell. The contractor immediately communicated with the occupier of the garden, promised to rebuild the wall, and to make good all damage which had been done to the occupier's crops. While this promise was being fulfilled a letter was received by the Clerk of the Council from the owner threatening legal proceedings in the High Court. A special meeting of the Parish Council was immediately called, and the clerk was instructed to write an explanatory letter, and to convey to the owner the regret of the Council at the accident. Before this communication could reach the owner the clerk was served with a writ to appear at the High Court of Justice in London. Another special meeting was immediately held, and it was unanimously decided to defend the case. Several letters then passed, without prejudice, with a view to settling the matter out of Court. In the meantime the Council's solicitor applied for a change of venue from Westminster to the Exeter Assizes. This was strongly opposed by the plaintiff. The application, however, was granted by the Master of the Court. Against this decision the plaintiff entered an appeal, which Mr. Justice Wills dismissed, with costs against the plaintiff, remarking at the same time that it would be a scandal for the case to be brought to London. Previous to this the defendants had paid 40s. into Court. This was ultimately accepted by the plaintiff in settlement of all claims.

### A NEW SYSTEM OF OIL LIGHTING.

A new system of oil lighting, brought out by the Imperial Oil Lighting Co., of 43, Cannon Street, E.C., is deservedly attracting much attention. By this new system a constant supply of oil is provided by a tank, placed in any out-of-the-way safe position, and controlled by a "feed" which is interposed between the tanks and the burners. The whole is so arranged as to ensure perfect safety; the "feed" prevents any possible overflow, and effectually cuts off the supply when the burners are not lighted. The feed is absolutely self-acting, and requires no attention; in fact, it is placed in a sealed box to prevent being tampered with. In chandeliers it is fitted in the central ornament of the fitting, but in brackets it is in a separate box. One feed will work any number of brackets on the same level, and it gives off the oil drop by drop where one burner only is lighted, or in a full flow when a number are burning. Explosion or firing is unknown where this system is in use, as the supply of oil in the cups is always at one level, and the burners, therefore always at their best. With so complete automatical arrangements much labour is obviously saved, and, in addition, an excellent light is provided with the greatest economy. This system places oil users on much the same convenient footing as gas consumers. It is claimed to be one-sixth the price of gas where it is cheap, and as much as sixteen times cheaper than gas in many country towns where the rate of the latter commodity is excessively high.

## SOCIETY MEETINGS.

### Sheffield Society of Architects and Surveyors.

The members of this society recently paid a visit to the new building of the Prudential Assurance Company, in Pin-stone Street, by the arrangement of the Architects, Messrs. Alfred Waterhouse and Sons. Mr. Haigh (the Clerk of Works), as the representative of the Architects, conducted the party over the building, and explained the various arrangements and the materials employed. He answered a number of questions asked by some of the younger members during their examination of the building. On the motion of Mr. T. H. Waterhouse, seconded by Mr. W. Parkin, and supported by Mr. Joseph Smith and the hon. secretary (Mr. C. J. Innocent), a vote of thanks was accorded to the Architects and to Mr. Haigh (the Clerk of Works).

### Leeds and Yorkshire Architectural Society.

At the ninth ordinary meeting of the Leeds and Yorkshire Architectural Society, Mr. W. Watson, of Wakefield, retiring president, occupying the chair, the following gentlemen, nominated at the previous meeting as officers for the session 1897-8, were duly elected: President, Mr. George Corson; vice-presidents, Messrs. W. S. Braithwaite and W. A. Hobson; hon. treasurer, Mr. W. H. Thorp; hon. librarian, Mr. W. H. Beevers; hon. secretary, Mr. F. W. Bedford; members of council (in addition to the permanent members), Messrs. T. Butler Wilson, C. B. Howdill, W. C. Hall, A. E. Kirk, George Atkinson, and James Ledingham (Bradford); auditors, Messrs. H. S. Chorley and W. Pott. Mr. W. S. Braithwaite moved a vote of thanks to Mr. Watson for his services as president during the past year, which was unanimously carried.

### East Riding Antiquarian Society.

At the second winter session held at Hull, Miss Lloyd read a paper on the sun-dial at Patrington, and Mr. J. R. Mortimer dealt with the novel subject of embankment crosses, in which he stated he had found whole fields covered with the design of a cross worked in embankments. The president (Canon Maddock) read a paper on the Registers of Holderness. He stated that although these could hardly be said to contain history, yet they contained the materials of history, and instanced how Macaulay was indebted to the parish registers of Leeds for a clue to its population in the time of Charles II. In them might be found the proof or disproof of reported epidemics and famine, and allusions to many old customs, such as burials at cross roads, burials in woollen, as well as remarks on the troubled times of the Civil Wars and the Revolution, as far as they affected the parish itself.

### The Institution of Civil Engineers.

At the ordinary meeting on April 6th, Mr. John Wolfe Barry, C.B., F.R.S., the president, in the chair, the paper read was on "The Blackwall Tunnel," by Mr. David Hay, M. Inst. C.E., and Mr. Maurice Fitzmaurice, B.A., B.E., M. Inst. C.E. Communication between the north and south banks of the Thames below London Bridge was very poor, and many attempts had been made during the last hundred years to give greater facilities for crossing. Various other schemes for tunnels had been brought forward, but that at Blackwall was the only one which had been commenced. The contract for the work was let in 1891 for £871,000, and operations were started early in 1892. The entrance to the tunnel on the north side of the river was in the East India Dock Road, close to the East India Dock gates, while at the south side the entrance was in East Greenwich. The total length of the tunnel was 6200ft., of which about one-half was "cast-iron lined," the remainder being "cut and cover" and "open approach." The open approach at each extremity of the tunnel was constructed with concrete and brick retaining-walls with a facing of white glazed bricks and a concrete invert. A layer of asphalt was carried round it to ensure watertightness. The cut-and-cover work consisted of four or five rings of brickwork in cement and was circular in section;



it was backed with a minimum of 2ft. of concrete, and a layer of asphalt was interposed between the brickwork and concrete. There were four shafts on the line of the tunnel, and these were placed at the horizontal or vertical changes of direction. They were constructed of steel and iron double-skinned caissons, of 58ft. external and 48ft. internal diameter. They had also an internal lining of white glazed brickwork. Two openings for the tunnel were provided in each caisson, which were closed when sinking by easily removable iron plugs. The "iron-lined" portion of the tunnel was constructed by means of a shield, and compressed air had been used for nearly the whole length, the pressure varying between a few pounds and about 27lb. above the atmospheric pressure. The external diameter of the cast-iron lining was 27ft. and the internal diameter 25ft. and 25ft. 4in., each ring of lining forming a length of 2ft. 6in. of tunnel. The tunnel was driven through materials of a very mixed nature, varying between hard watertight clay and coarse ballast in direct communication with the river.

**Society of Engineers.**—At a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on the 5th inst., Mr. G. Maxwell Lawford, president, in the chair, a paper was read by Mr. P. Michael Faraday, entitled "The Rating of Engineering Undertakings." The author commenced by pointing out the importance to engineers of a knowledge of the method in which the works under their control were assessed for the purpose of parochial rating, and next dealt with the capital required by the hypothetical tenant and also the capital belonging to the hypothetical landlord; and the point as to whether the various items going to make up that capital were to be taken at their prime cost, or at their value at the time of making the valuation, was discussed, in addition to the percentage to be allowed the hypothetical tenant as his share of the undertaking. The method in which stations, sidings, &c., of a railway company are assessed was explained, and also the subject of the rateability of signals at junctions. The deduction for the maintenance and renewal of the permanent way was dealt with, and the reason why viaducts and tunnels, &c., are not to be charged wholly to the parish wherein they are situated was also explained. The rating of branches belonging to the system of a large railway company where such branches are *per se* worked at a loss was touched upon, thus introducing the complicated subject of contributive value. Similarly the rating of canals was dealt with, and an explanation was given of how canals were formerly rated. The author explained that the buildings and reservoirs of the canal corresponded to the stations of a railway company and to the dead works of a gas or water company. The obvious advantage which an incoming tenant would have in the case of a water company, as compared with a gas company, owing to the fact that the former has statutory rights to collect its rates in advance, was pointed out, and the bearing which this point had upon the tenant's capital was shown to be very considerable.

**Association of Clerks of Works and Builders' Foremen.**—The members of this association paid a visit to the Bristol Cathedral on the 3rd inst. Mr. Hayward acted as conductor, and explained some of the most notable facts relating to the Cathedral, and also the different periods and diversity of style of Architecture in the different parts of the sacred edifice. This is the first of a series of visits to be paid during the coming summer to the various places of historical and Architectural interest in the neighbourhood.

**Building Trades Association of Manchester, Salford, and District.**—The annual dinner of the Building Trades Association of Manchester, Salford, and District took place early in the month at the Albion Hotel, Manchester. In the unavoidable absence of the president, Mr. Councillor Holland (Bricklayers' Association), the vice-president, Mr. George Macfarlane (Joiners' and Builders' Association) took the chair, and the vice-chair was occupied by Mr. J. Cantrill, treasurer (Painters' and Plasterers' Association). The

chairman was supported by Messrs. R. Neill, jun., W. Southern, C. H. Normanton, W. Jaffrey, W. Marshall, John Wilson, Fred Scott (secretary). There was a large representation of the seven trades combined in the Association. "The Building Trades Association of Manchester, Salford, and District" was proposed by Mr. H. Matthews, and responded to by Mr. J. Cantrill. The Chairman, in proposing the toast of "The Lancashire Federation of Building Trades Employers," said their object was to advocate the adhesion of the trades represented in the Manchester Association with the Lancashire Federation. The council of the Manchester combination had already considered the matter, and looked favourably on the proposal. The demands made upon the employers in the various trades had become so frequent, and often unreasonable, that organisation on a wide and comprehensive scale for the purposes of defence was becoming more and more an urgent necessity, and it seemed to him that the scheme of the Lancashire Federation met immediate requirements and deserved general and unqualified support. Mr. W. Cunliffe, in responding, explained that the Lancashire Federation was in no way antagonistic to the National Association, nor did they propose to invade in any degree the ground covered by the older body. They felt that a local combination covering a sufficiently wide area, and devoting itself exclusively to local interests, could render valuable services to the trades, supplementary to those rendered by the National Association. Nearly all the towns in the country had joined the Federation, and the only place of importance necessary to complete their organisation was Manchester. He made a strong appeal to the constituent trades of the Manchester Association to join the Federation. Messrs. Storrs and Tomlinson spoke to the same effect.

## Correspondence.

### SALARY OF CLERK OF WORKS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Could you kindly inform me through your columns what is the recognised time for the salary of a Clerk of Works to cease? I have been acting as Clerk of Works and Draughtsman for an Architect in Yorkshire for the past twelve months. What I want to know is, am I called upon to remain in the employment of my present principal until the accounts are squared up, or only until the job is completed? My father being an Architect, and in ill-health, moreover himself being very busy—wishes me to return and assist him at the earliest opportunity. I should be very glad of your friendly counsel.

Yours faithfully,

April 5th, 1897.

UNDECIDED.

THE ancient Parish Church of Swinton, South Yorkshire, has been destroyed by fire. The damage is estimated at about £3000.

A SCHEME has just been adopted for building and endowing a cottage hospital at Worksop. A site has been given by Sir Henry Watson, and £1000 is to accrue to the scheme from the Dispensary.

At a cost of over £4000, additional coal bunkers are about to be constructed at Creek Bridge Wharf, Greenwich, for Messrs. William Dowell and Co. Mr. B. W. Adkin, 24, Queen Street, is the Architect whose plans have been adopted.

A FIRE broke out at the Leeds Covered Market on the 30th ult. The staircase leading to the gallery from the principal entrance in Vicar Lane was ruined, and a considerable portion of the glass roof of the building will require renewing.

MR. GEORGE BRIDGE HILLIARD, one of the best known auctioneers and valuers in Essex, has just died at Oxney House, Writtle, near Chelmsford, at the age of seventy-four years. The deceased, who was agent for all the English estates of St. Bartholomew's Hospital, was one of the founders of the Surveyors' Institution.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the work.

**ABERBEEG (Mon.)**—For rebuilding "Hanbury Arms" Hotel, for Messrs. J. R. and T. A. Webb. Messrs. Swash and Bain, Architects, 3, Friars-chambers, Newport, Mon. Quantities by Architects:—  
A. E. Parfitt ... £2,575  
N. Bagley ... 6,331  
Williams and Thomas ... 6,090  
Powell and Mansfield ... 6,054  
Lawson and Co. ... 6,080  
Turner and Sons ... 6,018  
E. Mainwaring ... £5,913  
C. Lock ... 5,825  
W. A. Linton ... 5,800  
C. F. Morgan ... 5,697  
D. Lewis ... 5,633  
Horton and Co. ... 5,480

**ABERDEEN (N.B.)**—Accepted for the erection of hospital, Alford, for Alford District Committee, Aberdeen County Council. Messrs. James Duncan and Son, Architects, Turf:—

Masonry.—Alex. Grant, Alford ... £267 10  
Carpentry.—A. and W. Hendry, Wartle ... 270 0  
Slating.—S. and W. Christie, Dyce ... 82 10  
Plastering.—R. Moir, Inverurie ... 61 0  
Plumbing.—T. Laing and Sons, Inverurie ... 92 15  
Painting.—Fraser, Hutton, and Co., Insh ... 29

Total ... £1,002 15

**ABERTILLERY (Mon.)**—For the erection of Intermediate schools, Abertillery. Messrs. Swash and Bain, Architects, Newport. Quantities by Architects:—  
Turner and Sons ... £2,258  
D. Lewis, Llanhilleth, Mon. (accepted) ... 2,267

**BRADFORD**—For the erection of a house, stable, &c., Barkerend-road. Mr. G. C. Gamble, Architect, Parkinson's-chambers, Market-street, Bradford:—  
Masonry.—Wm. Potty and Sons ... £100  
Joinery.—W. Kellett ...  
Slating.—T. Nelson ...  
Plumbing.—Gell and Firth ...  
Plastering.—M. Bland ...

[All of Bradford.]

**BRADFORD**—For the erection of four through houses—Laisterdyke. Mr. G. C. Gamble, Architect, Parkinson's-chambers, Market-street, Bradford:—  
Masonry.—J. Schofield, Laisterdyke ... £268 16  
Joinery.—Hill and Nelson, Bradford ...  
Slating.—M. Slinger, Bradford ...  
Plastering.—D. Hamsworth, Fagley, Bradford ...  
Painting.—L. Sunderland, Great Horton, Bradford ...

**BOURNE END (Bucks.)**—For additions and alterations to the Platt, Bourne End, for Mr. F. C. Frye. Mr. Arthur Vernon, Architect, 29, Cockspur-street, London, S.W.:—  
Cox ... £875 0  
Silver ... 782 0  
Lovell ... 774 0  
combs\* ... £274 10  
\* Accepted.

**BURNLEY**—Accepted for the construction of a reservoir and other works, for the Corporation. Messrs. G. H. Hill and Sons, Engineers, Albert-chambers, Albert-square, Manchester:—  
W. Underwood and Bros., Dukinfield ... £7,871

**BURNLEY**—Accepted for the supply of 2,500 tons of limestone, and 500 tons of granite, for the Rural District Council. Mr. S. Edmondson, Surveyor, 18, Nicholas-street, Burnley:—

R. Briggs and Sons, Clitheroe ... s. d.  
Hugate Marsden, Salford ... 3 3  
P. W. Spencer, Conisley ... 3 7  
Brundritt and Co., Runcorn ... 6 0  
L. Cooper, Leeds ... 10 5  
... 8 6

**CATERHAM**—For the erection of a nurse's home at Infirmary Asylum, for the Metropolitan Asylums Board. Mr. E. T. Hall, Architect, 57, Moorgate-street, E.C.:—  
J. P. White ... £26,384  
Foster and Dicksee ... 6,128  
Leslie and Co., Ltd. ... 5,946  
Bulled and Co. ... 5,656  
Marriage and Co. ... £5,503  
S. Hipwell, Wisbech ... 5,091  
\* Accepted.

**COVENTRY**—For house, shops, &c., Stoney Stanton-road, Coventry, for Mr. Jesse Holliday. Messrs. Harrison and Hattrell, Architects. Quantities by Mr. J. M. Binley, Coventry:—  
C. Haywood, jun. ... £1,044 11 11  
C. H. Barber ... 1,010 0 0  
G. Storer ... 887 18 6  
R. Wootton ... £288 0 0  
T. G. Golby\* ... 873 0 0  
\* Accepted.

[All of Coventry.]

**DEWSBURY**—Accepted for the erection of six houses in North Park-street, Dewsbury. C. H. Marriott and Son, Architects, Dewsbury:—

Carpentry and Joinery.—William H. Clegg, Dewsbury ... £400 0 0  
Slating.—W. H. Thompson, Batley ... 117 0 0  
Plastering.—James Lockwood, Staincliffe ... 130 0 0  
Plumbing and Glazing.—J. Snowden and Son, Ossett ... 225 0 0  
Painting.—J. H. Jubb, Dewsbury ... 24 3 5

**DOVER**—For the erection of a car shed, Maxton, for the Town Council. Mr. H. E. Stilgoe, C.E., Town-hall, Dover:—  
G. E. Keeler ... £1,180 8  
W. H. Grigg ... 1,089 6  
G. Munro, Dover ... £1,000 0  
\* Accepted.

[Engineer's estimate, £1,030.]

**DUDLEY**—For building the "Station Hotel" stable buildings and premises at Dudley, for the Wolverhampton and Dudley Breweries, Limited. Mr. J. D. Wood, Architect, Birmingham. Quantities supplied by the Architect:—  
Brooks and Tandy ... £24,850  
J. Mallin ... 4,600  
Guest and Sons ... 4,465  
C. A. Horton ... 4,399  
Welb and Round ... 4,350  
Willcock and Co. ... 4,310  
G. Cave ... £24,298  
Lowe and Sons ... 4,193  
A. Lynex ... 4,191  
Harley and Son, Smethwick\* ... 4,190  
\* Accepted.

**EAST GRINSTEAD**—For alterations to "The Dormans Park Hotel," East Grinstead, for Messrs. Lethley and Christopher. Mr. John H. May, Architect, 254, High Holborn, W.C. Quantities by the Architect:—  
Young ... £1,174  
Longley and Sons ... 1,163  
Sobey ... 1,148  
Johnson and Co. ... £1,106  
Wall & Co., London\* ... 1,015  
\* Accepted.

**EAST HAM**—For the making of three new roads and sewers on land abutting on the Barking-road, for Mr. E. F. Crancher. Mr. T. W. Moore, Surveyor, 76, Chancery-lane, W.C.:—  
John Jackson ... £1,989  
Thos. Adams ... 1,938  
Geo. Bell ... 1,772  
Jesse Jackson ... £1,760  
John Burrill ... 1,610  
H. Payne (accepted) ... 1,510

**EPSON**—For the erection of laundry buildings, &c., at the workhouse, for the Union Guardians. Mr. H. D. Searles-Wood, Architect, 157, Wool Exchange. Quantities by Mr. Francis Miller:—  
Baldin and Shopland ... £3,727  
A. Dashwood ... 3,593  
W. B. Pearce ... 3,450  
H. Brown ... 3,190  
Potter ... £2,134  
Thomas and Edge ... 3,065  
E. J. Burnand ... 3,024  
J. R. Burrage ... 2,987



**J. L. ALLDAY,** SHAKESPEARE PRESS,  
BIRMINGHAM.

THE ONLY ABSOLUTELY

IMPERISHABLE GLAZING.

**LONDON HOIST  
AND CHAIN Co.**  
32, Norton Folgate, E.C.

A detailed illustration of a highly ornate, carved wooden toilet. The toilet features intricate carvings, including a large, decorative backrest with a central oval motif and a side panel with a diamond lattice pattern. The base is also heavily carved with floral and geometric designs. The toilet is shown in a corner, with a tiled floor and a wall in the background.

TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.

## ECONOMY IN BUILDING.



# B. WARD & CO.,

**15, Gt. George St., London, S.W.**  
**And at CARDIFF, etc.**

# PATENT STABLE PAVING.

**FIREPROOF STAIRCASES.  
ARTIFICIAL STONWORKS.  
FIREPROOF FLOORS.**

## WOOD BLOCK AND MOSAIC PAVING.

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School  
Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

*Catalogues, Estimates, and further particulars for the consideration of  
Architects and others.*



LONDON.—For interior painting of divisional offices, Richard-street, for the London School Board. T. J. Bailey, Architect:—

T. Nicholson	£185 0 0	R. E. Clarke	£105 0 0
F. Newton	124 5 7	Stevens Bros.	104 0 0
G. S. S. Williams	114 0 0	Marchant & Hirst	99 10 0
and Son	113 10 0	Staines and Son	89 0 0
W. Irwin		H. Eady (accepted)	79 0 0

LONDON.—For sanitary work, &c., Collingwood-street, for the London School Board. T. J. Bailey, Architect:—

W. Downs	£1,310	W. and H. Castle	£1,200
Dove Bros.	1,295	Johnson and Co.	1,162
Stevens Bros.	1,230	Staines and Son	1,157
E. Lawrence and Sons	1,211	E. Triggs (accepted)	1,110

LONDON.—For heating apparatus, Rhyll-street, for the London School Board. T. J. Bailey, Architect:—

Maguire and Gatchell, Limited	£740 10	J. Metcalf	£605 0
Rosser and Russell, Limited	665 0	J. C. and J. S. Ellis Limited	595 0
Comyn, Ching, and Co.	658 10	W. G. Cannon and Sons	524 0
H. C. Price Lea and Co.	655 0	J. F. Clarke and Sons	494 0
		G. Davis*	448 0

LONDON.—For erecting manual training centre and laundry centre at St. Andrew's-street Schools, for the London School Board. T. J. Bailey, Architect:—

W. Downs	£1,519	Extra for brickwork in cement.	£35 0
J. and C. Bowyer	1,307		33 0
J. Smith and Sons	1,308		27 0
W. Akers and Co.	1,294		30 0
Holloway Bros.	1,255		28 0
Lathey Bros.	1,229		26 0
J. F. Ford	1,190		29 0
J. Garrett and Son	1,170		27 0
E. Triggs*	1,160		33 10

LONDON.—For exterior painting and interior cleaning of Brentwood Industrial School, for the London School Board. T. J. Bailey, Architect:—

S. H. Corfield	£308 0	J. T. Rober*	£290 0
Hammond and Son	299 5		

LONDON.—For supply of slow combustion stoves, for the London School Board. T. J. Bailey, Architect:—

Carron Co.	£0 14 5	Hope Foundry Co.	£0 14 10
O'Brien, Thomas, and Co.	1 5 6	McDowall, Stevens, and Co.	0 18 0
G. Wright and Co.	1 2 6	Ashton and Green	1 7 5
Falkirk Iron Company	0 18 9	G. Portway and Son	1 4 6
Hope Foundry Co.	1 6 3	British Foundry Co.	0 14 3
Do.	0 17 1	Coalbrookdale Co.	1 14 0

\*Accept tenders of the Hope Foundry Co. and the Carron Co.

LONDON.—For rebuilding brick casing to flank walls, &c., Walnut-tree Walk Schools, for the London School Board. T. J. Bailey, Architect:—

J. Marsland	£108 0	G. Brittain	£80 0
H. J. Williams	94 10	W. V. Goad*	08 0

LONDON.—For erecting upper standard rooms, &c., at West-square Schools, for the London School Board. T. J. Bailey, Architect:—

Johnson and Co.	£2,660 18	Extra for brickwork in cement.	£59 13
C. Cox	2,637 0		45 0
W. Downs	2,450 0		40 0
J. and M. Patrick	2,428 0		60 0
E. P. Bull and Co.	2,392 0		50 0
Holliday and Greenwood	2,335 0		45 0
G. E. Wallis and Sons	2,307 10		35 0
J. Longley and Co.	2,278 0		45 0
J. and C. Bowyer	2,247 0		49 0
Lathey Bros.	2,228 0		39 0
J. Smith and Sons*	2,202 0		45 0

LONDON.—For erecting manual training centre and laundry centre at Westville-road Schools, for the London School Board. T. J. Bailey, Architect:—

J. and M. Patrick	£2,228 0	Extra amount required for building brickwork in cement.	£30 0
D. Charteris	1,946 0		35 0
R. A. Yerbury and Sons	1,907 0		32 0
C. S. S. Williams and Son	1,899 0		37 0
Lathey Bros.	1,813 0		29 0
E. Triggs	1,767 10		40 0
E. T. Foley	1,737 0		40 0
F. G. Minter	1,714 0		36 0
J. Garrett and Son*	1,698 0		29 0

LONDON, W.—For alterations and additions to Paper-staining Works, Chiswick, W. Mr. Edmund M. Bowyer, Architect and Surveyor, Santon, Reigate:—

H. Roffey	£2,656	Holland and Hannen	£2,569
T. Adamson and Sons	2,587	S. Nye	2,440

LONDON.—For the erection of a block of flats and shops in Richmond-road, West Kensington Park, W. Messrs. Booth and Fox, Architects:—

J. Christie, Uxbridge-road Station	£2,200
------------------------------------	--------

LONDON.—For alterations to the "Golden Cross" public-house, Lancaster-road, Notting Hill, for Messrs. Helliwell and Ginder. Mr. John H. May, Architect, 254, High Holborn, W.C. Quantities by the Architect:—

Sobel	£1,245 0	Ansell	£1,190 0
Sealey	1,225 0	Wall and Co.	1,185 0
Courtney and Fairbairn	1,207 0	Ransom and Co.*	1,147 10

NEWBRIDGE.—Accepted for erecting a Congregational Church. Messrs. Swash and Bain, Architects, Newport:—

C. F. Morgan, Newbridge	£1,250
-------------------------	--------

PARSONSTOWN (Ireland).—For the erection of a residence, Kinnitty, for the Union Guardians. Mr. Jas. Kennedy, C.E., Board-room, Workhouse, Parsonstown:—

J. Stone	£900
D. P. Hoctor, Parsonstown (accepted)	850

RUSHDEN.—For the erection of house, Griffith-street, Rushden, for Mr. W. Penness. Mr. H. Admitt, Architect, High-street, Rushden:—

T. Swindall	£713 0	T. and C. Berrill	
H. Sparrow	685 0	Irchester*	£647 0
T. Wilmet	662 10	E. Marriott	645 0
Whittington & Tomlin	651 0	F. Henson	640 0

SANDBACH.—For the erection of a shop, The Hill, for the Industrial Co-operative Society. Mr. Alfred Price, Architect, Elworth:—

J. Leicester	£289 15	J. Shinger, Sandbach*	£744 0
--------------	---------	-----------------------	--------

[Architect's estimate, £765.]

SOUTH MOOR (co. Durham).—Accepted for the erection of miners' lodge. Mr. J. W. Thompson, Architect, Collingwood-street, Newcastle-on-Tyne. Quantities by Architect:—

J. W. Bolan, Pelton, Chester-le-Street	£2,327
--	--------

TIVERTON.—For three houses and shop in Westgate South Tiverton, for Mr. H. Reed. W. E. Williams, 53, St. Peter-street, Tiverton, Architect:—

Physick	£750	Bricklayer and Carpenter.	
		Grater Bros.	£739

Holcombe £533 0 0 | W. Loosemore (accepted) | £230 0 0 |

G. Tucker 485 10 0 |  |  |

Manning 458 0 0 | Gibbons | 333 12 6 |

G. Tucker £237 10 | Pyle (accepted) | £230 0 |

Sayer £65 0 | Harvey | £48 10 |

Pleass (accepted) 50 0 |  |  |

Nott £20 19 | Crocker | £18 8 |

Harvey 18 10 | Patman (accepted) | 17 10 |

TIVERTON.—For shelter in People's Park, Tiverton. W. E. Williams, 53, St. Peter-street, Tiverton, Architect:—

Pyle	£174	Deering and Sons (accepted)	£130
Grater Bros.	139		

TRYSLULL.—For additions to the Infectious Diseases Hospital, "The Bratch," Trysull, for the Seisdon Rural District Council. Quantities by the Architect:—

Messrs. T. and G. Perry, Wolverhampton (accepted)	£305
---	------

WIMBLEDON.—For the erection of billiard-room at "Tijuca," The Downs, Wimbledon. Mr. Robert J. Thomson, Architect, 64, Hill-road, Wimbledon:—

Bulled and Co.	£569	G. Berry*	£443
Whitehead Bros.	525		

WOLVERHAMPTON.—For new premises, Lichfield-street, Wolverhampton. Mr. T. A. Lowry, Architect. Quantities by the Architect:—

George Cave	£3,140	F. Lindsay Jones	
Willcock and Co.	3,080	Wolverhampton*	£2,746
Henry Gough	3,075	Philip Bowater	2,668
Bradney and Lloyd	3,018		

\*Accepted.

## GEORGE WRAGGE

DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS

Reg No  
273662

Section  
No 21

GLASS

INSIDE

WARDRY WORKS  
SALFORD  
MANCHESTER

LONDON 22  
SURREY STREET  
STRAND W.C.

## METALWORK CASEMENTS & SASHES

### ILLUMINATION BUCKETS IN ALL COLOURS.

Commemorating the 60th year of Her Majesty's Reign.

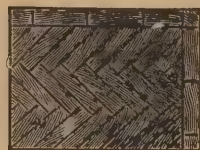
SEND YOUR ORDERS EARLY

To

J. YOUNG & CO., Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.

Telephone No 4712 (Hop).

Telegrams:—"YOUNGS, KENNINGTON CROSS."



### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM JOINERY WORKS,

Clapham Junction, S.W.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,

48, HAMMERSMITH ROAD, W.

Reading Cases may be had on application to the Manager. Price 1s. 9d. each.

FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

Telephone No. 77 (Hop)

DO  
YOU  
WANT  
TO BUY  
RIGHT?

# GEO. HYDE & CO

DO  
YOU WANT  
SPEEDY  
DELIVERY?

173 & 175, KENNINGTON CROSS,  
LONDON, S.E.



**CONTRACTS OPEN.****TO CONTRACTORS for TEMPORARY BUILDINGS and OTHERS.**

The Asylums Committee of the London County Council are prepared to receive TENDERS for the ERECTION of TEMPORARY IRON STRUCTURES at Hanwell Asylum, W.

Instructions for Tender and forms of Tender, contract bond, and bills of quantities can be obtained from the Clerk of the Committee, No. 21, Whitehall-place, S.W., on payment of 25, for which a receipt will be given, and the drawings can then be inspected at the office of the Resident Engineer, at the Asylum. The amount deposited will be returned on a bona-fide Tender being delivered within the appointed time.

Tenders must be on the printed form, and be accompanied by the forms of contract and schedules thereto and bond.

The Tender and accompanying documents, completed in accordance with the instructions, must be enclosed in a sealed cover, endorsed "Hanwell Asylum Temporary Buildings," and be delivered at the office of the Committee, 21, Whitehall-place, S.W., not later than TWELVE o'clock at noon, on MAY 10th, 1897, after which no Tender will be received.

Any Tender not made on the printed form or not filled up and completed in every particular in accordance with the instructions will be rejected.

The Committee do not bind themselves to accept the lowest or any Tender.

The contractors will have to enter into a bond in the penal sum of £2000, with two approved sureties each in the sum of £1000, as security for the due performance of the contract.

R. W. PARTRIDGE,  
Clerk of the Asylums Committee,  
Asylums Committee Office,  
No. 21, Whitehall-place, S.W.  
April 8th, 1897.

Price 3s. 6d.

**GLOSSARY OF TECHNICAL TERMS**  
used in Architecture and the Building Trades.  
By GAVIN JAMES BURNS, B.Sc., F.S.I.  
Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

**AUCTION SALES.****HARWOOD FARM BUILDING ESTATE,  
WATFORD, HERTS.**

Within half a mile of the High-street, and one mile of the Watford Junction Stations, London and N.W. Railway.

Important Sale of Freehold Building Land in a rapidly improving and increasing neighbourhood, suitable for the erection of a most lucrative class of Small Residences, Artisans' Dwellings, and Shops, for which there is great demand.

**MESSRS. HUMBERT, SON, and FLINT** are instructed by Messrs. BENSKIN, Limited, to SELL by AUCTION, at the Red Lion Hotel, Colney Butts, Watford, on WEDNESDAY, APRIL 28th, 1897, at Five o'clock precisely, about 420 PLOTS of FREEHOLD BUILDING LAND, most admirably situated, with frontages to good roads, and with depths varying from 100ft. to 140ft. The estate occupies an elevated position, has been most carefully laid out, and has immediate access to the centre of the town. The subsoil is gravel on chalk. The land will be sold free of Tithe and Land Tax.

Conveyances will, if desired, be prepared by the Vendors' Solicitors upon a moderate fixed scale of charges, and arrangements can be made for nine-tenths of the purchase-money to remain on easy terms, thus affording opportunity for the smallest capitalist to acquire his own Freehold.

Particulars, plans, and conditions of sale may be had

of Messrs. CROSSMAN and PRICHARD, Solicitors, 16, Theobald's-road, Gray's Inn, W.C.; of Messrs. SEDGWICK, TURNER, and ODDIE, Solicitors, Watford; and of Messrs. HUMBERT, SON, and FLINT, Watford, Herts, and 11, Serle-street, Lincoln's Inn, W.C.

**RADLETT, HERTFORDSHIRE.**

On the borders of Middlesex, adjoining the Radlett Station on the main line of the Midland Railway, whence there is a frequent service of trains to London, Important Sale of Freehold Building Land in convenient plots, and Freehold Villa and Cottage Property, with easy terms of payment extending over a period of three or five years.

**MESSRS. HUMBERT, SON, and FLINT** are instructed to SELL by AUCTION, at the RED LION, RADLETT, on MONDAY, APRIL 26th, 1897, at Four o'clock precisely, about 65 Plots of admirably placed FREEHOLD BUILDING LAND, with frontages of 16ft. to 30ft., and exceptional depths of upwards of 220ft.

The Estate is intersected by excellently constructed roads, has a gradual inclination to the south-west, and commands picturesque views over a beautifully-wooded landscape. The subsoil is gravel. Colne Valley water is laid on, and for the erection of Villa Residences this Sale offers opportunities rarely to be met with of acquiring building sites possessing all the advantages of rural and charming surroundings, at the same time being within thirty-five minutes of London. The land will be SOLD free of Tithe and Land Tax. Also

Two Freehold Villa Residences and Four Cottages, well built in brick and slated, and all let to excellent tenants, the Residences at £25 each per annum, and the Cottages to weekly tenants at 5s. 9d. each, the whole producing a gross annual rental of £109 16s., and forming a safe and remunerative investment.

Plans, particulars, and conditions of sale may be obtained of Messrs. SEDGWICK, TURNER, and ODDIE, Solicitors, Watford; and of Messrs. HUMBERT, SON, and FLINT, Watford, Herts, and 11, Serle-street, Lincoln's Inn, W.C.

# McNEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)

# McNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

*Lists, Samples, and full particulars free on application to*

**F. McNEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

<p>RED, BUFF, and PINK TERRA- COTTA and BRICKS.</p>	<p><b>TERRA- COTTA WORKS</b></p> <p><b>J. EDWARDS</b></p> <p><b>RUABON.</b></p>	<p>ROOFING TILES, RIDGING, and FINIALS.</p> <p>—o—o—o—</p> <p>BLUE GOODS.</p>
---	---	---

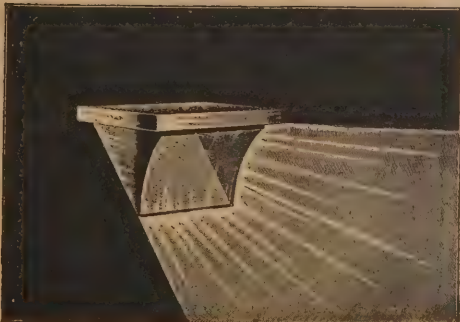
## WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL FOR TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C

**"DRIPLESS" LIGHTS.**

So constructed as to Prevent the Condensation falling on anything which happens to be below.

**WILSON'S "SAFETY" PAVEMENT LIGHTS.**

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

**WILSON'S IMPROVED PATENT  
HORIZONTAL FLOOR & ROOF LIGHTS**



**CIVIL SERVICE TECHNICAL EXAMS.**  
—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**ASSISTANT SURVEYORS, R.E. CIVIL STAFF EXAMINATION ANNOUNCED.** For terms for tuition, apply to Mr. G. A. T. MIDDLETON, A.R.I.B.A., 56, Dafforne-road, Upper Tooting, S.W. First place on three occasions.

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required. For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

**A QUANTITY SURVEYOR,** commencing Practice, is DESIROUS of SHARING OFFICES with an Architect with a view to mutual advantage.—Box 439, BUILDERS' JOURNAL.

**PRACTICE of ARCHITECT and SURVEYOR FOR SALE,** South of England. Established 14 years. Income £250 to £350 per annum. Good reason for selling.—Address, VENDOR, care of Advertising Offices, 10, High Holborn, W.C.

**TECHNOLOGICAL EXAMINATIONS,** 1897.

CITY AND GUILDS OF LONDON INSTITUTE.

The Institute's EXAMINATIONS in TECHNOLOGY will be held on APRIL 24th, MAY 1st, 3rd, 4th, 5th, 6th, 7th, and 8th.

All applications for examination in Technology must be forwarded to the Institute on or before MARCH 29th.

Only in exceptional cases, and by payment of an additional fee, can applications be received from Local Secretaries after that date.

Candidates on Technology, not attending any registered class, should apply not later than MARCH 19th to the Secretary of the nearest local centre.

Applications from individual candidates for examination at the offices of the Institute should be made not later than APRIL 17th, addressed City Guilds Institute, Examinations Department, Exhibition-road, S.W., and should be accompanied by a postal order for the amount of the fee.

**R.I.B.A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

### MANCHESTER CORPORATION.

The Rivers Committee invite APPLICATIONS for the POSITION of CLERK of WORKS to supervise reconstruction.

None but thoroughly qualified men accustomed to similar work need apply.

Applications, stating salary required, accompanied by copies of three recent testimonials, which will not be returned, to be forwarded not later than NOON on TUESDAY, the 20th instant, to the City Surveyor, Town Hall, Manchester, marked on the outside "Application for Clerk of Works."

Canvassing directly or indirectly will disqualify.

WILLIAM HENRY TALBOT,

Town Hall, Manchester,  
April 5th, 1897.

Town Clerk.

### CITY of OXFORD.

WANTED, a STOCK CLERK, with good experience of Municipal Accounts, particularly those appertaining to the Surveyor's Department.

Salary, £80 per annum, increasing £10 yearly to a maximum of £120.

Applications to be addressed in writing, enclosing not more than two recent testimonials, on or before FRIDAY, 23rd instant, to the TOWN CLERK, Oxford, endorsed "Finance Committee."

Dated April 9th, 1897.

### VESTRY of ST. MATTHEW, BETHNAL GREEN.

Notice is hereby given that the Vestry, at their Meeting to be held on THURSDAY, MAY 6th, will proceed to elect a JUNIOR CLERK for the Surveyor's Department, at a salary of £80 per annum.

Applications (marked outside "Junior Clerk"), stating age, previous experience, &c., with copies of not more than three testimonials of recent date, to be sent addressed to me, on or before the 28th inst.

Preference will be given to persons not exceeding 33 years of age, and who possess a knowledge of shorthand, and previous experience in a surveyor's office.

Canvassing Members of the Vestry will disqualify an applicant.

By order,

ROBERT VOSS,

Vestry Clerk.

Vestry Offices,  
Church-row, Bethnal Green,  
April 9th, 1897.

**ASSISTANT (experienced) REQUIRED** immediately. Must be a good draughtsman, and well up in classic details and working drawings.—Address, by letter only, stating references, experience, &c., and salary required, Mr. W. G. R. SPRAGUE, Fitzalan House, Arundel-street, Strand, W.C.

### ARCHITECT'S ASSISTANT WANTED

Immediately, to finish contract drawings. Must be neat draughtsman.—Apply to GRAHAM AWDRY, F.R.I.B.A., 3, Great George-street, Westminster.

### SURVEYOR'S ASSISTANT WANTED.

Must be a competent land surveyor and leveller, and able to assist with quantities and specifications.—Apply, stating terms and references, to MESSRS. GORCH AND SAUNDERS, Bank-chambers, Kettering.

### BUILDER'S CLERK WANTED (thorough).

Must be good accountant and correspondent. Shorthand.—Apply by letter, D. care of Fryer's Advertising Offices, No. 118, Holborn, E.C.

### WANTED, a competent ASSISTANT.

Must be a neat and rapid draughtsman, and able to specify.—Apply, ERNEST A. E. WOODROW, A.R.I.B.A., 67 and 69, Chancery-lane.

## ROBT. ADAMS, 67, Newington Causeway, London, S.E.

These marvellous  
Double and Single  
Action, Silent,  
Adjustable, and  
Self Compensating

## SPRING HINGES

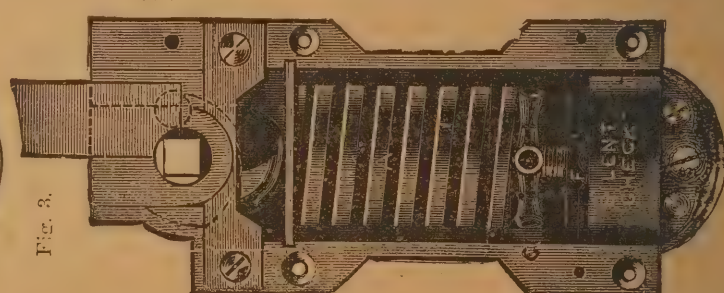
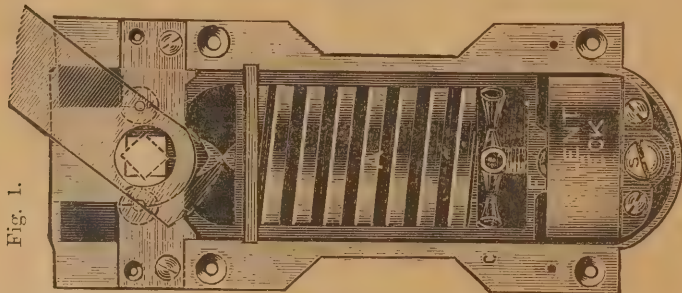
Guaranteed to last  
longer and work better  
than any hitherto  
made.  
CAN BE FITTED TO ANY  
DOOR.

Fig. 1 (Silent).

A Double-Action  
Spring Hinge  
which opens to and  
closes from the angle  
of 135°.

[Fig. 3 is the new  
Single Action Spring.  
It opens to and closes  
from the angle of 180°,  
i.e., "wide back."

THE FIRST  
SPRINGS EVER  
PRODUCED WITH  
THESE GREAT  
ADVANTAGES.



### WOOD BLOCK FLOORING.

**MASTIC** for laying above supplied in any quantity.

W. BRIGGS, Chemical Works, DUNDEE,  
SOLE MAKER OF

"Tenax" Building Rock Composition  
For Wall Cavities.

### PILKINGTON'S

WORKS:

CLIFTON JUNCTION,  
NEAR MANCHESTER.

MANUFACTURERS OF HIGH CLASS TILES.  
For Floors, Halls, Hearths, Grates and Furnaces.

EVERY VARIETY OF TILE WORK FOR

CHURCHES, PUBLIC BUILDINGS AND

PRIVATE RESIDENCES.

London Show Rooms:

Lyric Chambers, 45, Whitcomb Street W.C.

Manchester Show Rooms

37, Cross Street

A few copies of Vol. IV. may still be had on application to the Manager, price 5s. each.

## GODWIN'S TILES

for PAVEMENTS  
WALLS HEARTHES &c

AS USED BY THE  
Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON,** Lugwardine Works, **WITHINGTON,**  
Patronised by Royalty. | Established 1848. | Near HEREFORD.

20,000 yards  
FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND  
SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.





# INDEX OF ILLUSTRATIONS AND CONTENTS.

ILLUSTRATIONS.	PAGE	CONTENTS.	PAGE	CONTENTS.	PAGE
Supplement: Bailie Macmoran's House, Lawn Market. Measured and drawn by Mr. John Murray		The New English Art Club	133	The New Government Offices. By H. H. Statham	145
Early English Doorway, Llandaff Cathedral. Sketched by L. Edmunds	133	Two Unsolved Problems	133	Professional Items	146
Scottish Plaster. Drawn by John Murray	134	Building Activity in Leeds	134	Trade and Craft.—Action against a District Council—A Corporation and its Contracts—Messrs. Longden and Company—Action against a Parish Council—A New System of Oil Lighting	147
St. Mary's Hall, Lawn Market	135	Scottish Plaster Work. By John Murray	135	Society Meetings	147
French Ambassador's House, Cowgate. Drawn by John Murray	136	Bricks and Mortar	138-140	Correspondence	148
Croft-an-Righ. Drawn by John Murray	136	London Church Architecture of the Victorian Era. By T. Francis Bumpus	141		
Kellie Castle, Fife. Measured and drawn by R. S. Lorimer	137	The Architectural Association. Discussion on Mr. T. G. Jackson's Paper	142	SURVEYING AND SANITARY SUPPLEMENT:	
		The Principles of Perspective as Applied to Architecture. By E. Bradbury	143	Hospitals. By Frederick Batchelor, M.R.I.A.I.	xxxvii
		Keystones	144	Surveying and Sanitary Notes	xi
				The Manchester Sewage Problem	xi

## "THE BUILDERS' JOURNAL" ADVERTISERS.

Names and Addresses with the page on which their Announcements Appear.

PAGE	PAGE	PAGE	PAGE
Adams & Co. ... vi	De Ridder, R. P., Liverpool ... i, ii	Hyde & Co., G. London ... viii	Safety Tread Syndicate, Ltd. ... xi
Adams, Robert, London ... x	Doulton & Co., Lambeth ... i, ii	Itter, A. W., Peterborough ... i	St. Pancras Ironwork Co., London ... xi
Adams, T., & Sons, Ltd., Birmingham ... xi	Dowson Taylor & Co. Ltd. ... i	Jones & Attwood, Stourbridge ... i	Self-Lock Roofing Tile Co., Ltd. ... xi
All ion Clay Co., Ltd., London ... vii	Easton, Anderson & Gooldeen, Ltd. ... iv	Jones and Willis, London ... i	Skidmore, Thos., & Son ... xi
Adlay, J. L., Birmingham ... vii	Eastwood & Co., London ... xi	Kaye, Joseph, & Sons, Ltd., London ... i	Sly Brothers, Oxford ... xi
Anaglypta, Darwen ... vi	Edwards, J. C., Ruabon ... ix	King, John, Liverpool ... i	Smokeless Fire Co., Ltd., London ... i
Asphall's Enamel Ltd. ... vi	Ellis, Partridge & Co., Leicester ... i	Lewis, J., London ... v	Stanley Bros., Ltd., Nuneaton ... xi
Ball, H. A. ... vi	Elsley, Thomas, London ... i	London Hoist and Chain Co. ... vii	Stiff & Sons, London ... xi
Barnett, Edward, Walsall ... vi	Emley & Sons, Newcastle-on-Tyne ... i	Lux Patent Venetian Blind Limited ... xi	Strode & Co., London ... i
Barrows & Co., Ltd., Banbury ... viii	Ettridge, J. J., Junr., London ... i	McNeill, F., & Co., London ... ix	Szerelmey & Co., London ... i
Bath Stone Firms, Ltd., Bath ... viii	Ewart & Sons, London ... i	Maw & Co., Ltd., Jackfield ... ix	Talbot Co., Leeds ... i
Batchelor, J., & Co., London ... viii	Farmiloe, G., & Sons, London ... i	Measures Bros., Ltd., London ... v	Thornton-Pickard Mfg. Co. ... x
Batsford, B. T., High Holborn ... viii	Farrar, E., & Co., London ... xi	Medway, M. T., & Co. ... vii	Twyfords, Ltd., Hanley ... vii
Bayliss, Jones & Bayliss ... xi	Gibbs Bros., Loughborough ... xi	Mellowes & Co., Sheffield ... vii	Ward, B., & Co., London ... vii
Bell, R., & Co., London ... xi	Glover, F. A., & Co., London ... x	Minton, Hollins & Co. ... vii	Warings, Ltd., London ... xii
Blackman Ventilating Co., Ltd. ... xi	Gooding, W., London ... viii	N. A. P. Window Co., London ... vii	Waygood, R., & Co., Ltd., London ... i
Blundell, Spence & Co., Hull ... xi	Granite Silicon Plaster Co. ... viii	Oates & Green, Ltd., Halifax ... vii	Webb & Co., London ... i
Boote, Ltd., T. & R., Burslem ... xi	Gregory, Thomas, & Co., London ... viii	Parker, Robert, & Co., Liverpool ... i	Wilkinson, W. B., & Co., Ltd. ... i
Brady, G., Manchester ... x	Grundy, John, Ltd., London ... i	Parteson, J. & H., Manchester ... i	Williams, G. A. & Son ... iii
Brigg, W., Dundee ... x	Hamilton & Co., London ... i	Perkins, A. M. & Sons, Ltd., London ... i	Wilson & Co., London ... ix
Burmanthorpe, Leeds ... i	Hartley and Sugden, Ltd., Halifax ... xi	Pilkington Tile and Pottery Co. ... x	Woodlams, Wm., & Co., London ... i
Candy & Co., Ltd., London ... i	Hentschel, C., & Co., London ... i, vi	Roberts, Adlard & Co. ... i	Wragge, Geo., Manchester ... viii
Charteris & Longley, London ... i	Hope, Henry, Birmingham ... xi	Robson & Co., Sunderland ... i	Wright, G., & Co., Rotherham ... i
Couzens, G. and F., Cardiff ... i		Rogers, S. E., London ... xi	Young & Marten, Stratford ... i, ii
Dennis, Henry, Ruabon ... i			Young & Co., J., London ... viii

ADCOCK, Mr. W. J., Builder, Dover.

"I have proved your invention easy of application. Both my joiners and apprentices could fix the apparatus without difficulty after having inspected a model."

CRICKMAY & SONS, Messrs., F.R.I.B.A., London, S.W.

"The Patent Windows supplied for Sir Edward Walters' house at Salisbury gave us every satisfaction. We shall continue to use them."

JONES, Mr. PETER, Sloane Sq., London.

"I am glad to be able to bear testimony to the great utility and general usefulness of the N.A.P. Sliding Windows. I am very pleased with them, and should be sorry to be without them."

LUCAS & AIRD, Messrs., Contractors, London.

"Cheap, simple, and effective. We are using some 1200 sets of your fittings on these exceptionally tall buildings."

MORGAN, ISTD & MORGAN, Messrs., Contractors, Southampton.

"A very clever arrangement, and one which will certainly come into daily use."

PERRY & READ, Messrs., F.R.I.B.A., London.

"It is with pleasure that we are able to inform you of our entire satisfaction with the 'N.A.P. Windows,' we shall continue to

specify them."

Write for Full Particulars to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.



G. A. WILLIAMS & SON.





BLINDS





21. QUEEN'S RD. BAYSWATER LONDON. W.



## STIFF & SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS, CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS DAMP-PROOF COURSE, ARCHITECTURAL TERRA-COTTA, VASES, &c.

For Illustrated Price Lists apply to

JAS. STIFF & SONS, LONDON POTTERY, LAMBETH, S.E.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
April 16	Belfast—Extension of Shop Premises	Arnott and Company, Limited	J. J. Phillips and Son, 61, Royal Avenue, Belfast.
" 16	Masborough—Dwelling-houses	Mrs. E. Robinson	J. Axleby, Wilton-lane, Masborough.
" 17	Enniskillen, Ireland—New House, &c.		Thomas Elliott, Architect, Enniskillen.
" 17	Belper—New Hospital, Crich-lane	Joint Isolation Hospital Committee	Maurice Hunter, Bridge-street, Belper.
" 17	Bodmin—New Residence, near Railway Station		William J. Jenkins, Architect, Bodmin.
" 17	Elland—Shed, New Foundry, &c.		W. H. D. Horsfall, 9, Harrison-road, Halifax.
" 17	Gowerton, near Swansea—Masonry, Tanks, &c.	Llangyfelach Rural District Council	John Thomas, Surveyor, &c., 32, Fisher-street, Swansea.
" 17	Kendal—New Shop and House	Rev. Father Stevenson	John Stalker, Architect, Kendal.
" 17	Swindon—Alterations, &c.	Kingshill Co-operative Society	Secretary, Beulah House, Victoria-road, Swindon.
" 19	London, N.W.—Underground Conveniences	St. Pancras Vestry	William N. Blair, Vestry Hall.
" 19	Witham, Essex—New Infirmary	South Metropolitan School District	7, Duke-street, Chelmsford.
" 19	Eskbank, Scotland—Additions, &c., to Poorhouse		Combination Poorhouse, Eskbank.
" 19	Redruth—New Laboratory	Committee, Redruth Science and Art Schools	S. Hill, Architect, Redruth.
" 20	Hythe, Kent—New Church and Schools		Rev. C. Norman, Holmlea, Hythe.
" 20	Tredington—Hospital	Rural District Council	James Villar, 1A, Cambray, Cheltenham.
" 20	Tewkesbury—New Isolation Hospital	Rural District Council	James Villar, 1A, Cambray, Cheltenham.
" 20	Walton, Cumberland—Erection of Stone Bridge	Rural District Council	County Surveyor, Carlisle.
" 20	Halifax—Two Dwelling-houses, in Albert Promenade		Medley Hall, 29, Northgate, Halifax.
" 21	Leeds—Abutments, &c., for Bridge	Corporation	City Engineer's Office, Leeds.
" 21	Mitcham—Laundry House, &c.	Holborn Union	C. F. Vaughan, 25, Lowther Arcade, Strand, W.C.
" 21	Birkenhead—Twenty-five Cottages	L. and N.W. and G.W. Joint Railways	Engineer, Railway Station, Birkenhead.
" 22	Bermundsey—Pulling down Buildings	St. Olave's Union	Newman and Newman, 31, Tooley-street, S.E.
" 22	Meltham, nr Huddersfield—Shed and Alterations at Mills		John Kirk and Sons, Architects, Huddersfield.
" 23	Halifax—A Store and Fourteen Houses	Halifax Industrial Society, Limited	W. Clement Williams, 29, Southgate, Halifax.
" 23	Wakefield—Dwelling-house, Stanley-road		Willie Wrigley, 10, Wood-street, Wakefield.
" 26	Llangollen—County School	County School	H. Leather, Andrew-buildings, Queen-street, Cardiff.
" 26	Chatham—Town Hall and Municipal Buildings	Corporation	G. E. Bond, High-street, Rochester.
" 27	Halifax—Works for taking down Barrack Tavern, &c.	Automatic Standard Screw Company	Jackson and Fox, 22, George-street, Halifax.
" 27	Sowerby Bridge—New School		S. Wilkinson, Sowerby Bridge.
" 28	Petrokoff, Russia—Construction of Cattle Market and Slaughter-house		Provincial Government of Petrokoff.
" 28	Tunbridge Wells—Slipper and Swimming Baths	Corporation	Borough Surveyor, Town Hall, Tunbridge Wells.
" 29	Cardiff—Chimney, &c.	Corporation	C. H. Priestley, Waterworks Engineer, Cardiff.
" 30	Newquay—New Headland Hotel		S. Trevail, Architect, Truro.
" 30	Leicester—Concrete and Stone Bridge	Highway and Sewerage Committee	E. G. Mawby, Borough Surveyor, Leicester.
May 3	Cairo—Prison and Police Barracks	Egyptian Government	Service Administrative Offices, Cairo.
" 7	East Ashford, Kent—Alterations, &c., to Infirmary Chapel	Guardians	Workhouse, Willesboro'.
" 10	Hendon—Asylum	Central London Sick Asylum Board	Giles, Gough, and Trollope, 28, Craven-street, Strand.
No date.	Kirton Lindsey—Warehouse and Six Cottages		Eyre and Southall, Gainsboro'.
<b>ENGINEERING—</b>			
April 16	Ayr—Reconstruction of Quay Wall	Harbour Trustees	H. V. Eagleshal, 61, Sandgate, Ayr.
" 17	Romford—Steam Engine, &c.	Urban District Council	E. Winnill, Britton's Farm, Hornchurch.
" 17	Wolverhampton—Laundry Machinery	Parks and Baths Committee	Borough Engineer, Town Hall, Wolverhampton.
" 17	Golspie—Pipe Tracks at Waterworks	County Council	County Clerk's Office, Golspie.
" 19	Knettishall, Suffolk—Bridge Works	County Council	Commercial Hotel, Hopton.
" 20	Barnstaple—Cartage	Water Company	F. W. Chanter, Bridge Chambers, Barnstaple.
" 20	Nottingham—Construction of Iron Syphons, &c.	Stoke Farm Committee	A. Brown, Borough Engineer, Nottingham.
" 21	Leeds—New Steel Girder Bridge	Corporation	City Engineer, Town Hall, Leeds.
" 22	Glasgow—Steam Road Roller	Corporation	J. Lindsey, City Chambers, Glasgow.
" 23	Alexandria—Iron Boiler Tubes, &c.	Egyptian Government	Department Stores, Alexandria.
" 24	Redruth—Winding Engine	Basset Mines, Limited	N. Trestrail, Redruth.
" 28	London, E.C.—Steam Warming Apparatus	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 30	Yeovil—Covered Service Reservoir	Corporation	Borough Surveyor, Yeovil.
May 10	London—Iron Structures at Asylum	London County Council	The Clerk, 21, Whitehall-place, S.W.
<b>IRON AND STEEL—</b>			
April 22	Valletta, Malta—Iron Columns, &c.		Superintendent of Public Works, Malta.
<b>PAINTING—</b>			
April 20	London, E.—Painting and Distempering	St. George-in-the East Vestry	G. A. Wilson, Vestry Hall, Cable-street, London, E.
<b>ROADS—</b>			
April 16	Grimby—Granite and Slag	Rural District Council	J. Wintringham, St. Mary's Chambers, Great Grimsby.
" 17	Pocklington, Yorks.—Stone, Repairing Roads for 1 year	Rural District Council	Thomas Robson, Clerk, Pocklington.
" 17	Longridge, near Preston—Paving, Sewering, Flagging, &c.	Urban District Council	T. S. McCallum, Engineer, 4, Chapel-walks, Manchester.
" 19	Rochford, Essex—Road Material	Rural District Council	F. Gregson, Clerk to the Council, Southend-on-Sea.
" 20	London, S.E.—Granite Cubes (200 tons), &c.	St. Saviour's District Board of Works	G. E. Norrish, Surveyor, Southwark.
" 20	Tonbridge, Kent—Making-up, Channelling, &c.	Urban District Council	W. Lawrence Bradley, 83, High-street, Tonbridge.
" 20	Branksome, Dorset—Surveyor's Materials	Urban District Council	S. J. Newman, Council Offices, Branksome.
" 21	Southwark—York Stone	Southwark Board of Works	The Clerk, Vine-street, Tooley-street, S.E.
" 21	Newark—Carting Granite and Slag	Rural District Council	T. Vickers, Surveyor, Newark.
" 23	York—Whinstone (1000 tons)	Bishopthorpe Rural District Council	G. Leeming, Museum-street, York.
" 23	Grimby—Street Works	Corporation	A. E. Skill, 7, Macaulay-terrace, Grimsby.
" 26	Halifax—Dross and Granite	Rural District Council	F. Gordon, Clifton, Bridgehouse.
" 26	Halifax—Kerb and Flags	Rural District Council	F. Gordon, Clifton, Bridgehouse.
" 27	Leyland, Chorley, Lancs.—Carting, &c., 1 year	Highway Board	Clerk, District Surveyor, Leyland.
May 4	New Ferry, Cheshire—Street Works	Urban District Council	J. Young, 78, Stanley-terrace, New Ferry.
<b>SANITARY—</b>			
April 17	Landridge—Sewering, Paving, &c.	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
" 17	High Wycombe—Emptying Cesspools, &c.	Rural District Council	F. J. Mead, Clerk, Wendover.
" 20	London, W.C.—Sewerage	St. Martin's-in-the-Field Vestry	C. Mason, Town Hall, Charing Cross, W.C.

## EASTON, ANDERSON &amp; GOOLDEN, LIMITED,

BROAD SANCTUARY CHAMBERS,

BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."

Telephone—"545, WESTMINSTER."

ELECTRIC & HYDRAULIC LIFTS & CRANES,  
PUMPS, RAMS,

WATER SUPPLIES, ENGINES AND BOILERS,

ELECTRIC LIGHT AND POWER.



MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>SANITARY—(Continued).</b>			
April 20	West Bridgeford, Notts—Sewers, &c. (about two miles)	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 22	Woking—Drainage Works	Urban District Council	J. Taylor, Sons, and Santo Crimp, 27, Gt. George-st., S.W.
" 23	Mallow—Sanitary Works, &c., at Workhouse	Guardians	M. Regan, Union Office, Mallow.
" 23	Kettering—Drainage Works	Urban District Council	T. R. Smith, Market Hill, Kettering.
" 23	Walthamstow—Underground Sludge Tank	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
" 28	Rochester—Scavenging, &c. (three years' contract)	Corporation	City Surveyor, Guildhall, Rochester.
July 31	Oporto, Portugal—Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.
<b>TIMBER—</b>			
April 20	London—Oak Fencing	County Council	Parks Department, County Hall, Spring-gardens, S.W.
" 20	Ramsgate—Wood Paving Blocks (4000yds. super.)	Corporation	Borough Engineer, Broad-street, Ramsgate.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
April 21	Long Buckley, Northamptonshire — Competitive Schemes for Water Supply.	30 guineas	Rural District Council.
" 30	Halifax—Designs for Police Station and Court House	£50, £25	Corporation.
" 30	London—Church Extension	£10	Mr. Marrow, 2, Finsbury-square, London.
May 1	Crompton, Lancs.—Designs for Public Baths	£30, £20, £10	Crompton Urban District Council.
" 15	Tonbridge, Kent—Technical Institute and Free Library	£31 10s., £21, £10 10s.	Urban District Council.

## CONTRACTS OPEN.

VESTRY OF SAINT PANCRAS.  
TO BUILDERS, SANITARY ENGINEERS, and OTHERS.

NOTICE is hereby Given that the Highways, Sewers, and Public Works Committee of the Vestry of St. Pancras will meet at the Vestry Hall, Pancras-road, on MONDAY, APRIL 19th, 1897, at SIX o'clock p.m., to receive TENDERS from persons willing to contract for the CONSTRUCTION of a block of UNDERGROUND CONVENIENCES in Mansfield-road, by Lisimore-road. Specifications and plans may be seen between TEN a.m. and TWELVE noon, at the office of Mr. WILLIAM NISBET BLAIR, C.E., Engineer and Surveyor to the Vestry, at the Vestry Hall, and quantities obtained on a deposit of Two Guineas, which will be returned on receipt of a bona fide Tender, or otherwise forfeited. Sealed Tenders to be delivered not later than SIX o'clock p.m. on the said MONDAY, April 19th, 1897, and endorsed "Tender for Underground Conveniences." The Vestry do not bind themselves to accept the lowest or any Tender.

By order,

C. H. F. BARRETT,

Vestry Hall,  
Pancras-road, N.W.  
March 25th, 1897.

CORPORATION OF LEICESTER.  
NEWARKE BRIDGE AND APPROACHES.

The Highway and Sewerage Committee of the Corporation of Leicester are prepared to receive TENDERS for the CONSTRUCTION of a CONCRETE and STONE BRIDGE over the Leicestershire and Northamptonshire Union Canal and Flood Course; and for the FORMATION of a NEW ROAD from "The Newark" to the Western Boulevard, together with a STORM OVERFLOW, FOUL, and STORM WATER SEWERS, and all other works in connection therewith. Plans may be seen, and copies of the general conditions, specification, and bill of quantities, &c., obtained at the Borough Surveyor's Office, on and after WEDNESDAY, APRIL 21st, 1897, on payment of the

sum of £2, which will be returned on receipt of a bona fide Tender.

Cheques, &c., to be made payable to the Leicester Corporation, and sent to the Borough Accountant. Sealed Tenders, on the forms supplied, addressed to the Chairman of the Highway and Sewerage Committee, Town Hall, Leicester, are to be delivered not later than TWELVE noon on FRIDAY, APRIL 30th, 1897, endorsed "Tender for Newark-street Improvement." The Committee do not bind themselves to accept the lowest or any Tender.

E. GEO. MAWBEE, C.E.,  
Borough Surveyor.

Town Hall, Leicester,  
April, 1897.

## TO BUILDERS and CONTRACTORS.

The Board of Management of the Central London Sick Asylum District hereby invite TENDERS for the ERECTION of a NEW ASYLUM at Hendon.

Bills of quantities can be obtained of the Architect on payment of Five Guineas, to be returned on receipt of a bona fide Tender.

The plans, specifications, and draft contract can be seen at the Offices of the Architects, Messrs. GILES, GOUGH, and TROLLOPE, 23, Craven-street, Strand, W.C.

Tenders to be sent in, on the form provided, not later than THREE p.m. on MONDAY, MAY 10th.

The Board do not bind themselves to accept the lowest or any Tender.

By order,

FRED. W. BAILEY,  
Clerk to the said Board.  
Clerk's Office,  
Cleveland street Asylum,  
Cleveland-street, W.

## TO ENGINEERS.

The Metropolitan Asylums Board are prepared to receive TENDERS for PROVIDING and FITTING-UP STEAM and CONDENSE MAINS, Hot-Water Warming and Supply Apparatus, and other Works, at the Western Hospital, Seagrave-road, Fulham, according to drawings, specification, and conditions of contract, prepared by Messrs. A. and C. HARSTON, Architects, 15, Leadenhall-street, E.C.

The drawings may be seen, and a copy of the specification obtained, at the Offices of the Architects, between the hours of TEN a.m. and FIVE p.m. upon payment of a deposit of Five Guineas, which amount will be returned to persons sending in a bona fide Tender, and returning the specification.

Tenders, sealed and endorsed "Tender for Engineering Work, Western Hospital," must be delivered at the Chief Office of the Board, Norfolk House, Norfolk-street, Strand, W.C., not later than TEN a.m. on WEDNESDAY, APRIL 28th, 1897.

The Board does not bind itself to accept the lowest or any tender.

By order,

T. DUNCOMBE MANN,  
Clerk to the Board.

Chief Office,  
Norfolk House,  
Norfolk-street, Strand, W.C.  
April 2nd, 1897.

## TO BUILDERS, CONTRACTORS, and OTHERS.

EAST ASHFORD UNION (KENT).  
PROPOSED NEW ADMINISTRATIVE BLOCK, ADDITION TO INFIRMARY, NEW CHAPEL AND ALTERATIONS TO EXISTING BUILDINGS, &c.  
Persons desirous of TENDERING for the above WORKS are requested to forward me their names and addresses.

Bills of quantities will be supplied for a fee of £1 1s., which will be returned on the receipt of a bona fide Tender.

The plans and specifications can be seen at the Workhouse, Willesborough.

Sealed Tenders, on forms to be obtained of me, endorsed "Workhouse Buildings," to be sent to me, on or before FRIDAY, MAY 7th, 1897.

The Guardians do not bind themselves to accept the lowest or any other Tender, and any Tender accepted will be subject to the approval of the Local Government Board.

No Tender will be accepted unless it comprises the whole of the Works.

HORACE HAMILTON, Clerk.  
No. 11, Bank-street, Ashford, Kent,  
April 7th, 1897.

(Continued on page ix.)

TELEGRAMS:  
"WEATHERVANE, LONDON."



**J. LEWIS,** 5 & 6, Great Winchester Street, LONDON, E.C.

## LIGHTNING CONDUCTORS.

ELECTRICAL EXHIBITION CRYSTAL PALACE AWARD, 1892.

"LEWIS LINK," The only EFFICIENT COUPLING for Conductors. PATENT No. 16,641.

SEE SECTION Fig. 2.

VILLAS,  
MANSIONS,  
SCHOOLS,  
CHURCHES,  
FACTORIES.  
CHIMNEY  
SHAFTS, &c.

MEASURES BROTHERS, LTD.  
LONDON.

SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

Have now in their Town Stock 6 500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.

Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.



Telephone No. 4586.



From 3in. to 20in. deep.



FOR LOW LEVEL  
**SEWAGE** RAISING  
 AND DRAINAGE  
 IRONWORK

SEE...

**Adams'**  
 CATALOGUE.

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
 BIRMINGHAM—28-30 Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

**ASPINALL'S**  
**ENAMEL**

Unequalled for all Decorative Purposes.

SPECIAL ENAMEL FOR  
 DECORATORS' USE.

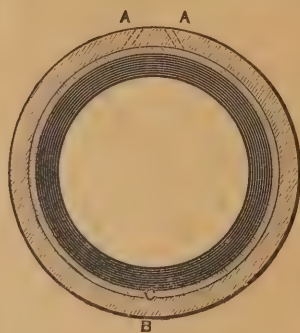
**ASPINALL'S**  
**WAPICTI**

The Sanitary Washable Distemper.

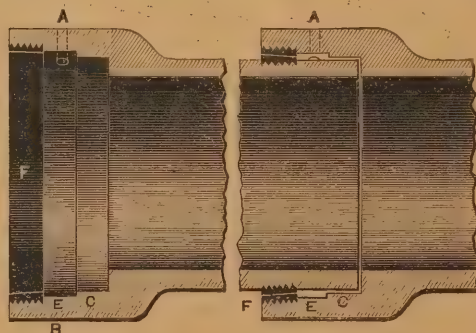
SANITARY, ECONOMICAL, ARTISTIC.  
 Made in any Shade.

ASPINALL'S ENAMEL Ltd., New Cross, LONDON, S.E.

**GREEN'S PATENT TRUINVERT PIPE.**



AA—Holes for pouring in cement or composition.  
 —Strengthened and lengthened Socket.



CC—Inner Socket and Rest.  
 EE—Chamber for cement or composition.  
 FF—Stanford Joint in new position.

This pipe secures TRUE ALIGNMENT OF INVERT, INCREASED STRENGTH IN THE SOCKET, THREE GAS AND WATERTIGHT CONNECTIONS AT EVERY JOINT, and while allowing for a slight settlement when first laid, forms an ABSOLUTELY RIGID JOINT directly the cement sets.

**POINTS.**

- 1.—GAS AND WATER-TIGHT JOINTS EASILY MADE UNDER WATER.
- 2.—TRUE ALIGNMENT OF INVERT.
- 3.—SOCKET THE STRONGEST PART OF THE P.P.E.
- 4.—NO SPECIAL JUNCTIONS REQUIRED.

OATES & GREEN, Ltd., Halifax.

**HOMAN & RODGERS,**

ORIGINAL PATENTEES OF ALL GIRDERS

**ENGINEERS.**

FORMED OF JOISTS AND PLATES

CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS,  
 USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES

PIERS,



SECTION OF

BRICK FLOORS.

GRANITIC

PAVING STEPS,

ASPHALTE.

LONDON { OFFICES: 17, GRACECHURCH STREET, E.C.  
 { WORKS: NINE ELMS LANE, S.W.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue.

MANCHESTER { OFFICES: 10, MARSDEN STREET.  
 { WORKS: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



# Surveying and Sanitary SUPPLEMENT.

APRIL 14TH, 1897.

## HOSPITALS.\*

(Concluded.)

By FREDERICK BATCHELOR, M.R.I.A.I.

### SECTION II.—BLOCK HOSPITALS.

THIS class includes hospitals whose wards are arranged in different blocks, either isolated from each other or connected together, but in all cases having the wards exposed to the air, or, at least, two sides, so as to ensure cross-ventilation. This class may be sub-divided as follows:—

SUB-CLASS I.—Four blocks arranged in a square, but detached from each other, with a free space at each angle.

St. Bartholomew's Hospital, London, is illustrated as being typical of this class. The hospital at Carlsruhe, Germany, is another example.

SUB-CLASS II.—Two blocks in the form of an L. The typical form of this sub-class is shewn in the Royal South Hants Infirmary, Southampton. The vertical arm is a ward on the pavilion principle, the other ward being of the corridor type. Other examples are the General Hospital, Wolverhampton, and the North Devon Infirmary, Barnstaple.

SUB-CLASS III.—Three blocks in the form of a rectangular U or T. Of this type, the London Hospital, the University College Hospital, and the Guest Hospital, Dudley, are examples of the U class, and the Hardwicke Fever Hospital, Dublin, of the T class.

SUB-CLASS IV.—Three blocks arranged as an H. St. George's Hospital is typical of this class; other hospitals are the Bedford General Infirmary, and the hospitals at Chesterfield and Lincoln.

SUB-CLASS V.—Four blocks arranged as a hollow square, such as the King's College Hospital and the Royal Free Hospital, both of which are in London.

SUB-CLASS VI.—A single straight block, such as the Arbroath Infirmary, and the Inverness Northern Infirmary. The hospitals of this type are, for the most part, those which have been built early in this century.

### CLASS III.—CORRIDOR HOSPITALS.

The wards in this class are ventilated on one side only, being arranged on one or both sides of a corridor. The class is divided into two sub-classes:

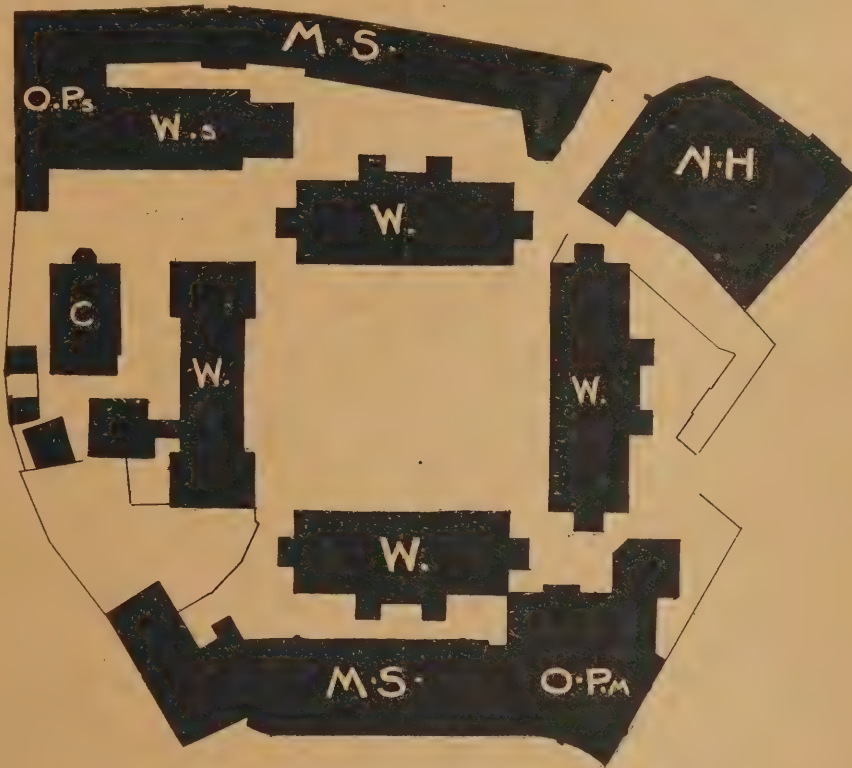
SUB-CLASS I.—Single corridors, with wards arranged on one side of corridor, as, for examples, Chalmers' Hospital, Banff, and the Dundee and Grennock Infirmarys.

SUB-CLASS II.—Double corridors when the wards are arranged on both sides of the corridors, such as the Westminster Hospital, the York County Hospital, and the Whitworth Hospital, Dublin.

### COMPOSITE OR "HEAP OF BUILDINGS" HOSPITALS.

This group comprises all those irregular or composite plans which cannot properly be grouped in any of the foregoing classes. The

designed, for surely the maintenance of that principle is nowhere more necessary than in the erection of our hospitals. I propose, therefore, to deal firstly with the accommodation for patients, together with the nursing accessories; and secondly with the administration buildings. Under the first head are included the wards for the accommodation of the sick and their appurtenances; these necessarily form the basis of the design. Subsidiary to these are the operating theatre



BLOCK HOSPITALS. SUB-CLASS I.—ST. BARTHOLOMEW'S, LONDON.

plans in this class will be found in many instances to be those of old buildings to which additions have from time to time been made, often without regard to any consideration but the need of the moment. Having considered the general system of planning, and the resultant classification of hospitals, we must now turn our attention to the fabric itself.

### DESIGN.

With the question of external design or internal decoration I do not propose to deal. I would only urge the application of that principle to which I am sure we all agree, that is, that a building should be so designed as to express at once, even to the most superficial observer, the purpose for which it was

&c., and where there is a medical or surgical school, instructional accessories have to be provided. Under the head of the administration buildings are included the offices and lodgings for the staff, the kitchens, stores, and dispensary, and the out-patients' departments. These latter should, as far as possible, be arranged for in a separate building, and should not be placed under the same roof with the wards for the sick.

### WARDS.

The first principle of the ward unit is that the ward and ward offices should be self-contained within one door commanded by the nurses' room, so that at any moment she may know where every patient is. The size of the

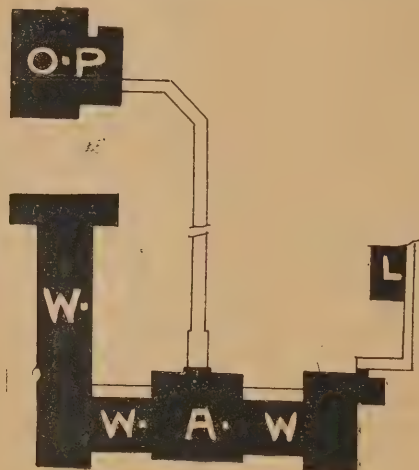
\* A lecture delivered to the members of the Architectural Association of Ireland.—Ed.]



wards has to be somewhat guided by economy of administration, so as to enable the largest number of patients to be nursed by a given number of nurses. The limit of the ward is practically the number who can be efficiently nursed under one head-nurse.

#### WARD APPURTENANCES.

The ward appurtenances consist partly of nursing accommodation and partly of offices for patients. The nursing accommodation includes a bedroom, or a bed and sitting-room combined for the nurse, a small ward kitchen or service room, in which food can be warmed, drinks and extra diets, poultices, &c., made and hot water obtained. This room should be provided with a small range, glazed sinks with hot and cold water supplies, and cupboards for stores, medicines, &c. A hot closet should be arranged near, where linen may be kept and aired. The offices for patients comprise a lavatory, a bathroom with a movable bath,



BLOCK HOSPITALS. SUB-CLASS II.—ROYAL S. HANTS INFIRMARY.

and waterclosets in the proportion of from 8 to 15 per cent. of the number of patients. Hospitals, for acute cases, mostly in bed, require the lesser number. One or more slop sinks are also necessary, and a place for keeping the ejecta of patients for medical inspection. These appurtenances should always be cut off from the ward by ventilated lobbies, and should be warmed and ventilated independently of the ward.

#### SIZE OF WARDS.

In laying down the size of wards in relation to the number of beds, the floor space is the first thing to be considered; secondly, the wall space; and, thirdly (not primarily as so many people seem to think), the cubical area to be given to each patient. It is impossible to frame a hard-and-fast rule for the allowance of floor space per bed, but it may be taken that in wards for acute surgical and medical cases (excluding fevers) 100ft. is the minimum floor space per bed, and where it is necessary to obtain great width of ward, as in the case of clinical hospitals, the wall space must not be unduly diminished, but the floor area must be increased; a less distance than 7ft. between the centres of the beds is undesirable. Having determined the floor area, it is necessary to fix the height of ward, in order to obtain the requisite cubic space per bed. Here, again, differences of opinion exist. Many authorities on ventilation consider that any excess in height over 12ft. ought to be neglected in calculations affecting the movement of air, but as a rule the heights vary from 12ft. in small wards to 14ft. and 15ft. in large wards, with a cubical area per bed of from 1500ft. (the amount laid down by the Barracks and Hospitals Commission) for ordinary cases to 2000ft. for infectious diseases. The treatment of the walls of a hospital ward is a matter of considerable importance. It is absolutely essential to get as non-absorbent a surface as possible. Keene's cement has often been used, but is costly. The Adamant Plaster

Company, of Birmingham, make a patent plaster, which is considerably less costly, and is supposed to be equally hard. All internal angles of walls, ceilings and floors should be rounded to a radius of at least two inches, so that every portion of the surface is accessible for cleaning, and this principle should be carried out in the treatment of the door and window joints and finishings, avoiding all mouldings as much as possible.

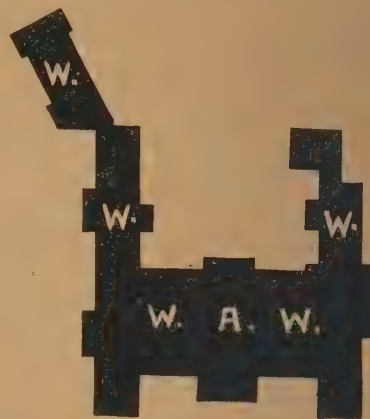
#### FLOORS.

The question of floors has occupied much attention, and many have been the experiments to secure a floor where the risk of shrinkage, and consequent interstices for the accumulation of dirt, would be reduced to a minimum. In the new hospital at Derby, Terrazo, a kind of marble concrete has been used in the wards, but probably a system of teak flooring, in very narrow widths, keyed on the underside and doweled and laid and filled in with some bituminous material on a solid concrete bed, is as good a floor as has yet been discovered. Such a floor, if properly laid and of well-seasoned wood, becomes, when wax-polished, or paraffined, practically impervious. All the ward floors should be of fireproof construction, and should be as sound proof as possible. Mr. Henman, the Architect to the Birmingham Hospital, discovered that two materials of different densities, when placed in conjunction, produced an admirable non-conductor of sound, he therefore introduced into his hospital a system of cellular blocks of patent fibrous breeze concrete, bow-shaped in section, and about four feet long, laid between small steel joists which rested on I irons bolted to the web of the main steel joists spanning the width of the wards. The blocks are keyed on the underside for plaster, and the upper part is filled-in with cement concrete, on which the wood or terrazo floor is laid.

#### WINDOWS.

As regards the windows, these may be divided into three classes: 1. The double-hung sash, with or without a hopper or fan-light above. 2. The casement window, opening inwards or outwards. 3. The Middlesex window, which consists of three or more lights

in the ward in an upward direction. The position of the windows in a ward is regulated by the number of beds, and the form of the wards should be so arranged as to have a window at each side of the bed, the height

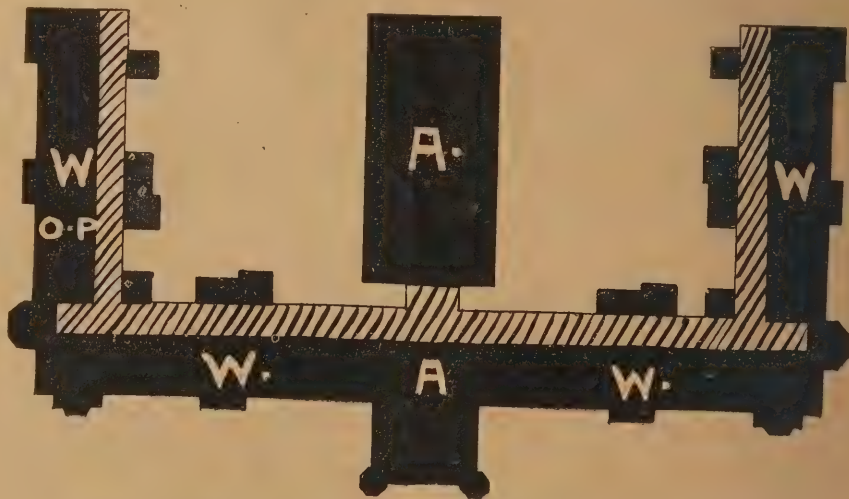


BLOCK HOSPITALS. SUB-CLASS IV.—ST. GEORGE'S, LONDON.

of the sill being fixed at such a level as that patients sitting up in bed or in a chair can see out, the head of the window being kept as near the ceiling as possible in order to utilise to the full the cubic space of the ward, and to avoid a stratum of stagnant air immediately beneath the ceiling.

#### VENTILATION.

Intimately associated with the subject of windows is the question of ventilation. Upon the necessity for ventilation there can be no doubt, and upon the fundamental principles which should determine the quantity of air to be supplied and the temperature at which it is to be supplied authorities are practically agreed. It is when these principles have to be reduced to practice that differences appear. Many authorities in England and Ireland, for instance, hold that the most efficient ventilation is to be obtained by the simplest means, whilst others, and particularly those on the



SINGLE CORRIDOR HOSPITALS. SUB-CLASS I.—ROYAL INFIRMARY, DUNDEE.

one above the other, each hung at the bottom and falling inwards, and all regulated by a rod or lever. Of these three kinds the one that most efficiently fulfils the conditions desired for a hospital window is undoubtedly the first. The mode of opening a double-hung sash is easy, and can be regulated to a nicety. If the bottom rail be made about six inches deep and a board five inches deep fixed against it, the lower sash can be raised and the air admitted at the meeting rails in an upward direction, on the Tobin principle, without any possibility of a draught at the sill. If, in addition to these sashes, there is a hopper-light above protected at the sides with glazed cheeks, the sashes may be closed whilst air is admitted high up

Continent and in the United States, consider it absolutely necessary to adopt more or less powerful means for forcing air-currents into and out of wards—possibly the secret of these differences lies in the special climatic conditions, involving great thermal changes, which have to be dealt with. Ventilation then, resolves itself into two systems. (1) Natural, that is unaided by mechanical contrivances. (2) Artificial or forced ventilation. Natural ventilation depends for its efficiency on windows and openings in the external walls, preferably on the Tobin principle, in order to cause an upward current of air, and regulated by valves—and also upon the ordinary smoke and air flues in the wards, these latter should be branched into a main extraction shaft,



communicating with a ventilating flue, and provided with a suitable cowl to prevent a reversing of the air-currents. The upcast draught is often assisted by introducing a coil of steam-pipes or by placing a Bunsen burner at the foot of the vertical shaft. Artificial or forced ventilation can be arranged in two ways, either fresh air can be forced into the wards, in which case, provided the inlets and outlets are properly arranged, the vitiated air must necessarily be forced out—or the foul air is drawn from the wards and is consequently replaced by fresh air. The first system is known as ventilation by impulsion, the second as ventilation by extraction. I have not time to discuss this most interesting subject in detail, but briefly the first system is to force air into the wards by means of a rotary fan, driven either by a small steam or gas engine or by an electric motor, the necessary temperature being obtained by passing the air over steam or hot water coils or calorifiers placed in the main air ducts. Frequently in town hospitals the air is washed and screened or filtered before passing into the ducts. There are several systems of extraction. One is by fitting up a rotary fan,

pipes become intensely hot, and the objection urged against it is that it tends to dessicate the air, and consequently to produce a feeling of oppression. I should very much like to have the opinions of members present upon this subject.

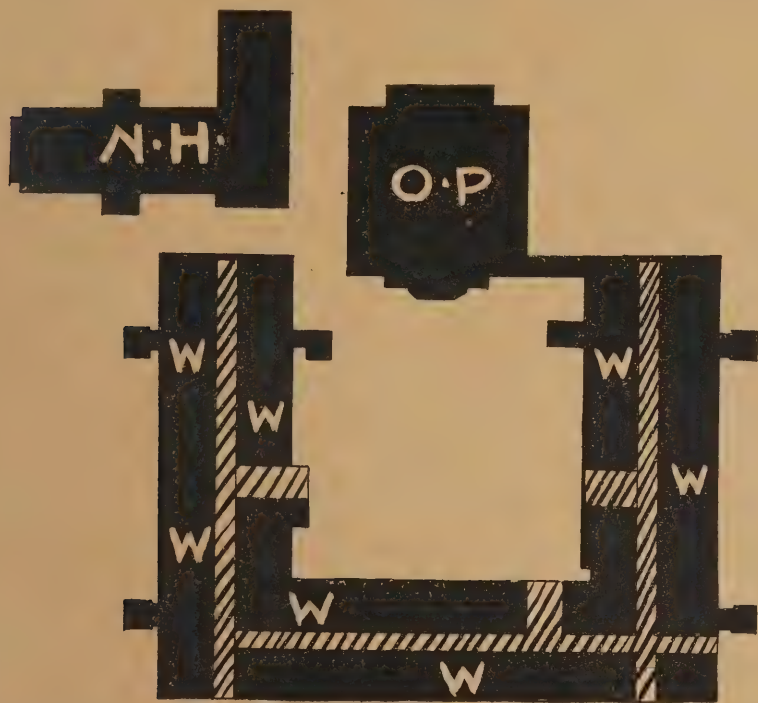
#### LIGHTING.

The question of artificial lighting must naturally resolve itself to-day into one of the relative values of gas and electricity respectively. It is, perhaps, premature to institute a comparison of cost between these two illuminants, because the materials available for forming a just estimate are not sufficiently certain or sufficiently numerous. Upon one point, however, there can be no question. Electric lighting involves no demand upon the oxygen of the air in order to support combustion, neither does it contribute in the slightest degree to the vitiation of the air—gas, however, does both these things, and therefore, for these two reasons alone, electric light is more valuable than gas. But it is also much more convenient. For instance, two wards of the Middlesex Hospital have been lighted by electricity, and over each bed is a fitting into which the wire from a hand-lamp

kitchen offices, the mortuary, and the laundry should be entirely isolated from the wards.

#### ADMINISTRATION.

We now come to the last section of our subject—that of Administration—and here again, as the time is very limited, I have borrowed somewhat largely from Burdett's book, for he has treated this subject in an admirably concise manner. The official or administrative part of a general hospital comprises the offices for the transaction of business, residences for the officers and servants, kitchen offices, stores, and, where there is no separate nursing home, the quarters for nurses. In a large clinical hospital to which is attached a medical school, the residential portion of the hospital will include rooms for numerous house physicians, surgeons, dressers, and clinical clerks. As a rule, these officers are quartered in the main building, sometimes, however, as in St. Bartholomew's, provision is made for them in a separate and distinct building, under the care of a resident warder. The nursing staff also ought to be lodged away from the wards. This is being done at many hospitals—notably the Middlesex—where only the sisters in charge of the wards sleep near their work; the main body of the nurses live in a separate home, self-contained and separately administered. The business part of a hospital usually consists of the board room, offices for the secretary, consulting room for the visiting staff, and lavatory accommodation especially for their use, also matron's or lady-superintendent's office. The steward's stores, frequently under the charge of the assistant-matron, vary in size with the requirements of the hospital, but should always include some kind of office and a place for receiving and weighing goods. The steward's office must be easy of access to the tradesmen and other persons whose business brings them into relation with this officer; it should be close to the store and also convenient to the wards. The kitchen offices comprise the kitchen, larder, scullery and servants' hall, and a small fuel stove, fed periodically from the main coal and wood stores, which are under the supervision of the steward. If these rooms cannot be provided for in a one-storied building, as is so often the case in a town hospital, owing to the restricted nature of the site, the proper position for them is the top of the building, first, because the smell of the cooking will not permeate the whole building, and secondly, because the kitchen will be lighted and more easily ventilated than in the basement. Assuming that there is a suitable room provided in which servants can have their meals, the kitchen should not be any larger than is actually required for use. Proper apparatus should be provided for the various operations of roasting, boiling, frying, grilling, and steaming. The scullery must necessarily adjoin the kitchen, and may advantageously be divided into two portions, one for washing crockery and cooking utensils, the other for the washing and preparing of vegetables, &c., both provided with large fire-clay and stone sinks, supplied with hot and cold water. The number and size of the larders depends on the size of the hospitals. If it be a large one, separate larders should be provided for cooked and uncooked food, milk and vegetables. Whenever the kitchen is on the top floor, there must be a larder near the kitchen for cooked food, and one in the basement for uncooked stores. The floors of kitchen, scullery, and larder should be of some impervious material. Tiles, tile mosaic, and asphalt are all more or less suitable. Granolithic, composed of Portland cement and granite chippings, makes an excellent floor, and is not very costly. The bedrooms for the female servants should be arranged in a group, with due regard for convenience of access to kitchens, &c. A box-room, bath-room, and w.c. should be provided, and the whole group should be under the control of the assistant-matron, who might, with advantage, have her bedroom near. If there are resident day and night porters, accommodation must be provided for them, but in any case a common sitting-room is necessary, where they can take their meals and smoke



CORRIDOR HOSPITALS. DOUBLE CORRIDOR. SUB-CLASS II.—ROYAL INFIRMARY, MANCHESTER.

arranged on a different principle, but driven as I have before described. Another is by introducing a jet of steam at very high temperature into the upcast shaft, thus producing a partial vacuum, and thereby causing a more or less powerful current.

#### HEATING.

On the subject of heating I must say but little—it is, of course, a subject closely connected with that of ventilation; indeed, in all systems of forced ventilation it forms an integral part, and cannot be considered separately. Open fireplaces are undoubtedly the best and most efficient means of warming a ward, and a not unimportant element in the matter is the question of appearance. An open fire adds unquestionably to the cheerful appearance of a ward, and the patients appreciate the feeling of warmth, which is quite independent of the actual temperature of the ward. Some grates—such as those patented by Saxon Snell, Pridgeon, Peale, and Sir Francis Galton—are arranged so as to admit fresh warmed air into the wards. The other systems of warming are by hot air on the Grundy principle, hot water pipes and coils or radiators on the low-pressure system, and a high-pressure system with pipes of small bore. In this last system the

can be inserted, and the contact is made in an instant, without even turning a switch. The advantage of such an arrangement is obvious, but it would be impossible with gas.

#### DISCONNECTION OF PAVILIONS.

We have now considered some of the conditions which should govern the internal construction of the wards so as to render them capable of being kept healthy, but a point which concerns the healthiness of a ward which has not yet been referred to is the connection between the ward and staircase and corridor which forms the common access to one ward and several others. The principle to be kept in view is the isolation, as far as possible, of each ward, with its offices, from atmospheric communication with any other ward or part of the hospital. It is desirable that each ward should be so separated from the main corridor and from the staircase by the interposition of a cross ventilated lobby, so that neither the one nor the other can become a carrier of infection from one ward to another. Often, in a restricted site, it is impossible to obtain the additional space necessary for this arrangement, but the principle is an excellent one, and should be adopted wherever possible. But, as a matter of course, the out-patients' department, the



whilst off duty. Lifts for food and coals, &c., should be arranged in the most convenient positions in regard to the kitchens and wards. The food lift may be worked by hand, but the coal lift, which is often combined with that for patients, should be worked either by hydraulic power or by electricity. Wherever the out-patient department is contained, as it ought to be, in a separate building apart from the hospital, a surgery must be provided in the main building, where accidents and casualties can be attended to when the out-patient department is not at work. Adjoining the surgery should be a small retiring-room, where a patient can, if necessary, be stripped and submitted to more thorough examination than would be possible in the surgery. Proper lavatory basins and sinks should be provided in the surgery, and communication with the dispensary arranged by telephone or speaking tube.

#### OPERATING THEATRE.

The Operating Theatre should be conveniently situated as regards access, both from wards and out-patients' department, but every possible precaution should be taken to prevent contamination of the air of the operation-room from these and every other source; every detail should be devised with a special view to its aseptic nature. Everything of an absorbent nature should, as far as possible, be eliminated. The room should be as small as possible, consistent with the convenience of operation; the walls should be of glass or glazed brick, the ceilings plastered in Keene's cement, painted and varnished; the floor of the least absorbent material obtainable, whatever that may be. The room should be lighted from the top, and, if possible, a large north window should be provided as well. The gallery for students, if it is necessary to have one, should be of teak, which is considered to possess antiseptic qualities, and the room must be provided with lavatories and sinks with special disconnections from drainage, an operating table, shelves, and cases for instruments, also electrical connection for galvanic and faradic currents. An ante-room, fitted with lavatory, should be provided for the surgeons or medical staff, also a room for administering anaesthetics. A small recovery room is also desirable. Separate operation rooms may also be required for gynaecological and eye operations. A lift should be provided, convenient to the operating theatre, of sufficient size to take a stretcher bed, and the attendants.

#### THE OUTPATIENTS' DEPARTMENT

should consist of a large waiting-hall for both sexes, or the use of patients from separate rooms for each sex, with registration office near the entrance, and small waiting rooms communicating with same, for new patients of each sex, and with w.c.s. separately arranged for each sex. The consulting rooms, which vary in number according to the size of the hospital, must be placed in direct communication with the waiting-hall, and the doors should be within sight of all patients. To each consulting-room should be attached small retiring-rooms, and corridors should be so arranged as to lead patients from the consulting-room to the dispensary waiting-room, and from thence patients would leave by a separate exit door. The hospital laundry should consist of wash-house and ironing rooms, and drying closets, rooms for the reception and sorting of foul linen, and also for the sorting and delivering of clean linen. Separate laundries are sometimes required for infected linen, with disinfecting chambers attached.

#### THE MORTUARY

and post-mortem room should be as far removed from the hospital proper as possible, but whether it should be approached by a covered way for the convenience of bearers and doctors is a vexed question. The pathological department is frequently arranged in connection with the post-mortem room.

Most serious allegations are being made with respect to the sanitation of a block of buildings let out in tenements in the Borough, London.

## Surveying and Sanitary Notes.

THE negotiations for the purchase from Lord Bute of Cathays Park by the Corporation of Cardiff on behalf of the town are reported to be progressing satisfactorily. Lord Bute has been immovable in the matter of insisting that none but public buildings shall be erected on the park, so that the hope of being able to lease a small portion for better-class residences, with a view of recouping the town some of the outlay and creating an estate which would prove in years to come of great value, has had to be abandoned.

At the last meeting of the Coventry Town Council the adoption of the agreement respecting the sewage scheme with Lord Leigh was proposed. Alderman Andrews said the schemes were not satisfactory. The difference between this scheme and one of gravitation was the difference between £90,000 and £150,000. He objected to the terracing proposed to be done at the farm, and said Burton-on-Trent was sorry it spent £10,000 on such work. He regretted that Coventry was saddled with the burden it was. The agreement was ultimately signed.

MR. G. S. ELLISTON, Medical Officer of Health for Ipswich, in his annual report, says the notification of infectious diseases has again played an important part in the sanitation of the town. The presence of infectious disease in the neighbourhood has frequently been the means of bringing to light grave sanitary defects. The annual report of Mr. George Moss, sanitary inspector and superintendent of the Refuse Removal Department, shows the large amount of sanitary work that has been carried out during the year, and the amount of refuse removed. A satisfactory agreement has been entered into between the inspector and a contractor to tip all the refuse that cannot be disposed of to farmers on a piece of land on the borders of the borough, to be treated there for trade purposes. This arrangement will do away for a time with the necessity of providing a destructor. The Building Sub-Committee continue to carry out their work in carefully examining all new plans and seeing that the proposed works are carried out in accordance with the plans deposited. The Building Inspector reports that of the 317 new houses built in 1896, 235 were connected with the sewers, and 82 to dead wells under his supervision; that he paid 2860 visits to new buildings, and 2740 visits of inspection to drains. He estimates that during the past year about 600 old houses have been connected to the public sewers. Many sanitary improvements have been carried out during the year, the principal being the driving of a new street through Bond Street from St. Helen's Street to the Rope Walk. Since the new street has been opened he had condemned as unfit for habitation a block of fifteen houses, eight being in Long Yard and seven at the rear of it, and facing the new street. These houses are now in course of demolition, and formed a portion of the old Upper Orwell Courts, one of the most unhealthy areas in the borough, and formerly one of the nurseries of epidemics.

OPERATIONS have just been commenced in connection with the construction of the Holywell-Milwr tunnel, Flintshire, which is designed to drain Milwr Mines and to discharge into the River Dee at Bagillt. The completion of the tunnel is regarded with some amount of interest on account of its possible bearing upon the effluent of St. Winefride's Well at Holywell. A good many geologists and mining experts consider that one of the principal feeds of the "miraculous" spring comes from this direction, and that the construction of the tunnel will materially reduce the outflow at the well, and consequently the value of St. Winefride's stream to the factories in the Greenfield Valley.

## THE MANCHESTER SEWAGE PROBLEM.

AT a meeting of the Manchester Statistical Society, Mr. Nathaniel Bradley read a paper on the Manchester sewage problem, in the course of which he stated that the scheme of the Manchester Corporation Rivers Committee was for the culvert to discharge at Randall's sluices. The Rivers Committee had a double object in that proposal; firstly, to keep the canal from pollution; secondly, to get away from the jurisdiction and impractical requirements of the Joint Board. The Committee had also decided that the cost of maintenance for artificial filters, and for the chemicals for precipitation, also the large sums of money which would have to be paid in wages, would far exceed the interest and the cost of attending to the culvert. When it had the culvert it would not be constantly harassed by law, it would be perfectly free, and it would be as grand a thing for Manchester as was the bringing of pure water from Thirlmere. He contended that in the case of Manchester the filtration of sewage through the land was both costly and impracticable, and that all bacteriological schemes which had been tried on a large scale had also proved failures or too costly. Artificial filters for Manchester, as estimated by the City Surveyor, with contingent works on the lines indicated by Sir Henry Roscoe, would cost £220,000; and to this sum would have to be added the annual cost of working the filters, which, at the ascertained cost of filtering sewage under similar conditions, would be £5220 per annum. This was exclusive of the cost of renewing the filtering material. The cost of the proposed culvert, even if it was constructed as far as Randall's sluices—that was to say, direct to tidal waters—would not exceed £258,000. To this sum must be added the estimated annual cost of working the sluices and of inspection, which would not exceed £200 per annum. By the adoption of this scheme the sewage problem for Manchester would be solved at once and for all time, and would result in a saving of £3880 per annum in favour of the culvert scheme. Notwithstanding the evidence as to the economy and efficiency of the culvert scheme, in all probability the Corporation would be forced by the attitude of the Mersey and Irwell Joint Committee to enter on a useless and expensive series of experiments with artificial filters. Instead of complying with such foolish demands, the Corporation ought to resist them strongly, and, if necessary, lay the facts before the Court when called upon for an approved scheme in September next. The judge would not request the Corporation to incur needless expense in useless experiments if the culvert scheme was properly laid before him. His proposal in the present difficulty was to ask for an Act of Parliament to create a new Department, which should be called the Government Sanitary Court, and should employ permanent sanitary chemists and sanitary engineers, whose services should be exclusively devoted to this Department. The Act should require that all places and rivers in England and Wales should be suitably grouped, and that all streams should be classified by their natural watershed or the main river into which they ran. Therefore he proposed that, in accordance with the number of inhabitants living under any particular district council or town council, a member or members should be elected to represent them in proportion to their numbers, such members to be compelled by the Act to form joint boards for the particular districts. Further, the chairman of each board should be one of the chemical and sanitary engineers from London, and be changed from district to district, it being his duty to act under the advice and direction of the Government Sanitary Court and of the joint board for the watershed or main river.

THE Local Government Board has refused the application of the Crewe Town Council to sanction a loan for the construction of a crematorium on the hospital site for the destruction of refuse.





### The last of Chelsea Reach.

CHELSEA REACH is doomed, and the Artists are in tears. The tide of progress sweeps on, bearing down before it the old, the outworn, the picturesque, and the decayed. Our friends who love these things are not to be consoled. Truly our sympathy is with them, but let them take heart. All things mellow in time, other improved places are even now ripening, and the day will doubtless come when the all-dreaded Embankment will lose the first rawness of youth, and wear the rich and subdued colours they love so well. Perhaps the Artists of that day will find a statelier and more ordered beauty in the long simple line of weather-beaten granite, opposing its still changeless front to the ever-shifting swirling waters. We think they will, but they will not care to make pictures of it, perhaps, and herein lies the trouble. Our Chelsea friends are painters; a painter's idea of Art begins and ends too often with an easel picture; his interest is confined to appropriate subjects for the same. The simplest, and therefore the grandest, works either of Nature or of plastic Art, do not lend themselves readily to pictorial treatment. Whoever painted the horizon line at sea without introducing a boat, to rob it of its grandeur but make it a picture? The universe was not created to be seen through a gilt frame. Cities are not built to encourage the spoiling of canvas. Let the painters attend to their proper business and decorate the walls of our buildings, there will then be less need of views to hang upon them. The quaint and irregular lines of the wharves and buildings of all descriptions that line the banks of too much of our river—are these things beautiful in themselves? Was not the original state of the bank preferable, before man laid his hand upon it? No doubt the Artists of those days lamented over each stretch of greensward and ridge as it disappeared, and anathematised the very works over which their descendants are spending so much admiration. There are two things worthy of the enthusiasm of the thoughtful Artist—Nature and Art. The banks of the river in their present state are neither one thing nor the other. To preserve their natural state is impossible—would be a paradox. As we cannot have Nature, let us have Art. Curious is the connection between the picturesque and the unhealthy; between the town as beloved of the painter, and dirt, disease, and death. The long arm of coincidence, perhaps, or possibly cause and effect. Clare Market, with its squalor, its fetid atmosphere, its ramshackle houses, was characteristic and full of subjects eminently paintable; but the new blocks of artisan's dwellings will inspire no pictures. Every new street, driven through foul and reeking alleys, letting in the light and air of heaven, though it destroys much of human and possibly something of Artistic interest, is yet a boon. However much we may deplore the destruction of memorials of the life, the struggles and the ambitions of the past—buildings haunted by the memories and voices of the dead, harmonised by time into subjects for the painter's brush—yet we cannot but feel that the pictures that possibly might be painted from them would not compensate the living for their general unwholesomeness. Is not health the greatest blessing? Is not cleanliness above

the picturesque? Are human beings to be condemned to inconvenient and unhealthy surroundings that painters may come and make pictures of them? The pity of it is that new improvements are carried out in such a paltry and undignified manner, that the scheme is never handled with breadth and simplicity, that the hand of the Artist is never apparent. Here, surely, is common ground for the united efforts of all lovers of Art. Let them see to it that every new improvement is an artistic one, that every scheme is approached in a right spirit, and is under the control of an Artist, and not an engineer or official; let them spend their energy and enthusiasm over the things of the present rather than the past; let them create something both new and beautiful. Let the painters of Chelsea who bemoan their

British Admiral whose memory is considered worthy of honour by the citizens of London. When we consider the claims of the fifty-nine statues of public men now adorning London, we cannot believe that the exclusion of all British seamen other than Nelson is wholly justified on account of their inferior merit, virtue, or gallantry to those of some of the worthies commemorated by a public statue in the capital of the Empire. It would be invidious and unnecessary to suggest that some of these statues might disappear in favour of Blake, Jervis, Dundonald, Collingwood, or Rodney. It has, however, been proposed that Trafalgar Square should be cleared of all the existing statues, with the exception of Nelson (though it was only at the last meeting of the Royal Institute of British Architects that the suggestion was made that the



Donegal Castle  
Donegal Castle

FROM A SKETCH BY L. EDMUNDS.

Embankment accept the inevitable with a good grace, and do what they can to obtain one that shall be a credit to the City, and an improvement from an artistic as well as from a material standpoint. We assure them it is possible.

### London Naval Statues.

It is a rather astounding fact that in the Metropolis there are but two statues of British Admirals. In fact, it might be said without exaggeration that there is only one; for the statue of Sir John Franklin, in Waterloo Place, was erected, not because he was a British Admiral, but on account of his achievements in connection with Arctic exploration. There is, therefore, but one fighting

Nelson statue, too, should be removed and set up in Leicester Square), and that the vacant sites should be occupied by the statues of great British seamen, while Waterloo Place should be set apart for great British soldiers. Trafalgar Square would then be indelibly associated in the public mind with the seapower of Great Britain, and the public from the provinces, as they passed southwards to the Houses of Parliament, eastwards to Charing Cross Station, northwards to the National Gallery, or westwards to Hyde Park, would be confronted with an object-lesson in the history of our country which has too long been hidden from the masses. But, it will be said, what is to become of Napier, Havelock, Gordon, and the rest of the great men gazing up at Nelson from the finest site in Europe? The answer is simple. If Waterloo Place be inadequate



to receive them, the stretch of the Embankment, from the School Board to the Houses of Parliament, is a broad road in which twenty statues could be erected without interfering with the traffic. At the present time a few statues of more or less distinguished men are caged in behind the railings of the Embankment gardens, but the proper place for a statue is a public thoroughfare where men and women, in the course of their journeyings on business or pleasure, can gaze upon the features of the departed dead and be reminded of the deeds which have made them famous. As there are only fifty-nine statues in the whole of London, should the embankment site be still considered undesirable by those responsible for the Artistic problems of the great City, there is ample room elsewhere to do honour to Napier, Havelock, and Gordon. The space round the statue of our great sea-captain should be reserved for the memorials to his illustrious predecessors, companions, and successors. The finest site in

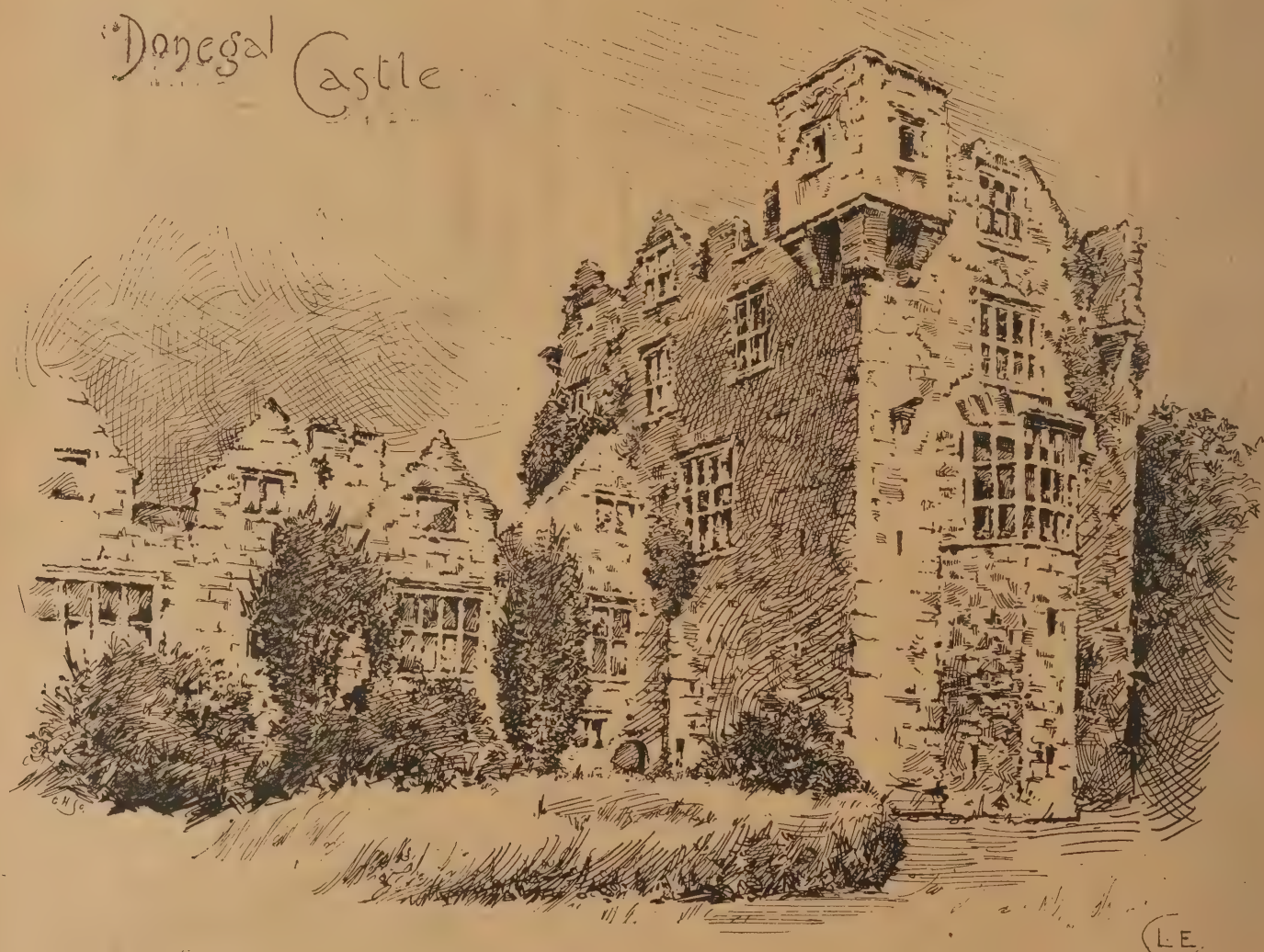
## A CITY OF ART.

MUNICH teaches two memorable lessons, says Sir John Leng, M.P., in an article in the Dundee Advertiser. First, how much the cultivation of Art may do for the prosperity of a city; and, second, how much one enthusiast may do for the encouragement of Art. It may be quite true, as is sometimes alleged, that many of the buildings in Munich are copied from well-known Classical edifices in Italy and elsewhere, but in defect of original conceptions it is something to have reproduced and brought together so many good copies of notable structures. It may also be true that most of the best paintings in the Galleries are not by native Artists, but of what place cannot the same be said? It is at the same time unquestionable that the collections in Munich are of great merit, that they contain some splendid pictures, and that they are admirably

greatest of all are Durer's "Peter and John," and "Paul and Mark." Art has never achieved anything grander in portraiture and figure-painting than these noble heads and majestic figures. Rembrandt's "Ascension," "Resurrection," and "Entombment" are also exceedingly powerful. The Madonna with Jesus and John the Baptist, and Christ crowned with thorns, are lovely Titians. There is also a beautiful Raphael—the "Madonna Tempi." These are only a few outstanding works amongst a multitude of Art treasures. Besides the pictures, there is a fine arcade with

## HISTORICAL FREScoes BY CORNELIUS,

and very large cabinets of engravings, drawings, and vases. The new Pinakothek contains a well-arranged collection in eleven rooms and fourteen cabinets of modern pictures chiefly by Munich Artists, and very interesting many of them are. The Glyptothek is a square building with a quadrangular court divided into thirteen



DONEGAL CASTLE. SKETCH BY L. EDMUNDS.

Europe is not too fine to be set apart for the memorials of our great naval commanders. Everything that emphasises the fact that upon the basis of sea-power England lives and moves and has its being is a healthy influence on national life and character. Consider what the French would have done had they defeated the Armada! How many statues of a French Drake or Lord Howard of Effingham would have adorned the streets and boulevards of Paris? So far as we are aware, with the exception of the old anchor that lies on the pavement outside the United Service Institution, there is no monument of any kind in London which would remind a Briton that such an event as the Spanish Armada ever took place. The reservation of Trafalgar Square for naval heroes would be the best method of accomplishing what is wanted.

arranged. The old and new Pinakotheks, the National Museum, the Glyptothek, and the Palace, out of a multitude of public buildings, are especially worth visiting, and one advantage of Munich is that the buildings are within moderate distances, and everything easily accessible. The old Pinakothek is a building 500ft. in length, by 90ft. in width and height, and is a model building for its purpose—the exhibition of masterpieces of Art—the interior being divided into twelve different saloons for each school—the Italian, Venetian, Flemish (with a special room for Rubens), Dutch, French, &c. Hither have been brought some of the finest specimens of the work of the greatest masters, amongst the most notable of which is Holbein's triptych, "The Martyrdom of St. Sebastian," with Saints Barbara and Elizabeth at the sides. But perhaps the

saloons filled with marble sculptures, busts, statues, and groups of figures, the contents of which may be inferred from the names of the halls—Assyrian, Egyptian, Æginetan, Apollo, Bacchus, Niobe, the Gods, Trojan, the Heroes, Roman, Coloured Sculptures, and Modern Works. Besides these remarkable buildings there is the Bavarian National Museum, crowded with exhibits illustrating the history and life of the Bavarian people; and the Maximilianeum, a building dedicated to the higher instruction of students for the Civil Service, which also contains a number of fine paintings. The painting and staining of glass are branches of Art in Munich which give employment to many Artists and work-people. We visited two of the largest establishments, and were courteously shown through them by the principals.



## In Istria and Dalmatia with a Camera.

By W. LAW BROS.

### I.—ISTRIA.

**T**O the lover of Architecture there is no more enjoyable way of spending a holiday than in visiting some district far away in place and time, and comparing the buildings there to be found with those of former experiences. Among such districts I know of none of more profound interest than the coast line of Istria and Dalmatia. Easy of access, it contains many buildings of Roman and Venetian work, of which the accompanying illustrations will speak for themselves of the importance and artistic value. Having crossed the Alps, passed through Venice, taken steamer to Trieste, I commenced the first stage of my pilgrimage along the coast of Istria to Pola. Out of the land of railways, all journeys are made by steamers, which, however, are frequent and comfortable, and calls are made at many small ports whose names were unknown to me before, but many of which stand out pictur-

interior having been removed by the Venetians. Its proximity to the sea and the cheapness of water carriage to Venice caused it to be used as a quarry during the Middle Ages, and if you want to find the stones which formed the countless rows of seats to accommodate the 25,000 spectators which this amphitheatre is estimated to have seated, you must search for them among the palaces which line the Grand Canal at Venice. This outer shell is, however, perfect, and in this respect the amphitheatre of Pola is unique. Its huge stones remain in their places solely by their own weight and accuracy of the fitting; no cement or mortar has been used to set them, and they appear in their ruined majesty to defy the ravages of time. There is another peculiarity in this amphitheatre which has never been satisfactorily explained: equidistant along its outer circumference are four towers or projections rising to the same height as the main walls, and corresponding to them in every way, but projecting from them some 12ft. What was the function of these towers? The most probable suggestion is that they may have contained private staircases for the use of the men who worked the huge velarium or awning which was stretched as a temporary roof on the days of spectacle. The sockets of the supporting masts are still to be seen in all but perfect condition. The openings in the upper stones of these towers deserve attention; they are



ROVIGNO.

blocked up by curious screens of perforated or plate tracery, which seem to indicate a strong Eastern influence. I have seen somewhat similar work in Spanish towns bearing the strongest marks of Moorish influence, and further south, at Trau, on the Dalmatian coast, similar tracery may be seen in the tower of the Cathedral, but in Roman work it seems unique.

But even were these stupendous remains of the amphitheatre not in existence, there are other Roman buildings of sufficient importance to render Pola a worthy rival of Nimes or Trier.

A few paces off you see a triumphal arch, not, indeed, so lofty or majestic as the arches of Rome itself, which you would hardly expect in a provincial city, but erected at the best period of Roman Architecture, that of Augustus. It commemorates the battle of Actium, B.C. 30, and is dedicated to the family of the Sergii, from whom is also derived the name of the Roman road which entered the town under this arch, and which still remains the Via Sergia.

Of a slightly later date is the temple of Augustus, A.D. 8, whose six magnificent Corinthian, or rather composite, columns still proudly support the noble pediment. This building is appropriately, but not very efficiently, utilised as a museum; its confined space and ineffective lighting make it difficult to see the marvellous collection of sculptures it contains, but which proves that whatever may be the wealth of Roman buildings of modern Pola, they are a mere fraction of what was included in the walls of Pictas Juliu. Unfortunately, the position of this temple, among a net-work



PIRANO.

esquely from the blue Adriatic. Early among these is the station of Pirano, which is here illustrated, its lofty thirteenth century Cathedral rising grandly above the pyramidal mass of houses. Passing the similarly situated town of Rovigno, whose mediaeval girdle of walls and bastions can well be seen from the steamer, one is reminded that these seas were for centuries the fighting ground between Venetians and Hungarians; while pirates from the coasts of Turkey, Greece, and Barbary were always threatening to make a raid upon any city which was not prepared to defend itself. After a journey of about eight hours from Trieste, the harbour of Pola is entered, the vessel steering between a vast mass of small islands, each of which is crowned with a modern fort. Pola is the great naval station of Austria, and her port is crowded with war vessels, from the huge ironclad to the tiny torpedo boat. Approaching the town, one sees the Roman amphitheatre rising majestically above all other buildings: this amphitheatre was erected in honour of the Emperors Caracalla and Septimus Severus (198-211), and measures no less than 436ft. along its longer axis by 346ft. along its shorter. These dimensions are only exceeded by three others, those of Rome, Capua, and Verona. It is built on the side of a hill, for the sake of economy, and on the land or rear side the three massive stories diminish to two in consequence. Approach it more nearly, and you see that it is now merely an empty shell, the whole of the masonry of the

same height as the main walls, and corresponding to them in every way, but projecting from them some 12ft. What was the function of these towers? The most probable suggestion is that they may have contained private staircases for the use of the men who worked the huge velarium or awning which was stretched as a temporary roof on the days of spectacle. The sockets of the supporting masts are still to be seen in all but perfect condition. The openings in the upper stones of these towers deserve attention; they are



PORTA GEMINA, POLA.



of narrow lanes, renders it impossible to obtain a satisfactory photograph. The same may be said of the temple of Diana, which, however, is far more mutilated, and of which only the rear front exists entire.

Many fragments of the old walls of the Roman buildings still exist, and more than

The superbly twisted columns of alabaster which support the canopy over the high altar at St. Mark's, and which the custodian unblushingly asserts to have come from the Temple of Solomon (or at least did so the last time I visited Venice), were in reality looted from the Cathedral at Pola.



ROMAN AMPHITHEATRE, POLA.

mere fragments, for there is one gate entire and one nearly so. Of the former, the Porta Gemina—as seen by the illustration—is, perhaps, the best specimen of a purely military gateway in existence, with traces of the guard chambers on each side still to be found. The antiquarian who visits the ruins of Roman stations at Silchester, or the still more important ones of Borcovicus or Cilurnum which guarded the Caledonian frontier of the Roman Empire, and supported the great wall which stretched from sea to sea, will have no difficulty in reconstructing from the remains there to be found a gate similar to the contemporary gate at Pola.

If you hunt through the narrow lanes which cover the site of an old city such as this, you will discover in all directions specimens of Roman-worked stones, which are to be found in plenty, and which there is no difficulty in detecting. In the accompanying illustrations may be observed a case in point. There is a shrine to the Madonna, such as one frequently sees in Southern Europe, but on examination it will be found to be of comparative recent construction. But where did the materials come from? The two columns are evidently Roman—it does not require two glances to decide that—but the curiously interlaced carving of the stone, cut into the form of an arch, which is supported by them? Examine also the sculptured slabs inserted on either side, one of which is surmounted by a Christian cross. These are evidently antique, but nothing could be farther from Roman forms of design than these interlaced and luxuriantly florid styles. Modern archaeology is disposed to think that such forms took their rise in the Mycenaean area; certainly they were adopted and modified by the Byzantine, Celtic, and Scandinavian races, and one must look in some such quarters for the carvers of these stones. Were they brought from Byzantium in the time of its prosperity, or from its nearest successor and rival, Ravenna, or, finally, are they the work of some of the foreign legions of the Empire?

Of mediæval remains in Pola but little of interest is to be seen. Oppressed and plundered by its captors, the Venetians, nearly all portable works of Art have disappeared; and the buildings in which they were housed, although fine, can only claim a secondary place. When Roman Architecture of the first class is to be found in such profusion, one does not care to spend much time over second-rate modern work.

#### MODERN HOUSE INTERIORS.\*

By T. BUTLER WILSON, F.R.I.B.A.

FOR some years past the educated public have manifested a strong desire to make the interior of their houses Artistic, and are still exhibiting a strong interest in interior decoration and furniture. Hence the country is being scoured for examples of old furniture, plate, and pottery; dealers' shops swarm with furniture,

public do than exhibit this strong interest in the Artistic fitting up of their homes? They are anxious and willing to have the nearest approach to true Artistic surrounding that lies in their power. What more can we reasonably expect of them? The interest they display may not be tempered with much discrimination or knowledge, but surely it is praiseworthy and deserving of being directed into proper highways, instead of being led into all kinds of so-called "Art" byways and slums, and left to wallow in the mire of commercial "Art." But their willingness only carries them to a certain point. They would like the right thing, but are conscious of the want of knowledge relating to the various subjects which have to be studied before attaining the end they have in view. They naturally cast round for some helping hand, someone to advise and direct them. There is no denying that the trade, in supplying the public's demand for advice, find themselves in a dual and conflicting position, namely, that of adviser and seller, with an inevitable prejudice in favour of the commercial side of the question. Our knowledge of human nature tells us at once, that however conscientious they would like to be in advising the public to buy what they ought to have, they are more likely to advise the public to buy what they, the trade, happen to have to sell. How is a modern house interior evolved? Usually the Architect is called in and plans the building with its several rooms, their structural fittings, such as doors, windows, and mantels. The "Art" decorator then appears upon the scene and carries out a scheme of decoration in accordance with his own predilections, and, more frequently than not, in a manner totally opposed to the structural work of the Architect. The "Art" furnisher and upholsterer proceeds to add his special ideas to the work that has preceded. This, more likely than not, results in an apartment having a Queen Anne mantelpiece, Japanese decoration, and Renaissance furniture. In short, the average modern house interior. I have attempted to demonstrate how the demand of the public is being met and by whom. And now for the crux of the matter. Who ought to supply the public's demand for advice on these questions? Who



ROMAN AMPHITHEATRE, POLA.

credited with being in accordance with that of the seventeenth and eighteenth centuries, both English and foreign. Art meets us at every turn—"Art" stuffs and fabrics, "Art" wall-papers, "Art" furniture. What more can the

by his training, by his unbiassed position, by all the best traditions of his Art, and by the everlasting fitness of things, ought to help the public to obtain the right thing? The answer to such a question is sufficiently obvious. The Architect, as a professional adviser, having no conflicting interests, is free to advise the public not only on Art questions, but also on

\* Extracts from a paper read before the Leeds and Yorkshire Architectural Society.





TRIUMPHAL ARCH, POLA.

the all-important matter of value. The Architect.

#### IN BYE-GONE DAYS,

conceived and regulated not only the building but the whole decorative scheme of the interior, and frequently designed the furniture and minor accessories, whilst in close collaboration with him were the painters, sculptors, and craftsmen, on whom, by his experience of them, he could depend to interpret his ideas; so that, although the work was not accomplished without the aid of many hands, yet the true cohesion and value of the various parts was obtained because the result was the outcome of a preconceived scheme formulated by one ruling mind. Is it not reasonable to suppose that the man who plans the skeleton should best know how to clothe it in a fitting manner, and advise as to its proper aids and accessories? Why, then, does not the Architect more fully evidence his capability, not only to control and design the shell, but to control and direct the internal decoration thereof? Are we to assume that the Architect is, as a matter of fact, able to do this, but that, being a haughty and exclusive person, he only deals with bricks and mortar, and leaves the unimportant question of decoration to the man in the street? Or, are we to be charitable and assume that the Architect is of such a delicate and sensitive nature that he shrinks with diffidence from offering his vast knowledge and experience to the public? I venture to think that neither of these assumptions will commend themselves to reason. The fact remains that the Architect

#### STANDS ALOOF

in silence—anything but a dignified silence—and allows the trade to deal with matters which should be to him the most interesting and important duties of his Profession. And, moreover, his silence is construed by the public into something approaching a tacit acknowledgment of ignorance of the subject. Further than this, the suspicions of the public with regard to the Architect's incapacity are more than negative suspicions. They are frequently confirmed by the difficulties found by the trade in clothing the skeleton left by the Architect, who has designed the same without the slightest regard to an ultimate coherent scheme of decoration

or furnishing. In short the public of to-day are not quite sure of the Architect as a Decorative Artist. The great question then becomes: Are Architects to be content with this, or are they to make every effort to remove what is certainly a

#### STIGMA ON THE PROFESSION,

and restore the confidence of the public in us as Artists? Artists of large heart, large brain, keen sympathy with everything beautiful, and with the great power of bringing all these qualities to bear upon all things connected with our Profession. It behoves the Architect of to-day to cultivate his artistic instincts, and equip himself with the special knowledge which these instincts direct him to search for. The public once satisfied that the Profession is largely contained of well-read, well-equipped men, competent to deal with internal decoration, will be only too willing to employ them. This done, our Art would be restored to the confidence enjoyed in former times, and would become more and more potent in the future. Now, to do all

this, the Architect must be competent to control the whole of the work from commencement to completion. Self-contained, and acting independently of extraneous assistance, he will be strong enough in his knowledge to show both the public and the trade that this question is better understood by him than by others. It is of vital necessity that they be convinced that internal decoration and furniture is an integral part of his business. When, by incessant application, his energies have accomplished control of these things, then, and not until then, will the public respond with confidence. The Architect, in his character as Artist, accepts the duty of demonstrating beauties and truths to and for others whose time and opportunities for the discovery of which are necessarily limited, and, in doing so, exercises his professional acumen, and primarily proceeds to treat with them on a question where they are at least both in touch, namely,

#### THE FINANCIAL QUESTION.

A busy client wishes to build a house, and obtain it at the most reasonable cost. He, of course, instructs that plans, quantities, and specifications be prepared for the structure of the house, obtains tenders, and ultimately gets his building at the lowest market price consistent with his plans and specifications. He compares the figures of the lowest tender with those of the highest, sees that he is saving the difference, and, what is of more importance to us, sees that the commission which he has paid to the Architect for definite plans, specifications, and quantities, has been money well laid out. The question of interior decoration and furniture then confronts him. How in these things is he to spend his money

to the best advantage? He is naturally concerned with considerations of fitness and cost. The practical busy man will gladly employ an Architect, with artistic instincts and judgment, to prepare definite designs and specifications, and invite true competitive tenders for internal decoration and furniture. If I may be allowed to quote my own experience, it is that the preparation of definite designs and specifications by the Architect is not only of the utmost advantage to the client from a financial point of view, but is also welcomed by the several competing firms, who fully appreciate the fact that they are tendering upon a similar basis. Whether altering the interior of an existing house, or building a new one, with a view to ultimate decoration by us, a psychological study of the client should be our first consideration. Every man has an inherited or

#### ACQUIRED IDEAL

of what the atmosphere of his home might be. In some cases this ideal has shaped itself so definitely as to enable the client to express his views in a manner intelligible to the Architect. In other cases this ideal exists unconsciously in the client's mind, and it is here the Architect's duty to probe for and discover his latent ideal of home atmosphere. I hold that a man's home should be, to a great extent, an expression of his own better self—an expression moulded and guided by the hand of an Artist reverent of traditional beauties and truths. If this psychological study of the client be neglected, the probability is that we shall provide him with a house, but fail to give him what he asks from us, namely, a home. The next consideration is the internal economy of the house, having regard to its calibre, the social and family life of the client, the proper relationship of each apartment to its neighbours, the working of all departments. We must, in imagination, pass in and out of every door, ascend and descend the staircases, and pre-apprehend inconvenience that would inevitably come to light when passing through the test of actual occupation. In short, no detail of domestic economy is to be considered beneath the notice of the Architect who intends to plan a house which shall be at once convenient in its arrangement and economic in its working. Our client's assurance of satisfaction with the plans will not relieve us from the future criticism consequent upon the ultimate occupa-



A SHRINE AT POLA.



tion of the house by him; that searching and merciless criticism to which all planning is ultimately subjected. The test, undoubtedly, comes with occupation. Having assured ourselves of the proper organisation of our plan, we can then proceed to consider each individual apartment, and, for its ultimate success, it is indispensable that the complete scheme embracing the disposition of the furniture, decoration, fittings, hangings, carpets, pictures, and accessories should be in our mind. We should have informed ourselves of the nature of all objects which the client may already have in his possession, even though valued for associations' sake alone, and which will have to be reckoned with in the evolution of the scheme. The principal considerations which dominate us are

#### COLOUR AND FORM.

Let me briefly allude to each of these. We give precedence to that all-important subject—colour, that universal source of pleasure, that essential and all-powerful element of Decorative Art. This subject has of late years been investigated to such purpose as to reduce the study of its harmonies and discords to a scientific basis. Colour should be considered before form, in that the wall space is the largest area of the room, and it behoves the colourist, I need hardly say, to select such colouring as will adequately harmonise, complement, or contrast with the subsequently placed pictures, fittings, furniture, and draperies. The size of the apartment, its aspect and use, will govern us as to its particular colour scheme. The colour of the draperies, when the windows are isolated, may complement the wall colour. When windows are grouped together the draperies may harmonise, and thus carry the wall-colour round the room. In constructional work, should hard woods and marbles, which carry their own colour, be used, they may be selected to contrast rather than harmonise with the walls. Should the constructional work be open to colour treatment, a decided complement is desirable. The same order is then followed with regard to form, and whenever any of the materials are already in existence—for instance, pictures, wall coverings, draperies, or furniture, examples should at once be seen. In fact, see as much as possible of that which makes your complete room, and see it in juxtaposition. You may then proceed to settle the form of the remaining items, working through from scale to

#### FULL-SIZED DRAWINGS AND MODELS.

The complete scheme, but as yet only the scheme, having been decided upon, we then prepare the specifications, and arrive finally at the most practical part of our labours, and, I am disposed to think, the most difficult, namely, that of preserving our tenderly nurtured scheme from the rough handling of the unsympathetic workman, by placing its realisation in the hands of the Craftsman having the knowledge and skill requisite to produce the feeling which we wish transferring from drawings or models to the actual work. Those of us who have attempted to obtain this have realised by many a bitter lesson the dearth of such sympathetic co-operation. In conclusion, I say that the remedy rests with the Profession to fix the highest standard of Craftsmanship, and see that it is reached.

MR. FREDERICK BRITTON, contractor and decorator, notifies us of his removal from Leconfield Road to extensive new premises at 469, Caledonian Road, N.

The old hostelry, "The Bee Hive," in North Shields, has been extended and repaired throughout from plans by Mr. G. Scaife French, Architect, Whitby.

A CONFERENCE of master builders of the West of England and South Wales was held in Bristol last week, when a draft scheme was submitted for the formation of a federation. In this connection it may be well to mention that the National Association of Master Builders will meet in Bristol in July, and active arrangements for the visit are now being made by the reception committee.

## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
April 21st, 1897.

*"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."*—JOHN RUSKIN.

Has the County Council's Works Department saved the London ratepayer any money? It started on the grand Progressive idea that "contractors' profit" was to be saved. Has it been? The important Minority Report of the Special Committee on the recent scandal says plainly, "No." Mr. Beachcroft, Mr. Fletcher, Dr. Longstaff, and Sir G. Lushington, taking the most trustworthy figures brought before them, come to the conclusion that the engineering works have resulted in a saving of £6000 upon a total cost of £130,000. But on the "Architectural works" there has actually been a loss of £10,000 on a total of £220,000. Consequently they recommend that no such "Architectural" works be undertaken for the future, and that the Department be reduced to the level of a sub-office in the Engineer's Department. Here we get to the root of the matter; and it is to be hoped that the Council will not pass over this fundamental question of success or failure, and merely continue the discredited old Works "Committee" under the name of a new "Board."

THE entire reconstruction of King's Cross Station is under consideration. The extremely inconvenient arrangement of this station has long been very prejudicial to the traffic on the line, and though nothing has as yet been definitely decided on, the probability is that as great an improvement will be effected at King's Cross as that which has now been practically completed at Moorgate Street. Great changes in many ways have taken place since this important station was planned, and it has become quite out of date and wholly inadequate to the traffic. It will be troublesome and expensive work to carry out so extensive a reconstruction with many hundreds of trains rushing in and out of the station all day long, but it will hardly be more serious an undertaking than Moorgate Street, and sooner or later it will have to be done. Mr. Sherrin, the company's Architect, has prepared plans and constructed a model for the consideration of the directors, and it is expected that in the course of the next week or two their decision will be arrived at.

MR. ARTHUR WHITCOMBE, Surveyor, of 5, Newman Street, W., gives some interesting facts as to the condition of the floor and wall supports of some houses in London. He says: "The attention of householders along the line of route of the Jubilee procession in June who propose to utilise their windows for the accommodation of many spectators, should be specially directed to the condition of the brick piers or other main supports of the front walls in the basements. In my experience as an Architect and Surveyor, I have frequently found these piers in a very bad condition, and often dangerous. I know of many such piers—I am not alluding to the line of route—at the present time which would, in all probability, give way if the floors above had an undue number of people packed upon them along the front wall. The danger is increased when, as is often the case in the older houses, the joists of

the various floors are laid from the two party walls to a beam running across the centre of each front room, from back to front, and concentrating weight upon the centre pier. Where there are shop fronts, too, the weight of the upper part is concentrated frequently on a column, stanchion, or story-post, and from thence conveyed to a pier in the basement, which is often in an unsafe condition, to say nothing of the condition of the story-posts themselves. The district surveyors will, no doubt, keep a sharp eye on the erection of temporary structures, but householders who propose to use their shops, rooms, and balconies, should satisfy themselves as to the front wall supports in the basements."

LORD WOLSELEY insists on the burnt-out wing of Chelsea Barracks being rebuilt before the end of May. It can be done, of course, for nothing seems impossible to the London builder of to-day. With electric light by night, and with steam cranes and things, he can go on joining bricks and mortar for the whole twenty-four hours with a rapidity that would seem impossible to the bricklayer of one's boyhood. The Indian contingent are to be lodged in the new wing. To have them in a brand new building will be a distinct advantage. It will gratify the religious susceptibilities of many of them, because a building that has not been used cannot have been defiled.

THE French Architects are up in arms at the approaching demolition of one of the most ancient edifices in Paris, namely, the Church of St. Pierre de Montmartre. It is not given to every foreigner who visits Paris to journey up to that quarter, especially by day; but this is hardly necessary, for the stupendous scaffolding of the huge Church of Sacré Cœur arrests the attention from some part of every quarter of the city. It is through this erection that the old Church has fallen into disuse, disrepute, and neglect, and its removal decided upon. The Church was erected by Louis-le-Gros on the site of the martyrdom of St. Denis, and its finest portion, the choir, was consecrated in 1147. It is one of the three Churches only remaining which mark the transition between the Romanesque and Gothic styles.

A WORKING men's committee of the Conservative Association in Liverpool recently met to consider a resolution passed by the branch in favour of a proposed Bill facilitating purchase by working men of their own dwellings. It was resolved to impress upon the Government the desirability of promoting legislation with this object. During the proceedings it was stated that a letter had been received from Mr. Chamberlain, who reiterated his views favourable to this question. He said he had not changed his opinions, but owing to the limited time at the disposal of the Government, and with a very active Opposition in Parliament, it was impossible to do everything at once. He hoped, however, before the Government left office they would be enabled to make progress with the measure and with other social reforms. With the exception of one speaker, who said there was no working man in ordinary circumstances who could afford to live in a house of his own, the general opinion was that the possession of property by working men would draw them towards Conservatism, and that was one of the reasons why the Radical party would not extend their support to such measures.

IN front of St. Martin's Church, Trafalgar Square, the pavement is only 5ft. 6in. broad, and the Vestry wants the County Council to widen it to 9ft. by getting rid of the terrace between the two flights of steps leading to the edifice. The Society for the Protection of Ancient Buildings is strongly opposed to the proposal, and so is the Council's Improvements Committee, which thinks that if anything be done it should be the widening of the carriage way. These schemes would involve alteration in the appearance of the Church. So, the Committee has concluded, there is nothing for it but more police control over the omnibuses.



A correspondent writes:—"Some of the employers in the building trade are getting restive under the agreement which has been in force in most places throughout the kingdom for some years, to the effect that when any alteration of wages or conditions of work is desired by either side, six months' notice, terminating on April 1st, should be given. Employers allege that this gives the workmen an unfair advantage, inasmuch as it only enables them to seek a change at the commencement of the busy season. As a matter of fact, the activity or otherwise of the building trade is always measured by the work done in the six or eight months commencing with the spring, and if employers were allowed to give notices of changes terminating in the latter part of the year, they would almost always have the excuse that trade was bad, and that it was necessary some concession should be made them in order to keep things going. Knowing that the trade is measured up by what goes on apart from the winter months, and that contracts are practically made or arranged early in the year, there seems to me to be nothing unfair in compelling the employers to go on with the conditions of work and wages under which their contracts are made. At any rate, the men are kicking against any change, and it is more than probable that they will do so successfully."

"WILL you kindly allow me to appeal through your columns," writes the Vicar of Shoreditch, "for the mother Church of one of the oldest parishes in London? There has been a Church of St. Leonard, Shoreditch, on the same site since Saxon times, and the present building, designed by Dance, a pupil of Wren, and dating from 1740, has fallen sadly into disrepair and needs immediate restoration. Many Londoners are familiar with the graceful spire, surmounting a small dome, which forms a landmark at the junction of four great thoroughfares—Old Street, Kingsland Road, Shoreditch, and Hackney Road; and this spire, the glory of the whole building, is in so dilapidated a condition that already the workmen have begun upon it without waiting for the rest of the work. Queen Elizabeth herself, when starting on one of her progresses, heard and praised the "Bells of Shoreditch," so famous in nursery lore. A century later we find this Church, under its active and heroic vicar, John Squire, a stronghold of resistance to Puritan innovations, and the present building still preserves the rich Flemish east window which excited Puritan iconoclasm—yet all in vain, for Squire had the wit to bury the glass in safety. One more century, and we see our present fabric causing the first recorded strike in the building trade, which led to so serious a riot that Horace Walpole drew attention to it in Parliament. Will any of your readers help us to raise the £2000 necessary for thorough restoration?"

An article in a foreign contemporary gives some interesting particulars as to the enormous sums which patriotic Greek millionaires have lavished upon their native land, and more especially upon Athens, its capital. Scarcely a hospital, a library, a school, a theatre, or a university would exist were it not for the generosity of these benefactors. The very channels and kerbstones of marble are a gift from private purses. In short the munificence of individuals provides for every public need except the interest on the National Debt. Within the last few years it would be easy to reckon up gifts to the amount of a million sterling. Baron Simon Sina, of Vienna, spent two and a half millions of drachma on the Academy, and Baron Georgius Sina endowed the city with an Observatory. The Rallis rebuilt the Archbishop's Palace, and contributed £250,000 towards the erection of a theatre. Nobody knows at what cost M. Georgius Averow, of Alexandria, has revived the ancient Stadium in all its pristine glory. Benardakis, Zaffropoulos, Papadakis, Stilizzis, and a score of other names figure in the scroll of fame. Nor should it be forgotten that all the wealth thus showered upon their fatherland has been acquired outside its borders,

hardly a drachma of it having been wrung from the soil of Hellas.

PROFESSOR HERKOMER, R.A., lecturing at Newport on "The Art Life," said the word "Art" was a very wide term, but all Artists loved their work, and loved to talk about it. Students some years ago were in a much worse condition than they are nowadays, and Artistic life was then looked upon as a sort of brigandage. The great evil of an Artist's life was the loneliness in which he had to live before fortune came. A strange feature of a young Artist was that, however original he might be, he would copy contemporaries, but the great and momentous question of his life was the subject for his Academy picture. He spoke of the painting of his picture—his second big one—the "Chelsea Pensioners at Church." That task was entered upon against the advice of all his friends, and when it was finished no one could have had more trepidation than he when it was sent to the Academy. It was executed at a time of great domestic bereavement. He expected at every post to get a letter of rejection, but after five days he got two letters—one from Lord (then Mr.) Leighton, whom he did not know, and one from Mr. George Richmond, stating that his picture was accepted, and that when it was taken before the committee they all clapped their hands.

At the corner of Newhall Street and Edmund Street, Birmingham, quite an ornate building has been erected for the purpose of the new exchange of the National Telephone Company. The site has an area of about 830 square yards, having a frontage of about thirty-five yards to Edmund Street and about twenty-five to Newhall Street. The building is one of four stories—namely, basement, ground floor, and first and second floors. It is designed in what for want of a better term may be called modern Renaissance, and executed in Ruabon red brick and terra-cotta. This material has been chosen in preference to stone in view of the circumstance that the building is largely in the shade, and the red colour gives an effect of light which, in such a situation, stone would not possess. The façade is divided by bold piers, with highly decorative treatment of the upper portion, which consists of arches and gables ornamented with a profusion of moulded terra cotta. A number of the windows, including those at the corner, stand forward as bold bays from a deeply arched recess, and are set off with terra-cotta balustrades. The upper portions of the piers are embellished with a flat fretwork design in sunk panels, which contrasts with the high relief floral embellishments of the arches and spandrels. At the top of the façade there is an open balustrade of terra-cotta, broken by the gables and by small pinnacles. Some of the principal gables are decorated with large floral medallions, and are surmounted by an open tracery, while others are pierced by the chimneys, which, owing to the internal arrangements, were required to be carried up the outer walls of the structure. The chimneys have, therefore, been made a portion of the decorative scheme. The main entrance to the building is through a wide arched doorway in Newhall Street, for which elaborate wrought-iron gates are being prepared by Messrs. Brawn and Co. The Telephone Company proposes to let off the ground floor, where there are eight rooms suitable for offices, and a group of four rooms with separate entrance in Newhall Street. There are also six rooms which are proposed to be let as offices upon the first floor. The remainder of the building the company retains for its own use. In the basement are the apartments of the office-keeper, and eight rooms allotted to the local manager's staff. Upon the first floor the provincial superintendent and the district manager will have their offices, while the second floor is chiefly devoted to the largest apartment in the building—the actual "exchange" or switch-room. A portion of this will, to commence with, be partitioned off as dining and recreation-rooms for the girls employed at the Exchange; but these, when necessity arises, can be readily absorbed, so as to increase the length of the

switch-room from about 68ft. to 95ft. The apartment has a width of 40ft., and will accommodate about 200 operators. The building has been designed by Messrs. Martin and Chamberlain, and has been carried out by Mr. Thomas Rowbotham, builder.

An Exhibition which must appeal to all Art lovers is that of pictures, water-colour drawings, and etchings by Mr. Alphonse Legros, collected in Mr. E. J. Van Wisselingh's little gallery, in Brook Street, Hanover Square. Professor Legros, for inspiration, has chosen old masters, and the most robust and earnest of his own countrymen, and for draughtsmanship and dignity of style he reveals his own individuality in a forcible manner of expression which seems to dominate the subject. But, unlike the opposite school, that of the "impressionists," Mr. Legros aims at directness and simplicity. The most finished picture here, "Femmes en Prière," which has been purchased by subscription for the National Gallery, will be remembered by those who visited the first exhibition at the New Gallery. Some of the lesser figure studies, showing what a variety of tools—pencil, brush, silver-point, and the etcher's needle—the Artist can command, are masterly examples of expressive lines and modelling, and even in the solemn allegories of death, the skeleton is not a merely visionary presence. The landscapes are mostly restful and impressive, and are invested with imagination even when the materials of composition are of the humblest kind. For portraiture, Mr. Legros is, perhaps, almost more famous with the general frequenter of galleries than for the different other forms of his genius so well displayed on this occasion.

"THE Monasteries of Essex" was the title of a most interesting lecture recently delivered at the Lecture Hall, Ipswich, by Mr. Geo. Biddell. Thirteen monasteries and priories were dealt with out of the total of forty-seven which at one time existed in the county. Taking the once famous Waltham Abbey, a small portion of which still remains, Mr. Biddell told of the original foundation and endowment. At the time of the conquest the Abbey was very rich in lands, receiving the revenues of nearly four thousand acres. The Abbey was re-endowed by Henry II. as a kind of act of penance for the murder of Thomas à Becket. Barking Abbey was the oldest, having been founded by Erhenwald in 670. A fine view was thrown upon the screen of the existing Abbey "curfew" tower, which forms the entrance to the parish churchyard. The historical Bow Bridge, built by Queen Matilda, was once kept in repair by Barking Abbey, in conjunction with Stratford Langthorne. Of the latter, only a few stones were now left, but it was originally a very large Abbey, founded about the twelfth century. Some excellent views were given of the remains of Leighs Priory, now occupied as a private house. The Priory was founded in the twelfth century—a great Church building age—and after the dissolution, fell into the hands of Lord Rich, one of the king's favourites. Blackmore Priory was amongst the forty-one small Priories which Henry handed over to Cardinal Wolsey, who expended the money received from them in founding his famous colleges at Oxford and Ipswich. Dunmow Monastery was founded by Ralph Bagnard in 1350, and in the existing Priory Church is the chair in which sat the candidates for the time-honoured fitches of bacon. Coggeshall Abbey was once a very large establishment, originally inhabited by Cistercian monks. One portion of the old Abbey now formed a farmhouse, whilst other parts—once beautiful places—were utilised as cart-shed, granary, and fowl-houses. St. Botolph's, Colchester, which was first taken over by Augustinian Monks in 1107, was in 1648 ruined during the siege. St. John's, Colchester (founded by Eudo Dapifer in 1096), was perhaps in the past the most important Abbey in Essex. It was one of the few mitred Abbeys of the country, and was privileged also in many other ways. Several photographic views of the ruins of St. Oystin's Abbey the largest in Essex—were given. The Abbey was founded by Bishop de Belmeis in



1118, scores of wonderful legends being bound up in its history.

In a recent issue of the British Medical Journal attention was drawn to "Lead Poisoning and Employers' Liability" in Germany. The death of a boy, aged 13 years, from acute plumbism, in the potteries, has, says the same journal, supplied the opportunity to the daily Press for again dilating upon the extremely dangerous nature of a trade which kills in four months' time. The lad, never very robust, was employed as a "dipper" in a pottery, and while going to the factory was suddenly seized with a convulsive fit, in one of which he died. Other signs of lead poisoning were present, such as wrist-drop and a blue line on the gums. At the inquest the coroner described as death-traps the dipping houses of potteries in which children of tender years were allowed to work. It has again and again been shown how rapidly young people succumb to the harmful influences of lead, and how desirable it is that the age of workers in such trades should be raised, and only those allowed to labour therein who are healthy, cleanly, and well fed. Raising the age alone is not sufficient. The question of lead poisoning was carefully investigated some time ago by a Home Office Committee, and their report was published. The large number of deaths from plumbism within the last few months is the strongest proof for the necessity of the action taken by the late and the present Home Secretary, and ought to strengthen the hands of Sir M. W. Ridley in carrying out the recommendations embodied in that report, and those made by the Potteries Committee. It is not creditable to any industry that death should follow after four months' exposure, and employers should lose no time in placing those whose circumstances oblige them to labour in such an occupation, beyond all possible risk to health and life.

THE monument which is to be erected to the memory of Pasteur, at Lille, is in process of execution by the Sculptor, M. Cordonnier. The work is to be placed in the Place Philippe le Bon, and is truly realistic. The monument consists of the female figure of Science, with a baby in her lap, whilst the unfortunate child is being inoculated with hydrophobic virus by its scientific nurse. The inauguration of the monument is expected to take place in a year's time.

THE Society for the Protection of Ancient Buildings has forwarded a letter to the Scarborough Town Council, with reference to the construction of the Marine Drive, stating that the Society hoped the Town Council would use every endeavour to preserve intact the old town on the slopes of the Castle Hill and bordering on the old quay, more especially such houses as that known as the "King's Residence," the house where Richard III. is reputed to have lodged in 1484, as these were valuable as forming part of the history of Scarborough.

ONE of the most remarkable pieces of Sculpture at the Royal Academy will be the statue of Dame Alice Owen, by Mr. Frampton, A.R.A. This well-known benefactress to the charities of Islington, Oxford, and Cambridge has been portrayed, after an old picture, standing in ruffe, bodice, and embroidered dress, with a Bible in one hand and a crook in the other. Whilst the head, ruffe, and hands are in coloured marble, the rest is in bronze. The effigy of this good Elizabethan lady is destined to stand in the hall of the almshouses at Islington, where it will go down to posterity as one of the most notable examples of the revival of Sculpture in the Victorian era.

ALL those to whom the public parks are not only so many healthful breathing spaces, but are regarded with delight from a floral and Artistic standpoint, will be interested in learning that, in consequence of the approaching Royal celebration, alterations and improvements on an elaborate scale are being made in their favourite West End resorts; and there can be no doubt that the pleasures of the metropolis will, during the coming summer,

appeal more to the eye and the sense of the beautiful than they have done in any previous year. St. James's Park, though nearer than any of the others to the turmoil and throbbing life of the City, is unquestionably one of the most sylvan and picturesque that London possesses, and here extensive improvements are projected, so that ere long there will be few more delightful promenades than the one which furnishes so agreeable a prospect from the front windows of Buckingham Palace. In Hyde Park embellishments on a similarly extensive scale are being carried on, and when the season is at its height the road which skirts Park Lane, as well as most of the favourite walks and drives, will present a most inviting appearance.

In the course of the excavations on the site in Duncombe Place, York, upon which the new dispensary building will shortly be erected, the workmen uncovered an interesting relic in the shape of a cock-pit. The ancient sport of cock-fighting was carried on behind the "Shakespeare Tavern," a very noted house, which formerly stood in Little Blake Street, and the cock-pit recently unearthed is doubtless that which was attached to the "Shakespeare Tavern." The pit, with its appurtenances and accommodation for spectators, was found to be in a fairly good state of preservation. The arena was found to be about six feet square.

THE efforts that were being made to save the Doddington pele tower have, unfortunately, been foiled by the winds, the whole of the east end of the edifice having recently come down with a crash during a storm. The news, announced by the Newcastle Society of Antiquaries, will be received with regret by all who feel an interest in the preservation of these relics of the stormy border life during the Middle Ages. Doddington is a quaint and interesting little place, and many relics of the past have been discovered at or near it. On the hill overlooking the village, Doddington Law, are the remains of a camp, while several stone implements (of porphyrite) or celts, have been found there, the sole memorials in the neighbourhood of neolithic man. The pele towers, of which that of Doddington was a good example, were erected in considerable numbers by the Northumbrian landowners during the fourteenth and following centuries as a defence against the plundering raids of the Scots.

AN important re-arrangement of the tablets exhibited in the Kouyougik Gallery has recently taken place. Up to within a short time ago the clay documents discovered on the site of Nineveh were practically in a state of confusion, and visitors wishing to see any particular class of tablets had to search for them as best he could. This difficulty has, however, now entirely disappeared. The Gallery itself has, in fact, been re-christened, for, instead of being known as the Kouyougik Gallery, it is now known as the Nineveh Gallery. The tablets have been arranged in nine table cases in the centre of the Gallery, labelled respectively A, B, C, &c. In Case A may be seen the famous tablets relating to the Creation and Deluge, the latter having a large label attached describing as minutely as possible the Chaldean legend of the great flood. The same has been done with the Creation tablets, as well as the inscription giving an account of the descent of Ishtar into the under-world. In Case E are arranged the letters from private and public individuals to the King, concerning a large variety of subjects. In the same case, also, are arranged some contract tablets, showing the different styles of handwriting in use at different periods. The wall sculptures from the Palace of Assur-bani-pal have not been altered, so that the Gallery at first sight does not appear to have undergone such a radical change as has really been the case.

THE handsome new drinking fountain at Mentone, which has been presented to the town by Mr. Thomas Hanbury, was inaugurated on the 10th inst. The fountain—named "Fontaine de la Frontière"—is an imposing

structure, of finely carved Turbia stone, and stands at the junction of the Cornice Road and the Promenade St. Louis, a quarter of a mile from the bridge of that name, which marks the boundary between France and Italy. The fountain bears the following inscription in English:—"In commemoration of the 60th year of the reign of Her Britannic Majesty Victoria, R.I., and in recollection of her stay at Mentone, 1882." The Architect is Mr. W. D. Caroe, of Whitehall Place.

THERE will be few lovers of the beautiful found among the mourners assisting at the obsequies of Vauxhall Bridge when the time comes for its removal; but though not "a thing of beauty" (especially at low tide), the bridge is not without its interesting points, and will be chiefly lamented by the remnant of the past generation who see gradually, but surely, the snapping of the links which join the earlier part of this century to the latter. Vauxhall Bridge is not old, but it is one of the last survivors of gay Vauxhall. It was the direct route from the fashionable quarter (Belgravia, Hyde Park, and Mayfair) to the fashionable pleasure grounds, Vauxhall Gardens. The Bill for the erection of the bridge passed through Parliament in 1809, and building operations were commenced in 1811, when the first stone was laid on the Surrey side by Lord Dundas (representing the Prince Regent). Two years later the first stone on the Middlesex shore was laid by Prince Charles of Brunswick, and the bridge was opened for traffic in the autumn of 1816. The bridge, which was designed by Mr. J. Walker, and cost £300,000, consists of nine iron arches, supported on stone pillars. The tides have so seriously affected the foundations of the bridge that it is now condemned as unsafe, and as soon as the temporary bridge is built (unless it should fall before) it will be demolished.

AN artistic record of the monuments and statuary in St. George's Chapel, Windsor, the Royal Mausoleums, Frogmore, the Albert Memorial Chapel, Windsor, and the Prince Henry of Battenberg Memorial Chapel, Whippingham, is in course of preparation. The work has been undertaken by Mr. Murray Fisher. To emphasise the importance and unique character of this work, it is essential to mention that admittance to the Royal Mausoleums at Frogmore is only to be obtained by a direct order from Her Majesty. These exquisite works of Art are, indeed, only to be seen by an order from the Lord Chamberlain on the anniversary of the Prince Consort's death, and this privilege is extended only to the inhabitants of Windsor and neighbourhood and their friends, and then only for two hours. It is obvious, therefore, that this work will be a valuable public record of these most interesting and beautifully artistic Royal monuments, and the only available means of obtaining any idea of the magnificently rich and elaborate works of Art contained in these memorials of the illustrious dead.

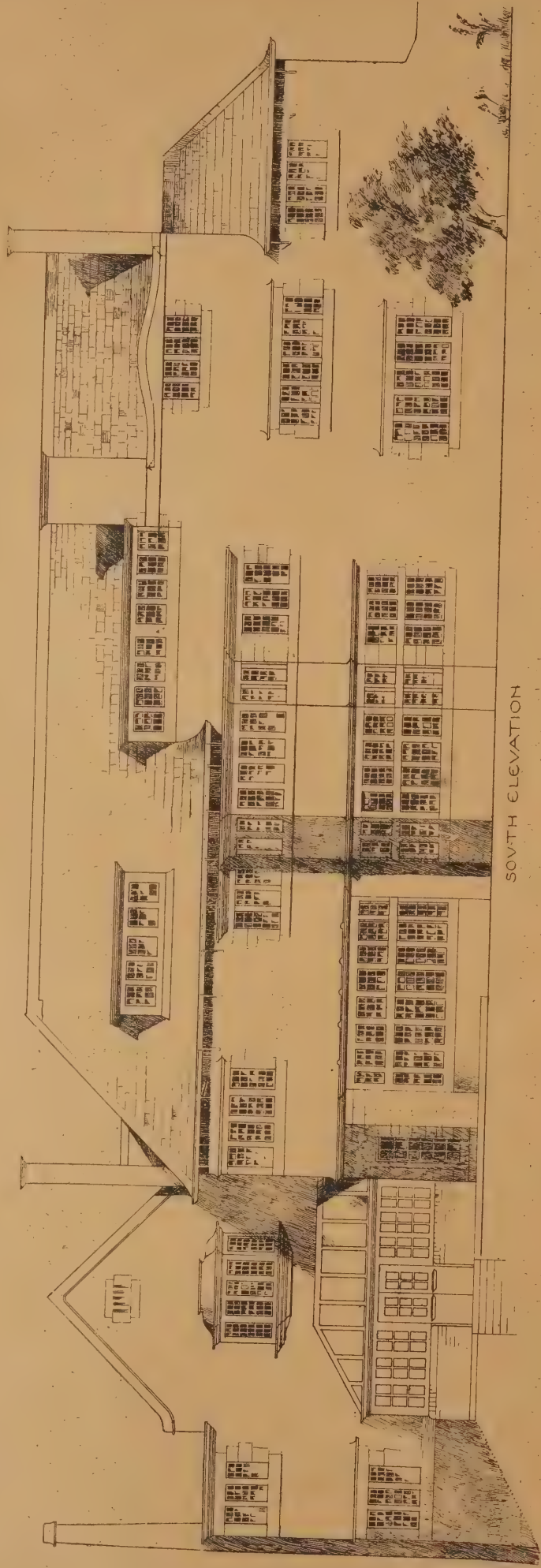
MR. D'EYNCOURT gave his decision last week in a case in which the London County Council summoned a local publican for having a trade sign fixed in contravention of the Building Act. The words of the section upon which Mr. Chilvers (who appeared for the London County Council) relied were that the sign was more than 3ft. above the parapet of the house; but Mr. Ogle (counsel for the defendant) submitted that it was not 3ft. above the wall to which it was fixed. Indeed, it was several feet lower. The case of the sky sign at the Savoy Hotel was quoted; but it was answered that this sign was fixed to the chimneys, which in the opinion of the magistrate was not a wall within the meaning of the Act of Parliament. Mr. D'Eyncourt, in giving judgment for the defendant, said he had infinite sympathy with any attempt to put down in every sense of the word those hideous signs which obstructed the light over the tops of the houses. He, however, was bound to find as a fact that the sign in question was not above the walls to which it was fixed, either with regard to the public-house wall or the house adjoining. The summons was dismissed.



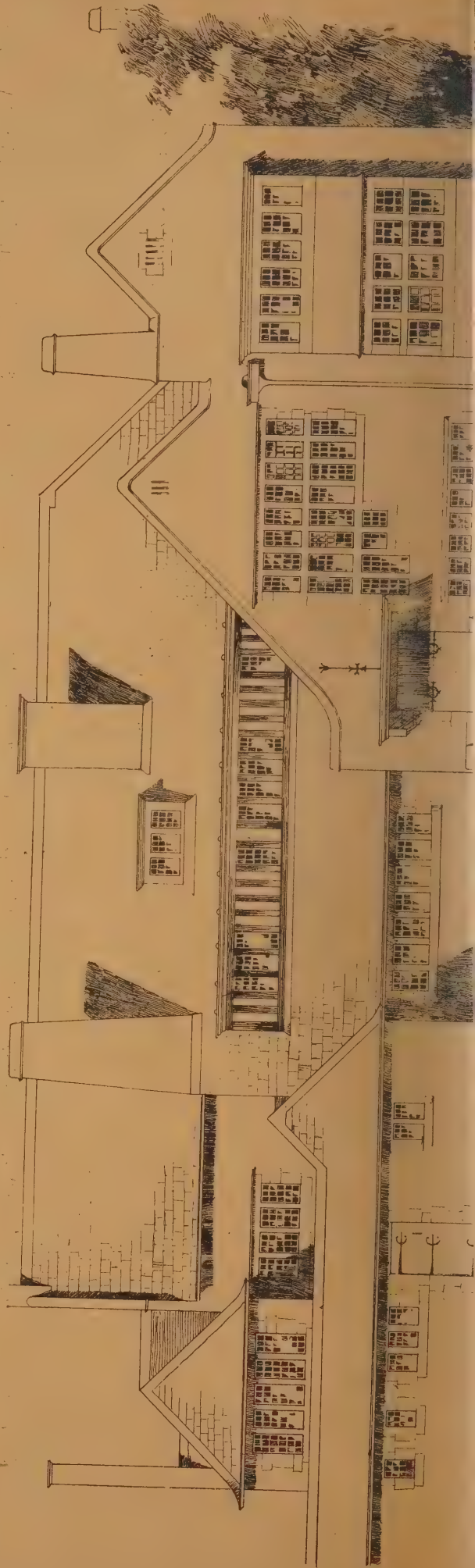
LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



1/4 SCALE



SOUTH ELEVATION

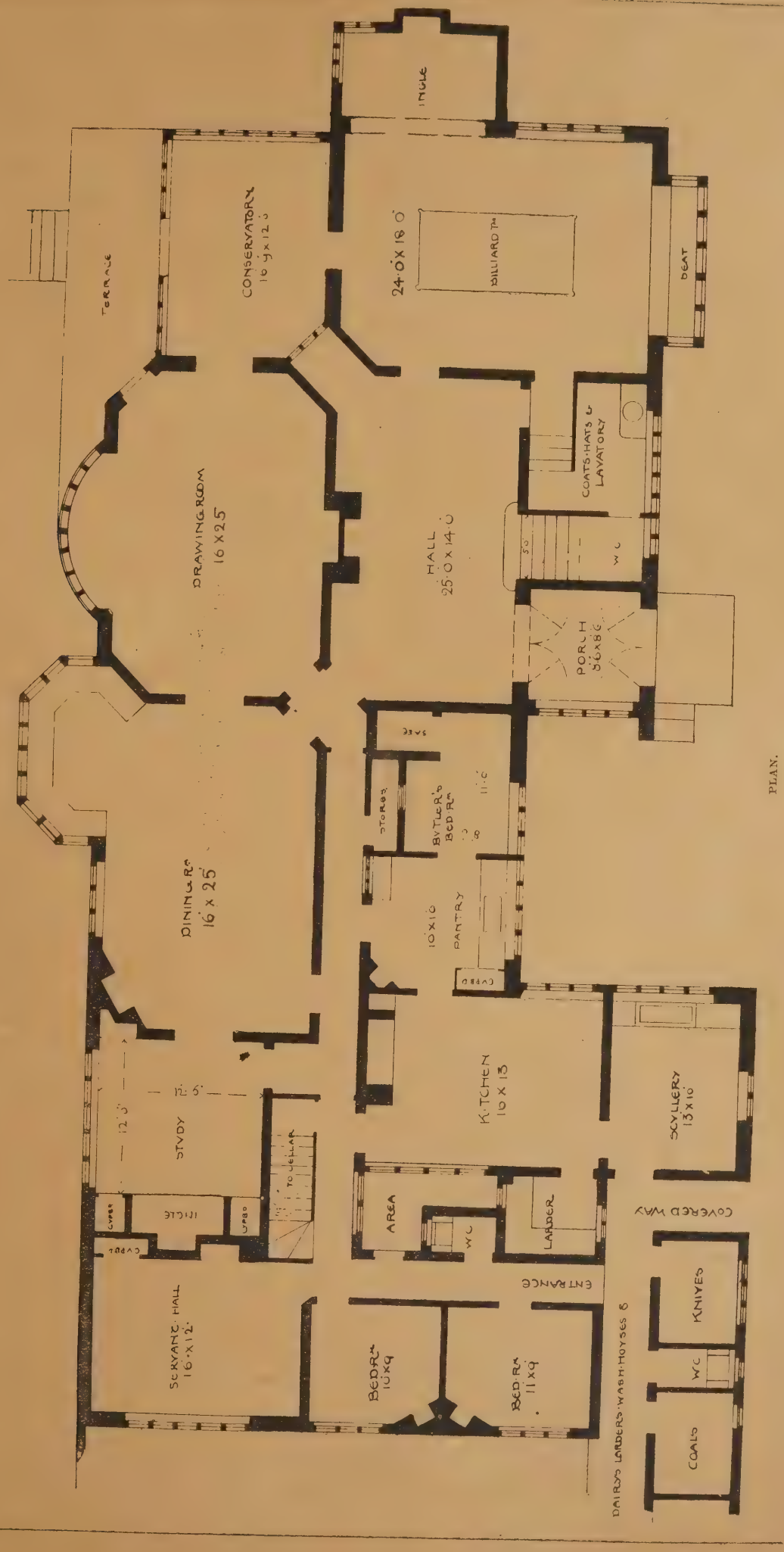




SCALE OF FEET

NORTH ELEVATION.

PROPOSED HOUSE AT ASHBOURNE, DERBYSHIRE. C. F. A VOYSEY, ARCHITECT.



PROPOSED HOUSE AT ASHBOURNE, DERBYSHIRE. C. F. A. VOYSEY, ARCHITECT.



THE  
OF THE  
HONORABLE



# THE ORIGIN AND DEVELOPMENT OF RENAISSANCE ARCHITECTURE IN ITALY.

By C. B. HUTCHINSON, A.R.I.B.A.

THIS subject applies to literature, painting, and sculpture, as well as to Architecture. Roman Art is an amalgamation of Etruscan and Greek forms, adapted and moulded to their national characteristics, and developed during Imperial times. The boast of Augustus Caesar was, that he found Rome of brick, and left it in marble, and it is from this period that all their most celebrated buildings date. The only two buildings of this time which are preserved and still used at the present day, are the Pantheon, or Rotunda, and the Church of S. M. Degli Angeli, which was part of the Baths of Diocletian. But the vastness of their ideas is shown by such structures as the Baths of Caracalla and the Coliseum, and their far-reaching power by the wonderful ruins of such distant colonies as Baalbeck and Palmyra, and their inexhaustible energy by the immense size of the stones used here, some single blocks measuring 63 ft. in length, and weighing 1100 tons. But their wealth caused them to become luxurious, they lost their muscular energy and strength, the Gothic hordes poured down from the North, gradually fought their way and eventually conquered, causing desolation and ruin. The dark days which followed lasted for about seven centuries. Roman Art and history were as forgotten as Herculaneum and Pompeii, their literature was not understood, and the Greek language was hardly known. It is strange how often facts are known but not understood, and their use little realised. The meaning of Egyptian hieroglyphics is a modern discovery, and Assyrian cuneiform inscriptions were very recently deciphered through the energy of Rawlinson and Layard, which has now enabled the history of these two nations to be fully known. The Babylonians 3000 years B.C. used cylindrical seals of quartz, jasper, and lapis lazuli, engraved with quaint devices and inscriptions which were rolled over clay tablets to leave their impression, and yet it was left to John of Gottenberg in the middle of the fifteenth century to take this one step farther and develop printing. The Italians were quite ignorant of their past history. The remains of ancient buildings around them were looked upon as picturesque objects, but they knew little more about them than we do of the ruined cities of Mashedan, or the Arabs did of the contents of the desolate mounds of Nineveh. But at last, in the early fourteenth century, the Italians woke up to a knowledge of Roman authors and Roman history, developed by Dante and his contemporaries, followed shortly afterwards by the revival of the knowledge of Greek literature by Petrarch and Boccaccio, and the influence of Greek Art upon the Romans. The Italians then began to realise their past history and the grandeur of Roman Imperial times, just as the excavation of Pompeii opened to our eyes the houses and public buildings of this Romano-Greek city as it was left when suddenly buried under the ashes of Vesuvius, or as the excavations of Nimroud and Khorsabad, by Layard and Botta, showed us in its sculptured walls the daily life of that great, but warlike and cruel, nation, the Assyrians. So did the Italians now understand the greatness and magnificence of the Romans and their conquest in all parts of the world as illustrated by such sculptures as those seen in Trajan's Column, or the Arch of Titus in Rome. It kindled an enthusiasm to become again what their ancestors were in former ages, and gave this wonderful stimulus to literature and the Arts of Architecture, Painting, and Sculpture, based upon a real study of Classic precedent, which we now call the Renaissance. Roman buildings and Roman sculpture and detail is now copied in every new structure, to the entire exclusion of their former Byzantine and Romanesque style. This began in Florence and Rome, gradually extending northwards, pouring a flood of Classic detail and Classic design all over Europe, and altering the whole character of Architecture in each country.

Up to this period each nation had its own indigenous type of Architecture, just as it had its own language and its own religion. The buildings of Egypt, Assyria, Greece, and Rome are all distinct from each other, as is also the Celtic work of Northern Europe and its later development into Gothic Architecture; or again, the complicated detail of Indian and Saracenic buildings. Each is the natural growth of national sentiment and religion adapted to the requirements of a nation, and each is peculiar to its own country. There were developments of these primary forms, such as the Egyptian into Assyrian and Persian, with its later forms of Sassanian, Saracenic, and Moorish. Nearer home we find Celtic mysticism developing into the impressive beauty of our own Gothic Cathedrals and Abbeys. Each country has its own

## NATIONAL ARCHITECTURE.

either of a primeval form or else blended with influence due to the conquest of, or commerce with, another nation; or local peculiarities due to the settlements of foreigners, such as the Byzantine characteristics so noticeable in Venice, due to its trade with the East. Or, again, the dome district in the South of France, especially at Perigieux and Angoulême; or the Flemish carved work and brasses found in Norfolk and Suffolk. But Renaissance Architecture is a reverting to and copying of Roman Classic buildings, and adapting the general design and proportions and all the carved details to their Mediaeval requirements. Corinthian columns, capitals, and entablatures are now found all over Italy, to the entire exclusion of the Byzantine and Romanesque types, and afterwards gained a firm footing in every country in Europe. Renaissance Architecture becomes everywhere the recognised form of Design, entirely supplanting its Gothic predecessor—starting in Florence and Rome, working northwards, spreading all over France. In Spain the expulsion of the Moors from Granada and the great influx of wealth due to the conquest of Mexico and Peru, together with the strong religious fellow-feeling between that country and Rome, enabled Roman Architecture to gain a firm footing. In England Renaissance Architecture was not adopted for nearly two centuries after it was in Italy. But the new style was soon taken up and used for every new structure, whether Church or public building or private house, even the silver candlesticks on the overmantel being probably a copy of Trajan's column. It is a strange fact that up to the time of the Renaissance no building in any country was a copy of another building in any other country, or of a building of a previous date in the same country. For instance, an Early English Architect would never think of adding to a Norman building in any other style but that of his own time, nor would he design a Byzantine Church or a Roman portico. In fact, Ferguson's opinion is that it would not be far wrong to say that every building in Europe erected previous to the commencement of the Renaissance, was indigenous as regards its design, distinct according to the country in which it was erected, whereas every building dating subsequent to this period is more or less a copy of a previous Classic one in general design and in detail, and in most cases with no association of race or religion. The Renaissance began with simplicity of form and purity of detail, after then Sculpture was used to a lavish profusion, but it was good, as is shown by the façade of the Certosa at Pavia, but its later stages were characterised by unmeaning and ill-considered detail filling up every available space in a Design such as is often seen both in Italy and Belgium; this style is often called "rococo," it was chiefly carried out at the time of Boromini and Bernini in the latter half of the seventeenth century, and was the last phase of Renaissance forms. It will be, however, necessary to retrace our steps for a short distance, and consider how the Italian commenced this new style of Renaissance Architecture. The first great pioneer of the Renaissance was Brunelleschi, 1377-1444. No doubt the way had to a certain extent been prepared for him. Niccola Pisano, a century and a half previous, had freed Sculpture from

the conventionality of Byzantine forms and revived true Roman types. Cimabue, who was thirty-five years younger than Pisano, had struck out the same individuality of thought in painting, and Giotto, who was thirty years younger than Cimabue, had built the beautiful campanile to the Cathedral S. M. del Fiore at Florence; but still Architecture was on the former traditional Gothic lines, and Brunelleschi was the first to initiate the Roman Classic revival. Vasari, in his useful book of the lives of Italian Artists, relates how Brunelleschi and Donatello, the Sculptor went to Rome, and studied the old buildings, which, it should be borne in mind, were much more complete, and far more beautiful, than they are now. Pirenesi's etchings give some idea of what they were like, covered with foliage and wild flowers, and most picturesque, very different to what they are at the present day, bereft of every plant and leaf. The marble carved work and columns were taken away and used up in new buildings. In the fifteenth century the Baths of Caracalla, we know, had their columns and marble work remaining, and in later times some of the marble was burnt for lime, as was the case in Greece and Asia Minor. Vasari describes how

## BRUNELLESCHI AND DONATELLO.

on arriving at Rome, were astounded with the magnificence and perfection of the buildings. They set to work measuring all the plans, cornices, &c., and did not fail to take the measurements of any good thing within their reach. Brunelleschi, especially, pondered over the construction of the Rotunda (Pantheon) and considered the means by which it was erected. He also examined and measured all the vaults of antiquity he could, taking note of the means of uniting the stones, the equilibrium and close conjunction of all the parts. These two men were full of enthusiasm for their work, and neglected even their meals to get their drawings finished; but the people in Rome could not quite understand what they were doing, and called them the "treasure seekers." The book on Architecture written by Vitruvius, who lived at the time of Augustus Caesar, and to whom it was dedicated, was of great use, as in it are laid down all the fundamental rules for Classic Architecture and the proportions of buildings, both as a whole and in each detail. This was closely studied, and was especially valuable as being based on preceding Greek authors, whose works have been lost. This is shown by the number of Greek words used to express certain ideas. Alberti, who was somewhat younger than Brunelleschi, wrote his great work entitled "De re Aedificatoria," which is almost entirely based on Vitruvius, and greatly aided the revival of the true principles of Classic design, and so set the Renaissance on the right lines. Up to this time designs were of Byzantine form, due to the transference of the capital by Constantine in the fourth century, or Romanesque, which is a blend of the Eastern Byzantine and Northern Gothic. The type of Architecture in various cities differs according to the influence from each source, such as we see at Venice, Ravenna, Florence, or Rome. Gothic feeling diminishes according to the distance from its original home. At Venice it is strong, at Florence the Etruscan element was still perceptible, and so prevented Gothic feeling from taking any real root, though a few beautiful examples exist, such as Giotto's campanile to the Cathedral; while at Rome this feeling is hardly perceptible, the Classic traditions being too strong to allow it to take any hold. In fact Byzantine and Romanesque buildings possessed a certain picturesqueness, and in the former type colour played a prominent part, such as is so noticeable at Venice and Ravenna, produced to a great extent by mosaics, but also by a variety of coloured materials and marbles. The carving was always conventional, and had some beauty of its own, but it is not of a pure form. The acanthus leaf and Ionic volutes are still seen, but all the detail shows a want of study, especially of form. The figures are ill-proportioned and badly posed, the features have no anatomy or expression, and the drapery



is merely a series of straight or curved lines, intended to represent robes or vestments. The subjects for carving are within a limited range, and usually illustrate elementary Biblical truths. It should be borne in mind, however, that before the invention of printing, Sculpture was one of the few means the Church possessed of illustrating the facts of Christian doctrine. After then, when knowledge could so easily be spread, and people could read the Scriptures for themselves, the subjects chosen for Sculpture were much more varied. At the Renaissance, however, there is a most complete change. Sculpture is based on Classic examples: the human figure, with its proportion and anatomy, is carefully studied, the same care being taken with drapery and such like accessories. As already stated,

NICOLA PISANO

had struck out this new line in a masterly manner, one of the best examples of his work being the pulpit at Sienna, finished in 1266. Classic Architecture is analysed and rigidly followed, with its definite rules and proportions as laid down by Vitruvius, with its massive columns and entablatures, according to its "orders." An "order," it should be remembered, consists of a "column," sub-divided into base, shaft, and capital; and the "entablature," sub-divided into architrave, frieze, and cornice, with or without a pediment. The orders are Doric, Ionic, Corinthian, and Composite, and may be compared to our Gothic periods of Norman, Early English, Decorated, and Perpendicular. The most apparent difference between Classic and Gothic is that in the former all the leading lines are horizontal, and in the latter they are vertical. It will be well to consider now why it was that Renaissance Architecture emanated from Italy, and what were the reasons underlying such conspicuous success. These arrange themselves under four heads. Firstly, the Italians had all around them the ruins of the Roman Empire, and so could see every day the very spots where historic scenes had occurred. There, on the slope of the Palatine, were the remains of the palaces of the Cæsars, with the Forum itself just below, and the triumphal arches, with their sculptures, records of distant victories, and Trajan's column, illustrating his wars, just as the Bayeux tapestry did the progress of William of Normandy in conquering Harold, also Egyptian obelisks in different parts of Rome, as trophies of the subjugation of that country. The Architectural remains formed abundant food for study for Architects, as did the wonderful Sculpture for men like Donatello; the Vatican collection showing the perfection that was reached in such masterpieces as the Apollo, Belvedere, the Nile god, or the Laocoon. Secondly, the Italians were fortunate in possessing a continuous series of Architects, Painters, and Sculptors, all either working together or else in certain parallel schools, each generation working on the lines of its predecessors, but gradually eliminating any defects and perfecting the forms and aims of each, thus forming a consecutive evolution. In Architecture we have Brunelleschi, Alberti, and Bramante as the three great pioneers, striking out an entirely new line, and each in his own peculiar way, though in the same direction. In Sculpture, Nicola Pisano leads the way, followed by his son, Giovanni Pisano, and afterwards by Andrea Pisano; Ghiberti follows with a more pictorial treatment, and then comes Donatello, whose beauty of conception and delicacy of treatment has never been equalled; also Luca delle Robbia, Mino de Fiesole, Sansovino, and others. In painting, Cimabue is the first to rescue Art from the crudity of Byzantine treatment, and of whom Vasari says: "He achieved little less than the resurrection of painting from the dead." Giotto follows on these lines, and then come Botticelli, Masaccio, Perugino, Raphael, Andrea del Sarto, and Michael Angelo, with a host of others almost as well known. Thirdly, the Italians possessed men at this period who could turn their hands to either Art with almost equal facility. Giotto, as Architect, designs the Campanile at Florence, of which Ruskin says, in his "Seven

Lamps" (IV. sec. 43), that "power and beauty occur more of less in different buildings, but together, and in the highest possible degree, they exist in only one building in the world, the Campanile of Giotto at Florence," describing the bright sunny surface of glowing jasper, its spiral shafts and fairy traceries, so faint, so crystalline, that their slight shapes are hardly traced in darkness in the pallor of the Eastern sky; that serene height of mountain, alabaster coloured like a morning cloud, and chased like a sea-shell. And yet Giotto the painter can design such works as those in the lower Church of San Francisco at Assisi. Ghiberti was well-known as an Architect, and yet executes the two pairs of bronze gates to the Baptistery at Florence, which Michael Angelo described as "worthy of the gates of Paradise." Leonardo de Vinci paints the splendid "Cenacolo," or "Last Supper," at Milan, and yet carefully studied Architecture though he did not actually practice, and wrote an elaborate work entitled "Trattato delle Cupole," or a treatise on the

#### CONSTRUCTION OF DOMES AND CUPOLAS.

Raphael builds the Pal. Pandolfine at Florence, and was, on the death of Bramante in 1614, appointed Architect to St. Peter's by Leo X. (Giovanni de Medici), and yet as a painter he was the greatest Artist that ever lived. Lastly comes Michael Angelo, who, as painter, completes the Sistine Chapel, with the beautiful sybils in the spandrels of the windows, which have given the motive for the mosaics lately completed in St. Paul's Cathedral. Also the grand "Last Judgment" in the end wall of this and the private chapel of the Popes. As Sculptor his masterly hand carves out the figures of Lorenzo and Giuliano de Medici at Florence, with their attendant figures of Morn and Eve, and Dawn and Twilight. As Architect he erects the Laurentian Library at Florence, Lorenzo de Medici, with its noble hall and staircase, also the greatest building of Mediæval times, St. Peter's at Rome. Italy is particularly rich in monuments which excel in Sculpture as well as in Architectural details, due to Sculptors being trained in both Arts. The beautiful monuments to Cardinals Basso and Sporza in the Church of S. M. Del Popolo at Rome by Andrea Sansovino (the elder) are typical examples. Or again, that unfinished one to Pope Julius II. now in the Church of S. Pietro in Vinculi, at Rome, by Michael Angelo, which contains the celebrated figure of Moses. This is particularly interesting, as being the origin of the rebuilding of St. Peter's. Pope Julius II. intended to erect a monument to excel all his predecessors, and so commissioned Michael Angelo to design this, and then commenced the rebuilding of St. Peter's to receive it, commissioning Bramante to carry this out on an equally magnificent scale. Had he lived to see the completion of his idea he might have been content with the single epitaph of Sir Christopher Wren, "Si monumentum requiris circumspecti." The fourth reason underlying the success of Italian Renaissance was the power, influence, and munificence of the de Medici. Their palaces were meeting-places for all the most highly cultivated men of the day, both literary and artistic, and they set the example which was followed by the rest of the nobility of encouraging Art to a lavish extent, and greatly aided the development of Architecture, Sculpture, and Painting. The founding of the Laurentian Library at Florence, begun by Cosimo, and completed, together with its splendid building, by Lorenzo de Medici, was of considerable service to literature. The discovery of printing in the latter half of the fifteenth century gave also an immense additional stimulus, but this applies to other countries as well as Italy. Let us now consider more in detail the lines of Renaissance Architecture and the treatment adopted by those who commenced this new style. The three great pioneers were Fillipi Brunelleschi, 1377-1444; Leon Battista Alberti, 1398-1472; and Bramante d'Urbino, 1444-1514. Alberti was thus twenty-one years younger than Brunelleschi, and Bramante was born the year Brunelleschi died. Brunelleschi began Architecture during the early days of

our Gothic Perpendicular, and Bramante died during the last phase of our Tudor period. Brunelleschi adopted a Tuscan or traditional Etruscan style so notable in Florence, as shown, for instance, in the Pal-Pitti. Alberti evolved a Roman and somewhat lighter type of design, and was strongly influenced by systems of proportions. Bramante developed the lines of Alberti considerably, especially in the introduction of Sculpture, and found a richer Italian style. Brunelleschi's typical and best works are the Churches of San Lorenzo and San Spirito at Florence, and the great dome and cupola to the Cathedral. The plans of his Churches are quite different to the preceding basilican ones, such as San Miniato, at Florence, with its semicircular apse and raised chancel with a crypt underneath. S. Spirito is cruciform in shape, with a continuous aisle separated by columns from the nave, the total breadth across the transept being half the total length, or a simple proportion of 1 to 2, and the nave is in breadth one-sixth of the length, the reason being that from the earliest times there was a law, which is clearly repeated by Vitruvius and Alberti, that a Temple dedicated to the Divinity should be laid down according to the proportion of the human body, the breadth of which is one-sixth its length. This proportion of length and breadth is often to be seen in Early Renaissance Churches at S. Andrea and Mantua, by Alberti.

(To be continued).

#### KEYSTONES.

It has been decided to erect a Victoria Institute at Stourbridge, in commemoration of the Queen's reign.

The foundation-stone of the new public baths at Kingston-on-Thames was laid a few days ago by the Chairman of the Baths Committee.

An exhibition of memorials of the Emperor William I. has been opened in Berlin. It comprises 344 items, of which the last alone consists of 419 articles.

It has been decided to erect a goods and passenger station at Castle Bytham, on the Midland and Great Northern Joint Railway from Saxby to Lynn, and the work is to be commenced at once.

The corner-stone of Holy Trinity Day Schools, West Parade, Halifax, which are being considerably enlarged, was formally laid a few days since. It is estimated that the extensions will cost about £1200.

The Pope has presented the King of Serbia with a magnificent mosaic picture representing the exterior of St. Peter's on Easter morning. This fine work of Art has employed no less than 22,000 small pieces of stone and cement in its execution.

A statue of Lord Roberts is shortly to be erected in Calcutta in acknowledgment of his many services on the Indian frontier. The exact spot in which it will be placed will be to the west of the Red Road, a name well-known to Anglo-Indians.

Additions to the North Riding Infirmary, Middlesbrough, have just been completed. They comprise a new operating-room, two special wards, a lift, and a receiving-room, and have been built and furnished at a cost of about £2000, towards which a sum of £1030 5s. has been subscribed.

The trustees of the late Baron Hirsch propose to erect for Russian Jews in the lower part of New York, model houses or suburban homes to cost 1,000,000 dollars. Baroness Hirsch contemplates erecting at New York non-sectarian homes for working girls, similar to those she has established in Belgium and elsewhere.

At a meeting of the Tower and Spire Fund Committee held at the Deanery, Salisbury, the Dean announced that up to the present £11,300 had been subscribed out of the £15,000 required. It was decided that an urgent appeal should be issued to the public forthwith, with a view to raising the remaining £3700 required to complete the restoration of the most graceful Cathedral spire in England.



THE "BUILDERS' JOURNAL"  
PROBLEMS.

## SOLUTION TO No. III.

A post is fixed in each bank, in the line of section, as near the water's edge as possible, and well strutted on the side towards the river. A No. 9 B.W.G. wire is tightly strained between these posts, 2ft. 3in. above water-level. Upstream from these, two stronger posts are fixed, and well strutted all round. These posts are distant from the first ones about twice the length of the boat to be employed—say 24ft.: advantage may preferably be taken of trees, provided they stand near the water and in a line not widely divergent from the wire. Between these posts or trees, a 2in. rope is strained as tightly as possible, about 3ft. above water-level; and a snatch-block is made to travel on it, having attached to it a small tail-block, through which is rove a 24-thread coir ratline to serve as painter, one end of which is made fast to the stem of the boat and the other held by the boatman in the bow. A 12-thread coir ratline, to serve as warp for hauling the boat to and fro across the river, is made fast to the posts or trees carrying the rope, with sufficient slack to allow of its being handled by the man in the bow. To set out the points where soundings are to be taken, a slip of good clean tonguing-stuff, 10ft. long, is suspended by two wire hooks sliding upon the strained wire. A bit of narrow white tape is tied to the wire, plumb over the water's edge; one end of the suspended slip is adjusted plumb under this tape, and a second tape is tied to the wire at the other end of the slip, these tapes being thus 10ft. apart. The slip is then adjusted to the second tape and a third tape tied; and so on. The boat is hauled into position by the warp; and, by hauling or slackening the painter, her stern is kept at a convenient nearness to the wire for the surveyor to adjust the slip and tape-off the 10ft. lengths. These having been set out, the boat is in like manner hauled and adjusted for the soundings, which are taken at each tape with a graduated deal rod, its foot loaded to carry it quickly down through the water.

The following have sent in correct solutions to Problem III.:—\*W. F. Muckle, care of Mr. Warren, Bridge Street, Belper; \*H. F. Clarke, Albert Villa, Alexandra Park, Manchester; \*H. W. Basden-Smith, 6, Hillsborough, Plymouth; \*G. N. Glass, 23, Ossington Street, Bayswater, W.; \*L. Robertson, 50, Clare Road, Penarth; \*J. E. Jefferson, 8, Homesdale Road, Bromley, Kent; \*W. H. C. Kempe, Chantry House, New Shoreham; \*S. B. Birds, 47, High Street, Morley; \*A. H. Ough, 84, St. Paul's Churchyard, London, E.C.

The following are unsatisfactory solutions, whose results might be accepted (though with great hesitation) by the Engineer for whom the survey was made, and then only if no better could possibly be had:—\*A. Dodgeon, 35, Whalley Road, Clayton-le-Moors; J. Wilhamson, Tarvit, Cupar, Fifeshire, Scotland; J. R. Taylor, Overstream House, Victoria Avenue, Chesterton, Cambridge; G. A. White, 27, Spring Road, Portsmouth, Southampton.

Forty-four solutions were received in all, from all parts of the country. Many of the proposed methods contravene the conditions of the Problem, or consist of mere diagrams without explanatory memoranda, or otherwise fail to qualify as attempted solutions. To the first ten names, marked with an asterisk, a copy of Volume IV. of the BUILDERS' JOURNAL will be forwarded.

Mr. WILLIAM HAWE, of the firm of Hawe and Foley, Architects, Beverley, died very suddenly a few days ago.

The Secretary of State for Foreign Affairs has received a dispatch from Her Majesty's Agent and Consul-General at Sofia stating that tenders are invited by the Bulgarian Government for the construction of a railway line from Rustchuk to Tirnovo. Tenders should be addressed to the Minister of Public Works, Ways, and Communications (Construction Section), and must be sent in not later than June 7th next. The conditions, plans, &c., may be obtained from the Bulgarian Ministry of Public Works, on payment of 20fr.

## CANTERBURY CATHEDRAL.

ABOUT three-fourths of the sum mentioned by Dean Farrar in his 13th Centenary Celebration Fund Appeal has now been subscribed, and excellent progress is being made with the work of restoration, which, it is hoped, will be almost complete in the portions at present under treatment by next July. The careful system of treatment to which the crypt has been subjected has revealed frescoes and paintings on the vaulting which had been hidden for a very long time. Not only have the French texts inscribed by the Huguenots in the early days of their worship in the crypt been left untouched, but the text over the bay facing the Black Prince's Chantry (at present used by the descendants of the Huguenot refugees) remains as an evidence of their recent occupation of the south aisle. At places there were remains of as many as 20 coats of whitewash on the vaulting and stonework, but the whole of these have been removed. For centuries past the crypt has been open to wind and rain, but the whole of the window openings have now been glazed, gas illumination introduced, and a warm dry condition of things has succeeded the former damp, cold, and dreary state. The lowering of the floor to its original level, and the covering of the entire area with concrete, has proved an immense improvement to this interesting sub-structure, bringing into view the bases of the columns and restoring the original beautiful proportions. In compliance with antiquarian desires, the brickwork filling the arches leading to the apse of the chapel of St. Gabriel is to remain for the present at least. It has probably been there since about the year 1400, and obstructs the view of some very fine and probably some of the earliest Norman frescoes in the world. A most interesting discovery, made in the course of the excavation of the floor of the crypt, is that of a stone coffin of the date of the twelfth century, almost precisely similar to that of Stephen Langton in the Warriors' Chapel. The preservation of the cloisters has also been taken in hand. The zinc roofing was found, on examination, to be leaky everywhere, the supporting timbers, too, had moulded into touchwood in many places, and the vaulting was defective. The timbers, &c., have now been made good, and an entirely new lead roof constructed. Work in the Chapter House is also well in hand. The structural safety of the roof and ceiling has been secured, and the latter is now being redecorated in its original handsome design. The windows on the south side have been opened out and glazed, and that at the west end reglazed, and that at the east end is to be occupied by the stained glass to be presented by the Freemasons of Kent. The masonry is also receiving careful attention, Purbeck marble (the stone originally used) being largely employed to replace that which is defective. The carved work at the east end is found to be in very fair condition, but there is considerable redecoration to be carried out. The bells of the Cathedral are now to receive attention, and the Dean and Chapter are very anxious to accomplish the restoration of Bell Harry Tower. This is perfectly sound structurally, but the surface and the decorative tracery were some years ago reported upon as needing attention. This view is now emphasised by Sir Arthur Blomfield. The magnitude of this part of the restoration may be gathered from the fact that the erection of scaffolding would alone cost about £1000, and it must depend largely upon the continued inflow of subscriptions to the restoration fund whether this work is possible. That it is necessary is shown by the occasional fall of pieces of masonry on to the roof of the Cathedral, and by such inspection of the structure as is at present possible.

ADMIRAL SIR GEORGE NARES, on behalf of the Board of Trade, has held an inquiry at Llandudno into the application of the Victoria Pier Company for a provisional order to construct a pier, pavilion, and other erections in Llandudno Bay, opposite the property of the Victoria Palace Company.

## Professional Items.

ABERDEEN.—The Town Council has approved of the plans of the following buildings:—Alterations in connection with No. 393, Union Street, for Messrs. G. and W. Morgan, per Messrs. McRobbie and Milne, builders. Two dwelling-houses on the south side of Beechgrove Terrace, for Mr. George Coutts, Architect. Additions and alterations in connection with Nos. 2 and 4, Blackfriars Street, for Mr. Peter Stewart. Laundry in connection with the Royal Lunatic Asylum, for Messrs. Smith and Kelly, Architects. Alterations in connection with Walker's Court, Gallowgate, for Messrs. Hunter and Walker. Alterations at No. 14, Springbank Terrace, for Miss Catherine G. Paul, Prince Arthur Street, per Mr. James Symon. Addition to Whitehall Laundry, for Mrs. Humphrey, per Messrs. W. Henderson and Son, Architects. Rope manufactory, off Merkland Road East, for Messrs. John Taylor and Company, per Mr. H. Mennie, Architect. Wash-house at the rear of the Salvation Army Citadel, Castle Street, per Mr. James Souttar, Architect. Cottage on the west side of Holburn Street, for Mr. William McPherson, 134, George Street, per Messrs. Brown and Watt, Architects. Dwelling-house on the south side of Beechgrove Terrace, for Mr. James Kennedy, draper, per Messrs. Brown and Watt, Architects. Dwelling-house on the east side of Leslie Terrace, for Mr. William Sinclair, draper, per Mr. James A. Souttar, Architect.

ALDEBURGH.—Wentworth Castle, which has now been opened as an hotel, has a frontage of 300ft., and faces the sea. The building is in the Jacobean style throughout, carried out in white brick with Bath stone dressings. There are four principal bays, with projecting billiard-room at the south end and coffee-room at the north. The centre of the building is devoted to an entrance hall and hall lounge, the latter being divided from the hall by glazed screens and doors, and to which there are entrances both from the sea-front and the rear. This is a striking feature in the construction of the hotel. The ground floor, which is laid with wood blocks, contains spacious drawing, coffee, breakfast, reading, and writing-rooms, public and private smoking-rooms, and sitting-rooms. The first floor comprises complete suites of bedrooms and bed-sitting-rooms, with which is connected in a central position an Oriental lounge, and on the landings are cosy corners and seats. The second floor contains bed, bed-sitting, and double-bedded rooms. Well-lighted corridors lead to the various portions of the building. Bath-rooms and lavatories are on each floor, and particular attention has been paid to the sanitary arrangements, which are of the most approved system. The interior fittings and decorative work are tasteful. The Architect is Mr. T. E. Key, Bloomsbury Square, London, and the builder Mr. Geo. Knowles, Aldeburgh.

BATH.—The Marquis of Bath has laid the foundation-stone of the new Weymouth House Schools. The Architect is Mr. C. B. Oliver, and he has provided in the new schools for an increased accommodation of fifty, there being in all accommodation for 700 children. One donor has already promised to bear the expense of furnishing the girls' department, and the cost of fitting up the remainder is put at £500.

BELFAST.—It is expected that the new buildings of the Young Men's Christian Association will be completed in time for the opening ceremony to-day. The site, which is entirely occupied by the new block of buildings, extends along Wellington Place a distance of 86ft., and more than 230ft. from front to rear in Wellington Street. As the materials were necessarily limited to Belfast perforated brick, with Annadale brick facing and a sparing use of Dumfries sandstone for dressing, it was decided to adopt a simple treatment of Gothic. Messrs. Musgrave and Co., Limited, have erected the heating apparatus and the special



iron roofs and gates. The extensive plumbing and gasfitting contract has been carried out by Mr. John Dowling. Messrs. W. T. Coates and Son have done the electric lighting work, under the direction of Mr. J. H. Greenhill as consulting engineer. Messrs. Ebron and Co., London, have laid the marble mosaic flooring. The marble of porch has been executed by Messrs. Purdy and Millard. Messrs. Robert Patterson and Sons have supplied the locks and fastenings; Messrs. Riddle and Co. and Messrs. Reed and Kyle the grates and chimneypieces. The organ is being built by Messrs. Binns, of Leeds. The general contractors for the works were Messrs. W. McCammond and Son, who have executed their contract from the plans and under the superintendence of the Architects, Messrs. Young and Mackenzie.

The Belfast Corporation has accepted the plans for the proposed City Hall of Messrs. E. Thomas and Son, Westminster, whose estimate was £150,000. There were three plans approved of by the assessors, viz., those of the following firms; Messrs. E. Thomas and Son; Messrs. Malcolm Stark and Rountree, of Glasgow; and James Miller, of Glasgow. The assessors thought it right to go over the plans themselves, and take the measurements, and give their ideas as to the cost. The site of the new building will be on the quadrangle previously occupied by the old Linen Hall, and on the site facing Donegal Place.

BIRMINGHAM.—Respecting the project of a new County Court for Birmingham, the Department of Works is in quest of a suitable site for a new building, the erection of which has been deemed preferable to an arrangement for the provision of extra accommodation in connection with buildings proposed to be placed between the present County Court and the new factory in Corporation Street. The old Post Office might have been utilised but for difficulties as to the right of light of an adjoining property. It is not unlikely that the Improvement Committee may be able to offer a suitable site in the neighbourhood of Steelhouse Lane. A suggestion, we believe, has been made that the present County Court might be rebuilt in more attractive style, and to a greater height, and if a convenient site should not be found elsewhere, this solution would be a welcome one, especially if the Official promise of something better in the way of Architecture were duly redeemed.

The Public Works Committee of the Birmingham Corporation has decided to recommend the Council to accept the offer of Lord Calthorpe with reference to the widening of Edgbaston Road, the continuation of Lower Edwardes Street, and the improvement of the River Rea, and that the Public Works Committee should be authorised to carry out their share of the undertaking. The Baths and Parks Committee has already decided to recommend the adoption of that portion of the scheme connected with the provision of a Rotten Row. The scheme involves the giving up of a considerable portion of land by Lord Calthorpe, and an outlay upon the part of the two committees of nearly £17,000.

BURY.—The recently-erected steam laundry was opened at Bury on the 11th inst. It is a one-storied building, covering an area of about 4800ft., with a frontage of 42ft., towards Northgate Avenue, on high ground. The shaft is 50ft. high. The interior of the structure comprises entrance lobby, flanked on the left by the receiving-room, leading into the wash-house, 19ft. by 37ft., where are two large washing machines of the rotary type, made entirely of metal, with brass cylinders. The office is situated so that the manageress can supervise the departments. The machinery is driven by a powerful engine. The building will also include stabling, van-house, fodder, coal and hamper stores. The site comprises 2½ acres. Mr. H. Plummer, of Rattlesden, is the builder.

CELLARDYKE.—The Public School of Cellardyke has just been opened. The school formerly consisted of one story, but a second story has

been added, and the ground floor considerably enlarged at both ends. The school has accommodation for 600 pupils, and will contain a mixed and infant department. The cost has been upwards of £2500. Messrs. Dewar, Leven, were the Architects, and the contractors were: Mason, J. Lawrie; joiner, J. Forester; plumber, T. A. Dalzell; plasterer, R. Williamson.

CHELMSFORD.—A striking improvement is about to be carried out at Chelmsford. Mr. Chas. Pertwee has prepared plans for a new front for the upper portion of premises in Tindal Square. The present elevation, which, with its four old-fashioned oblong windows, is an extremely plain one, will be replaced by a new front of red brick, with eight ornamental windows and stone dressings. The work is to be carried out by Mr. F. Johnson, builder.

DUNDEE.—The latest suggestion regarding the statue of Her Majesty in Dundee, is to erect the statue immediately outside the gates of the High School, the back of the pedestal being against the line of the railings. With the consent of the High School Directors, the existing gates would be done away with, and the railing made continuous at this point, but an entrance would be provided on each side of the statue, and at a distance of a few yards round the curve. A more important alteration is proposed—namely, to remove the existing entrance at the east end of the building, and replace it with a carriage entrance in a line with Panmure Street, while a similar entrance would be provided opposite Euclid Street.

Building operations at the new Post Office in Dundee are proceeding uninterruptedly, and every week sees an appreciable difference in the aspect of the exterior. The third and last story is now approaching completion, so that by this time a very fair idea can be formed of the appearance which will be presented by the finished structure. The Architecture of the third flat is more ornate than that of either the first or second stories, with which, however, it is at the same time in perfect harmony. It is anticipated that the mason work will be completed early in the summer, and that the work of roofing the building will be begun in the course of a few weeks. The sculptors are busy on the carved panels of the Constitution Road front.

GOVAN.—Twenty-two designs for the new burgh hall and municipal buildings have been received by the Commissioners, and are now under consideration. The plans are displayed on stands in Robert Street Hall, the entire floor of which is taken up by them. The designs are extremely varied. Mr. George Washington Browne, Architect, Edinburgh, has been engaged by the Commissioners to examine the plans and select that which combines in the highest degree beauty and economy.

HALIFAX.—At Lee Mount, Ovenden, a Liberal Club is in course of erection. Memorial-stones have recently been laid. Mr. M. Hall, of Halifax, Architect, has prepared the plans of the new premises, which are to comprise a billiard-room for three tables, news-room, committee-rooms, and an assembly room, the assembly room to afford accommodation for four hundred persons. The estimated cost is £1600, and to this is to be added about £400, which will be necessary to meet the expenses of furnishing, making a total of £2000.

HAMPSTEAD, N.W.—The Chairman of the Public Libraries Committee of the Hampstead Vestry opened a new free public library and reading-room at Antrim Street, Haverstock Hill, Hampstead, on the 10th inst. The central library, which is being built at a cost of £5000, presented for the purpose by Mr. Henry Harben, is rapidly approaching completion, and branch libraries have been established in the Town and Kilburn Wards. The new branch library has been built at a cost of £2500, exclusive of the site, which was sold to the Vestry by the Ecclesiastical Commissioners for £250 less than its market value. Mr. C. H.

Lowe, the surveyor to the Vestry, designed the building, which is well adapted for its purpose.

HARPENDEN.—The Rector and Churchwardens have had under their serious consideration the necessity for a larger vestry at the Parish Church. The proposed vestry will give entrance to the Church to the east of the north transept. The scheme is intended to include two other objects: providing a stall for the clergy on the north side of the chancel, the present steps to the pulpit being diverted, and the alterations of the seats to the south of the choir, so that they may be used for the accommodation of adults when room for them is required, which is very much needed at Sunday evensong and on special occasions. Mr. J. R. Brown is the Architect.

HARROGATE.—The new Western Board School, situate in Cold Bath Road, Harrogate, has been opened by Mr. Amos Chippindale (vice-chairman of the School Board). The style chosen for the new school is Renaissance, freely treated. The school is certified for 305 infants and 620 mixed scholars, and is arranged on the now generally adopted central hall plan. Abutting on the west side of the playground boundary wall, and immediately between the girls' and boys' covered play-shed, a two-story building is erected, the ground floor of which will be used for instruction in cookery, whilst the upper floor (approached by an external stone staircase) will be used for boys' manual instruction and joinery class. The heating has been carried out on the low pressure hot-water system by Messrs. Alf. Dougill and Co., engineers, Leeds. The sanitary fittings have all been supplied by Messrs. Adams and Co., of York and Leeds, and are of the latest, best, and most efficient character. The following are the names of the contractors for the various branches of the work:—Excavator, mason, and bricklayer, Mr. C. Dawson, Harrogate; carpenter and joiner, Messrs. Raworth and Allen, Harrogate; slater, Mr. J. Shepherd, Harrogate; plasterer, Ald. C. Fortune, Harrogate; plumber and glazier, Messrs. J. Suttle and Son, Otley; painter, Mr. E. Draper, Harrogate; ornamental railings, gates, and general ironwork, Messrs. Rushworth Bros., Harrogate; concrete and playgrounds, Mr. J. Cooke, Huddersfield; wood-block floors, the Wood Block Flooring Company, Limited, London. Mr. E. F. Prentice has acted as Clerk of Works. The school has been built from designs by Mr. T. E. Marshall, Architect, Princes Street, Harrogate, under whose superintendence the whole of the work has been carried out.

KIRKBY-LONSDALE.—A stained glass window is to be erected in a village Church near Kirkby-Lonsdale, and is now being executed by Messrs. Wailes and Strang. The design of the window is a full emblazonment of the Royal Arms, with all heraldic accessions and appointments. In the centre is the shield with the quarterings of the United Kingdom, flanked on either side by its supporters, and surmounted by the helmet with closed vizor and crest. The mottoes—"Honi soit qui mal y pense," and "Dieu et mon Droit," are rendered on flowing scrolls. In two panels of tracery are represented medallions; one bearing the initials of Victoria Regina, with the crown of accession and the date 1837, and the other Victoria Regina et Imperatrix, with the Imperial crown and the date 1897. A border composed of roses, thistles, and shamrocks incloses the entire window.

LEICESTER.—A conference between representatives of the Leicester Bricklayers' and Plasterers' Societies was held on the 9th inst. to discuss the question which has led to the withdrawal of plasterers from a number of building works in the town, viz., whether *in situ* and screeding for wood-block and tile floors is bricklayers' or plasterers' work. Ultimately a basis of settlement was agreed upon, which it is hoped may lead to a permanent settlement of the whole question. It was decided that these terms should be submitted for the approval of the respective societies



concerned early next week, pending which it was considered inadvisable to make the details public.

**MIDDLESBROUGH.**—The Sanitary Committee had recently before them the question of increasing the accommodation at the public baths. The different sets of plans for additional slipper baths were inspected. The baths manager (Mr. Snow) thought the provision of four new slipper baths, which could be provided at a cost of £260, would meet the present requirements, but several of the members took a different view, and ultimately Mr. Frank Baker's plan for twenty baths, with a Russian bath at one end and having wood and glazed partitions (estimated cost £2500), was adopted.

**MONTROSE.**—For several months it has been proposed to improve the altar in St. Margaret's Catholic Church by the erection of a reredos, and the work was intrusted to Mr. Fairweather, George Street. The reredos is of Gothic design, made in richly-figured oak, and carved, and stands 13ft. 6in. high from the altar table, which latter is extended on both sides to suit the proportions. The tabernacle in the centre, with a richly enamelled brass door, is crowned by a throne, which again is surmounted by a beautifully carved spire. In front of the reredos are four panels, in each of which there will be a statue representing St. George, St. Andrew, St. Patrick, and St. David of Wales—the four national patron saints.

**NOTTINGHAM.**—The foundation-stones of the Nottingham and County Constitutional Club, which is to be erected upon a central site in Market Street, have been laid. Owing to the nature of the site numerous difficulties in relation to the preparation of the plans have been experienced. The frontage to Market Street will not afford any idea of the extent of the premises, the depth of the site from Market Street to Rigley's Yard being about 112ft. The principal entrance will be in Market Street, and will lead to a large central hall, from which will be entered a smoking-room and billiard-room for three tables. From the hall, by means of a stone staircase, will be entered a large dining-room. A private dining-room, committee-room, card-rooms, reading-room, with writing-room adjoining, are also to be provided on the first floor. The second floor will contain bedrooms for members, bath, stewards' rooms, the necessary culinary departments, and other offices. Facing Rigley's Yard, and on the ground floor, will be placed a large assembly hall, to accommodate from 350 to 400 people, with the necessary retiring rooms. The Market Street front is to be entirely of stone, and the style of Architecture adopted is Renaissance. The principal feature will be the large gable and the circular oriel window and balconies of the large dining-room. The Architect is Mr. A. R. Calvert, 18, Low Pavement, Nottingham, who obtained the work in competition.

**ST. HELENS.**—The Gas and Lighting Committee of the St. Helens Corporation has under consideration a proposed extension of the gas works, and has decided, in order to extend the retort house, to pull down seven cottage houses on the south side of Warrington New Road. The tender of Messrs. Bryan, Donkin, and Co. for exhausters and engine has been accepted; as also those of Messrs. E. and J. Dempster for the condenser, and Messrs. Ashmore, Benson, Pease, and Co. for the repair of two gasholders. In respect to these tenders, it has been decided to apply to the Local Government Board for sanction to borrow £4500, and a further sum for the proposed extensions to the retort house.

**TONG.**—A meeting of the School Board was recently held, and a letter was read from the Education Department approving of the plans for the proposed new school at Highfield. Plans for this building have been passing to and fro between the Board and the Education Department for over two years, and the plans now approved are practically as sent up at first. The accommodation is for 396 scholars. Messrs. W. and J. B. Bailey, of Bradford and Keighley, are the Architects.

**TOTNES.**—Though not the largest, the bells of Totnes Church are the oldest peal in the county of Devon, and probably one of the sweetest. Cast and hung in the old tower so long ago as 1732, they have for more than a century and a half regularly performed their mission. The Church itself, during that period, has passed through some vicissitudes. Thirty years ago it had fallen into a sad state of decay and semi-ruin, and enjoyed the unenviable distinction of being in a worse condition than any other church in the county. By degrees the entire fabric from roof to base has been restored, no less than £15,000 having been expended in making the edifice what it is to-day, one of the most interesting ecclesiastical buildings in Devon in perfect preservation and order. But in restoring the structure the bells were overlooked, and last autumn it was discovered that the timber which supported them in the tower was decayed, rendering it unsafe to ring them. It was at once determined to rehang them, and the work has been carried out by Messrs. John Warner and Sons, of Cripplegate, London, under the supervision of Mr. G. Dunn.

**WITLEIGH.**—Mr. W. E. Williams has been instructed to prepare plans for a vestry at St. Catherine's Church, Witleigh, in commemoration of her Majesty's Diamond Jubilee.

**WORCESTER.**—At the last meeting of the City Council Mr. George Caink, assistant-engineer, resigned his position. The Electricity Committee recommended that additional plant for the Powick Generating Station be purchased and laid down, at a cost of £8800. It was stated that the plant was being worked up to a point dangerously near to its maximum capacity, and it was a matter of necessity to provide extended plant for the largely increasing demand for light and current. During the twenty-seven months there had been no loss, except in respect of the amount paid for redemption of loans. The motion was carried, and the Brighton system of charging for light and current was adopted instead of the present system.

LAST year £3360 was spent upon Leeds Town Hall. The estimate for the next twelve months is £4200.

**MEMORIAL-STONES** of a new Liberal Club which is being erected at Crawshawbooth at a cost of £1800 were laid on the 3rd inst.

THE Lord Chancellor has opened the new County Court offices which have been erected in St. Peter's Churchyard, Dover, at a cost of £12,000.

New Wesleyan Schools, which have been erected at the rear of the Wordsworth Street Church, Penrith, at a cost of about £1500, have just been opened.

It was announced recently that the Midland Railway Company is about to spend half a million of money—plus the very large cost of the land—in the erection of a great railway hotel adjoining the Central Station, Manchester.

Two pictures, a supposed Murillo and a Van der Neer, have been stolen from their frames in the National Picture Gallery, Budapest. The Murillo represents St. Joseph and the Boy Jesus; the Dutch picture a burning city situated on a river, ships, and a windmill.

THE Committee of the Colonial and Continental Church Society has purchased a site for an English Church at Lucerne. The Church will be built on the north side of the Haldenstrasse, and is intended to seat 450 worshippers. The cost of the site and the building will be about £7000, which sum must be raised by special contributions.

THE Barrow Corporation proposes to spend £20,000 on new technical schools, public baths, and a recreation ground. The Mayor convened a public meeting, at which it was shown that the scheme finding greatest favour was a bridge to Walney Island. The Mayor pointed out that this could not cost less than £50,000, and, although there were difficulties with regard to it with the Admiralty, the Furness Railway Company, and the town of Millom, the Council had appointed a committee to look into the question.

## Trade and Craft.

### BUILDING TRESPASS IN CHEAPSIDE.

Mr. Justice North has delivered his decision in the case of *The Aerated Bread Company v. Shepherd*. This action was brought by the plaintiffs, the lessees of 51, Cheapside, against the defendant, the owner of 52, Cheapside, for alleged trespass in the rebuilding of his premises. The wall between the premises was a party-wall, but the judge upheld the contention of the plaintiffs that there was no common ownership, but that it was the entire property of the plaintiffs. The defendant was also held to have not complied with the provisions of the London Building Act, by placing his chimney flues against the plaintiffs' party-wall. His lordship said that he did not consider it necessary to grant a mandatory injunction, but awarded the plaintiffs the general costs of the action. Order made accordingly.

### OVERHEAD TRACTION FOR TRAMWAYS.

The Halifax Tramways Committee has decided to recommend the adoption of electric overhead traction for the Halifax tramways, and that before considering the details of the system the Committee or a deputation visit Walsall, Coventry, and Bristol. The Committee further recommends that the Gas Committee be asked to consider the desirability of removing the lamp-posts on the tram routes and lighting the streets by electricity from the tram-posts.

### DOUGLAS HARBOUR.

A committee of the Manx Legislature sat at Douglas last week for the purpose of taking evidence regarding the tranquillising of Douglas Harbour, which under present conditions is in an unsatisfactory state. Mr. James Walker, engineer to the Isle of Man Harbour Commissioners, submitted a plan showing a proposed extension of the red pier, which extension, he believed, would almost completely shelter the inner harbour. A number of masters of vessels and harbour officials gave evidence in favour of the lengthening of the red pier, and condemned the suggested lengthening of the battery pier.

### MECHANICAL TRAMWAYS.

Highgate Hill, which was the home of the first mechanical tramway in this country, is once more to enjoy the advantages as well as the disadvantages of this method of locomotion. The original line, laid down several years ago, was not a pronounced success, which was due, perhaps, to the system of construction. Profiting by the experience gained in South London, the company has introduced improved appliances. The cars will now be propelled by a continuous steel cable and "dummies" fitted with powerful automatic brakes; and this arrangement is expected to work as satisfactorily as that in operation on the Brixton and Streatham line. Colonel Marindin, one of the inspectors of the Board of Trade, having examined the Highgate Hill cable tramway and the whole of the machinery and vehicles, has granted a provisional sanction for the line to be opened for three months.

### ELECTRIC LIGHTING IN MANCHESTER.

Some remarkable statements were made at a recent meeting of the City Council showing the rapid growth of electrical lighting in Manchester. Plant was put down in the first instance to last, as was thought, for three years. In five months the plant was increased sufficiently to last, as was expected, twelve years, but it only sufficed for seven years. Alderman Higginbottom, chairman of the Electric Lighting Sub-committee, said: "Beginning with a capital of £120,000, they had increased it to £300,000, and that would be gone this year, and in another six months they would have to come to the Council for another quarter of a million for new plant." They began with 8000 sixteen candle lamps three years ago. Now there are over 70,000. It appears to be profitable to the city, for in



the first year expenses were covered, and in the second a handsome profit was made. Last year £11,000 of the profits were given in aid of the rates, and the cost to consumers was reduced 25 per cent., while this year it is said the cost will be reduced by another 25 per cent., and a larger sum given to the city in reduction of rates; and in a few years, Alderman Higginbottom added, "the new light will be within the reach of every man." So much has the undertaking increased that a new committee has now been formed—the Electricity Committee—"to deal with all matters arising under the Electric Lighting Acts 1882 and 1888." In spite, however, of the extension of electric lighting, the consumption of gas steadily increases, and the Gas Committee will still have enough on their hands to occupy their best energies. The use of gas for cooking and in various ways for heating purposes, as well as for gas-engines, is every day becoming greater, and will do something to lessen the canopy of smoke which too often broods over Manchester.

#### RAILWAY EXTENSIONS IN MANCHESTER.

Two or three railway developments of great magnitude are now being carried out at Manchester. Foremost is the Central Station extension. That already huge station is the joint property of the Midland, Great Northern, Great Central, and the Cheshire Line, Railway Companies; and not only is the large space now fronting the station to be absorbed, but the Midland Company is constructing a large hotel, which will cost, plus the purchase of very valuable land, half a million sterling. Moreover, the Great Northern Railway Company—which has hitherto shared the merchandise depot attached to the Central Station—is building its own goods station, which will join up to and be connected with the lines of the Central. When complete, Manchester's Central Station and hotel will cover about a quarter of a mile square, and will be one of the largest railway depôts in the world.

#### SINGULAR RIGHT OF WAY CASE.

At the Surveyors' Institution, the arbitration case of The South Mimms Rural District Council v. Marsden came on for hearing on Tuesday, the 13th inst., before Mr. A. Savill, sitting as sole arbitrator. The case was a singular one. The claim was for £5608, made by Mr. B. Marsden, a dairy farmer, of South Mimms, near Barnet, against the District Council, in respect of a right of way through the former's estate. For some time past the Council has been considering the establishment of a sewage farm for the district. Recently it gave notice to Mr. Marsden that it would require a portion of his estate for the purpose of making the necessary roadway and ground farm. At that time a public right of way ran through a part of the estate, but the Council decided not to use this, but to open up another road which would run through Mr. Marsden's homestead. This, it was held by the claimant, would considerably damage the best part of the estate, and further would affect his business as a dairy farmer by reason of the fact that large quantities of sewage matter would be carried through the estate, and past the farm where the dairy business was carried on. In respect of the damage which would be sustained by the Council acquiring the right of way, a sum of £5000 was claimed, this sum not to include the cost of purchase of twenty-five acres needed by the Council for their sewage farm. Mr. R. Oakley and Mr. Driver, in support of the claim, estimated the amount of compensation at £5608. Mr. Freeman, on behalf of the Council, having asked for a more moderate award than the amount claimed, the case was subsequently closed, and the arbitrator reserved his award.

#### WEST HAM CORPORATION TENDERS.

Mr. Ernest Baggallay, who recently held a public inquiry into certain allegations with regard to the acceptance by the West Ham Corporation of tenders for the installation of electric lighting in West Ham, has made his report, which has been presented to the borough

council. The first charge was that a Mr. Paris called on the Electric Construction Company and offered to obtain the services of a member of the West Ham Council in getting the contract, for which the councillor would have to be paid, and Mr. Baggallay reported that there was nothing to show that Mr. Paris was acting otherwise than on his own responsibility, and that therefore the nature and object of his call on the company had no importance. The second charge was that Mr. Councillor S. T. Hunns, a member of the sub-committee for the consideration of the tenders, himself made corrupt overtures to the Electric Construction Company, and Mr. Baggallay, in relation to this, said it was not surprising that the Electric Construction Company should have looked upon this visit with suspicion, but the evidence went no further, and he did not find that any corrupt conduct was proved against Mr. Hunns. The last allegation Mr. Baggallay described as the most important. It was that the West Ham Corporation had been corruptly influenced to accept tenders which were not the most advantageous to the borough. The eight tenders accepted amounted to £23,467, and if the lowest tender in each section had been accepted, the total cost would have been £15,704. This difference of £7763 required some explanation, and Mr. Steinitz, the electrical engineer of the Corporation, upon whose advice and recommendation the sub-committee implicitly relied, was examined upon the tenders at considerable length. His answers satisfied Mr. Baggallay that he had acted throughout with perfect honesty, and that there was no reason whatever for supposing that he had been influenced by any corrupt or improper motive.

#### ST. MARTIN'S CHURCH STEPS.

The steps of St. Martin's Church are not to be removed. The vestry of St. Martin's-in-the-Fields had the hardihood to propose that one of the flights of steps leading up to the Church should be done away with. Anyone passing the Church will have noticed that there are two flights of steps with a terrace or landing between. The idea was to make one continuous flight of steps, and so widen the pathway by more than 5ft. But this raised a keen controversy amongst Architects. Several Architectural Societies threatened strenuous opposition, so that when the vestry came to the County Council for a grant to carry out the improvement the Improvements Committee recommended that the Council refuse. Generally public bodies are supposed to be ruthless destroyers of the ancient and picturesque, but now they are more jealous guardians of "historic sites" and Architectural features than even a vicar and his churchwardens. It is an interesting Architectural question whether, if the steps were removed back within the great pillars, the effect of the Church front would be spoiled.

#### LEAKY RAILWAY BRIDGES.

At a recent meeting of the Public Works Committee of Cardiff Corporation, Councillor F. J. Beavan presiding, Councillor Mildon made strong complaint about the leaky condition of the Great Western Railway Bridge over Penarth Road, the Rhymney Railway Bridge at Lowther Road, and other railway bridges in the town, stating that dirty water came through in large quantities in some places, and soiled the dresses of street passers. The Borough Engineer said he had already called the attention of the Great Western authorities to the Penarth Road Bridge, and the meeting instructed him to write again to those people and also to other railway companies, calling upon them to put their bridges over streets in the borough into proper repair.

#### NEW AMERICAN RAILWAY.

An electric railway sixty miles in length, to be operated by alternating current, is projected to connect the cities of Detroit and Port Huron, Michigan. The line will be single track, with "turn-outs," following the western bank of the St. Clair and Detroit Rivers and the shore of

Lake St. Clair. It will carry both freight and passengers. Two-car trains will be run, consisting of a 33½-ton motor car and a 15-ton trailing-car. There is to be but one generating plant on the line, about twenty miles from Detroit at a point which will be about the centre of load distribution. Three-phase current will be generated at this station, which will be converted by rotary transformers placed at four sub-stations along the line, from which direct current will be delivered into the feeder circuits.

#### PLYMOUTH AND DISTRICT BUILDING TRADES.

Some months ago attention was called to the fact that the master builders of the district had been served with notices from the Plasterers' Society, as well as other trade organisations, to the effect that on and after May 1st certain increased rates of pay would be demanded. At the time, six months' notice was given, and this expires at the end of the present month. Little attention was paid to the matter at the outset, but finally the Master Builders' Association met, and agreed to meet a deputation from the men of the various trades. These meetings took place, and we understand the masters were prepared to meet the men on certain points, but could not see their way clear to agree to the whole of the demands. The men decided to accept nothing less than what they had applied for, and so matters remain as far as the workmen are concerned.

#### A BUILDER'S APPEAL.

In the Court of Appeal, before the Master of the Rolls and Lords Justices Lopes and Chitty, the appeal of the plaintiff in the case Smith the younger v. the Rural District Council of Chorley recently came on for hearing from the verdict and judgment of Mr. Justice Kennedy and a special jury at the Manchester Assizes. The plaintiff, who is a builder at Chorley, sought for a *mandamus* to compel the defendant Council to pass the plans of a house in Back Lane, Chorley, which the Council declined to do on the ground that if the house was built it would make the street 24ft. wide instead of 36ft. 6in., which was the minimum width allowed by the bye-laws. The plaintiff's contention was that Back Lane was not a new street, and the jury were of this opinion, but his Lordship said that the point he had to decide was whether a writ of *mandamus* was the proper remedy, and, after carefully considering the arguments and the numerous authorities referred to, he came to the conclusion that the defendants' contention was well founded, and that the action for a *mandamus* could not be maintained. The plaintiff now appealed on this point of law. At the conclusion of the argument their Lordships dismissed the appeal, refusing to interfere with the discretion the Council had exercised in the matter.

#### DEFECTIVE MORTAR.

At the Birkenhead Police Court, a builder, named Walter Roberts, residing at Waterloo, was summoned, at the instance of the Corporation, for using in the erection of houses, in Hinderton Road, mortar by which the bricks in the walls of such buildings were not properly bonded together, and which was not good mortar compounded of good lime, as required by the bye-laws. It was stated that, when the Surveyor inspected the buildings, he detected a strong, nauseous, and sickening odour which emanated from the mortar being used in the building operations, and he instructed the building inspector to make an investigation. The inspector found that the mortar used was being ground away from the building at an old quarry, and that spent gas lime was employed in its manufacture, no other lime being used in it.—Mr. Charles Brownridge, borough engineer and surveyor, said he had seen a sample of the mortar used in the construction of the buildings, and also had a sample of the gas lime. The mortar seemed to be composed of spent gas lime and red sandstone. He did not regard this as proper lime for the purpose of making mortar; it was a waste residual, and, having done



its work as a purifying agent, he thought it was entitled to a rest, at any rate for building purposes. It was obtainable free, and was not such a lime, he thought, as came under the definition of suitable material as required by the bye-laws. He thought the use of mortar made from such material would tend to make insanitary and unhealthy dwellings, and he would therefore not accept the responsibility for the use of this material. He considered it undesirable, bad, and not the material specified in the bye-laws.—In cross-examination, witness said he had never heard of a prosecution for the use of gas lime, but he had never heard of spent gas lime being used for such a purpose. The lime might be worth 3s. a ton as a manure. He had heard that the Gas Department had used gas lime for building purposes, but their premises were exempt from the Corporation bye-laws.—Mr. Collingwood Hope: So that they could put up what rubbish they liked?—Mr. Brownridge: I am sorry to say they could.—For the defence, Mr. Collingwood Hope submitted there had been no contravention of the bye-laws. This mortar had been manufactured from gas lime for some years past, and, as the bench had heard, the Corporation itself had used mortar made from gas lime in one of its departments. Surely there should not be one law for the Corporation, and another for the builders.—Mr. Peter Wynne, builder, was called, and stated that he had been using mortar made from gas lime for the past eighteen months, and had never been prosecuted for using it. In his opinion, it was a very good mortar.—Mr. Bancroft, builder, said he had used this mortar, and it was a good mortar.—Several other builders gave evidence to the same effect, but the bench found the charge proved, and imposed a fine of 20s. and costs.

### KEYSTONES.

MR. JOHN BRIGG, M.P., and the members of his family have promised 1000 guineas towards the cost of enlarging and endowing the Keighley and District Hospital.

THE memorial-stone of the new senior public school for West Calder has been laid. The school is estimated to cost about £5000, and will accommodate 460 scholars, and have a hall for secondary education.

THE Boston Harbour Commissioners have accepted the tender of Messrs. Spagnoletti and Crookes, of London, to erect an electric light installation at Boston Dock, at a cost of £1682. The estimate of Mr. A. Collins, the consulting engineer, was for £1267.

At the Painters' Hall, Little Trinity Lane, which was rebuilt after the Great Fire in 1666 by the mortgaging of the plate of the guild, Sir Edward J. Poynter (the President of the Royal Academy) was recently presented with the honorary freedom of the Painter-Stainers' Company.

THE amount required, under the head of public buildings in Great Britain, in the estimate to meet the cost of the enlargement of the melting-house at the Royal Mint is £1100. The enlargement is necessary in order that the Mint may satisfy the increased demands for coinage.

A COMMITTEE of the House of Commons has passed the Bill promoted by the London County Council authorising the construction of a subway under the Thames, commencing in Greenwich, near Brewhouse Lane, and terminating at Millwall, near the western boundary of the Island Gardens, Poplar. The time granted for the construction of this work is seven years.

At the St. Clement Danes Vestry Hall a meeting was held in furtherance of the project for the erection of a parish house. The Rector detailed the history of the parish and the progress of affairs which have necessitated the building of a parish house. He said that Mr. W. F. D. Smith had presented the site, and the building was now in progress. He had collected £2270. The building will comprise a large hall, class-rooms, a soup and food kitchen, a crèche for babies, and ironing and mangling rooms.

## Correspondence.

### WHO PAYS FOR THE TROWEL?

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Nine times out of ten the contractor provides (i.e., pays for) the silver trowel the foundation stone of a new Church is often laid with, and the Architect presents it.

Yours obediently,

H. H.

### POLISHING FLOORS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Is there any special method of treating paraffin wax when it is used in place of beeswax for polishing flooring, and, if so, where can particulars of said method be obtained? I am sure, if there is any improved mode, some of your numerous readers will be aware of it.

Yours faithfully,

E. R. B.

### A QUESTION OF WATER SUPPLY.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Over thirty years ago a row of three houses were built in a suburb of Leeds, as an investment. Since that time these three houses were sold to three different persons. Now the owner of the second house gives notice that he has an insufficient supply of water, owing to the third house being supplied by the same pipe, and says that he is going to have the pipe (which goes under his house) cut off. This is a false statement, as the terrace goes up smartly in height, and it stands to reason that if the third house (which is farthest up the hill) has an excellent supply, surely No. 2 must have a still better, being lower down, as the water has to go uphill. The reason, I may state, of No. 2 giving notice is that some time ago a petty quarrel broke out between Nos. 2 and 3, and which has never been made right. Has No. 2 the right to cut off the water of No. 3? The houses have belonged to the three individual owners about ten years, and each bought the rights of their respective houses. A. J.

April 10th, 1897.

THE Brighton Corporation has resolved to spend £12,000 on the protection of the Madeira Road foreshore. The scheme decided upon embraces the widening of the roadway from the site of the chain pier to Royal Crescent from 40ft. to 60ft. and the erection of two groynes with breastwork of timber.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS and SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two.

Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St.,  
Strand, W.C.

## SOCIETY MEETINGS.

### Glasgow Architectural Association.

At a meeting of this association, held in the rooms, 187, Pitt Street, on Tuesday, the 6th inst., Mr. Wm. Tait Connor, A.R.I.B.A., in the chair, Mr. Wm. Fraser, A.R.I.B.A., read a paper on the "Influence of Economics on Architecture." He showed the bad effect the present land tenure had on Architecture, how, especially where leases of a limited period existed, the buildings were built only to last out the lease, and how building for profit, and not for use, tends to depreciate the Art. He showed, also, how the unequal distribution of wealth, competition, and the sub-division of labour were against the appreciation of good Architecture and unfavourable to thoughtful design and good workmanship. The remedy he suggested was collectivism, which, he said, would give greater opportunities for good Architecture, as buildings would only be erected when required, and not as profitable speculations. There would be no glaring inequalities in wealth, with the ostentation of riches and the degradation of poverty. The worker would be well fed and be sure of his work, and could therefore take greater delight in it and produce better work. There would be no need for work being cut down to the cheapest point to make things pay, for buildings would be erected for the good of the community, who would take a delight in seeing their own property beautiful. On the motion of Mr. James Craigie, a hearty vote of thanks was awarded the essayist.

### Edinburgh Architectural Association.

Under the leadership of Mr. Hippolyte Blanc, R.S.A., the members of this association on Saturday week visited Niddry and Duntarvie Castles. The former, situated in Kirkliston parish, Mr. Blanc described as a fair example of an early keep, one showing the first development from the simple square tower. The doorway in the inner angle enters upon a circular staircase leading to the several floors, now in ruin. The walls average 9ft. in thickness. The foundation of the tower was ascribed to George, fourth Lord Seton, probably in the last quarter of the fifteenth century. The castle receives prominence in history as having in 1568 afforded shelter and protection to Queen Mary. During the troublous times of Charles I. and II. the castle and lands passed to the family of Hopetoun, the castle giving the title of Baron Niddry to Lord Hopetoun. Duntarvie Castle, situated in Abercorn parish, Mr. Blanc explained, was a residential manor house of about 100 years later date than Niddry. It presents a large rectangular building, 80ft. long, facing south, with projecting wings at the extremes on the north side. This castle was in marked contrast to Niddry, the walls being so much thinner. There was much evidence to associate the period of foundation with the end of the sixteenth or beginning of the seventeenth century. The castle continued habitable until quite recently, and is now in ruin.

THE Duke of Cambridge has unveiled the tablet to the memory of the late Field-Marshal Sir Patrick Grant, in the corridor south of the chapel at the Royal Hospital, Chelsea.

MR. WALTER MORRISON, M.P., has announced his intention of building a Chapel at Giggleswick. The building of the new Chapel, which is estimated to cost between £15,000 and £20,000, will be commenced at once, plans having already been prepared.

THE Dean and Chapter of Lincoln have contracted with Messrs. Willis and Son for the rebuilding of the Cathedral organ. In order to make the organ as perfect as possible, it has been thought expedient to prepare for the addition at some future time of several stops and accessories, which cannot be included at present for want of funds. The amount at present promised is £3630, and to add the stops, &c., which are omitted would require £645 more. It has been decided to make a trial of electro-motors for driving the blowing apparatus, and it is believed that this will be the first Cathedral organ in England to be blown by electricity.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
May 1	<b>ROADS—(Continued).</b>		
No date.	King's Lynn—Road Material	Corporation	E. J. Silcock, Borough Surveyor, King's Lynn.
	New Ferry, Cheshire—Street Works	Urban District Council	J. Young, 78, Stanley-terrace, New Ferry.
	Starbeck-roads, St. Andrew's Estate	J. W. Addyman	A. A. Gibson, Architect, Harrogate.
April 23	<b>SANITARY—</b>		
" 23	Mallow—Sanitary Works, &c., at Workhouse	Guardians	M. Regan, Union Office, Mallow.
" 23	Kettering—Drainage Works	Urban District Council	T. E. Smith, Market Hill, Kettering.
" 24	Walthamstow—Underground Sludge Tank	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
" 26	Essendon, Herts—Construction of Pipe Sewer, &c.	Parish Council	J. Aird, Glebe Cottages, Hatfield.
" 26	Ashton-under-Lyme—Sewerage Works	Corporation	J. T. Earnshaw, Town Hall, Ashton-under-Lyme.
" 26	Rowley Regis, Staffs—Construction of Collecting Sewers	Urban District Council	E. B. Marten, Church-street-chambers, Stourbridge.
" 26	Heath Town, Wolverhampton—Sewers	Urban District Council	R. E. W. Berrington, Civil Engineer, Wolverhampton.
" 27	Southampton—Stone Ware Pipe Sewers	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
" 28	Shrewsbury—Outfall Works	Corporation	J. Taylor, Sons, and Santo Crimp, 28, Gt. George-street, Westminster.
" 28	Rochester—Scavenging, &c. (three years' contract)	Corporation	City Surveyor, Guildhall, Rochester.
" 30	Sunbury-on-Thames—Sewerage Works	Urban District Council	J. Alstie, 17, Victoria-street, Westminster.
May 4	London, E.C.—Sewers, &c.	Shoreditch Vestry	J. Rush Dixon, Town Hall, Old-street, E.C.
" 5	Norton, near Sheffield—Removal of Refuse	Rural District Council	E. A. Sampson, 17, York-street, Sheffield.
" 11	London—Public Conveniences	London County Council	Architect's Department, Spring-gardens, W.
July 31	Oporto, Portugal—Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.
May 3	<b>TIMBER—</b>		
	London, N.W.—Wood Paving Blocks (688,000)	St. Pancras Vestry	W. N. Blair, Vestry Hall, Pancras-road, N.W.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
April 21	Long Buckley, Northamptonshire—Competitive Schemes for Water Supply.	30 guineas	Rural District Council.
" 30	Halifax—Designs for Police Station and Court House	£50, £25	Corporation.
" 30	London—Church Extension	£10	Mr. Marrow, 2, Finsbury-square, London.
May 1	Crompton, Lancs.—Designs for Public Baths	£30, £20, £10	Crompton Urban District Council.
" 15	Tonbridge, Kent—Technical Institute and Free Library	£31 10s., £21, £10 10s.	Urban District Council.
No date.	Bexhill-on-Sea—Designs, &c., for Drinking Fountain and Dog Trough.		Hon. Secretary, Colonel Lane Memorial, Standerton, Bexhill-on-Sea.
"	Burnley—Designs for Memorial Fountain	£10 and £5	Parks Committee, Burnley.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BECKENHAM.**—For the supply of Guernsey granite and Cherbourg quartzite, for the Urban District Council. Mr. J. A. Angell, Surveyor, Council's Offices, Beckenham:—

A. and F. Mannell	Per yard.	
J. Mowlem and Co., Grosvenor Wharf, S.W.*	16 11	
	16 8	
Kent-road Maintenance and Stone Supply Co.	13 4	
Coopers, Ltd., King William-street, E.C.*	12 7	

**BENFLEET (Essex).**—Accepted for the erection of stable, coach-house, &c., for Mr. R. Bowman. Mr. Arthur T. A. Bowyer, Architect, 90, Leadenhall-street, E.C.:—

W. Swain, South Benfleet	£175	
--------------------------	------	--

**DEAL.**—Accepted for the supply of flint road metal (1200 cubic yards), for the Corporation. Mr. T. C. Golder, Borough Surveyor, High-street, Deal:—

George Burton, Upper Deal	7s. per yard cube.	
---------------------------	--------------------	--

**ENFIELD.**—For erecting a detached residence, London-road, Enfield. Mr. Thomas J. Hill, Architect, Church-street, Stoke Newington:—

A. Porter	£1,400	
Gibson Bros.	1,270	
Humphries and Son	1,196	

**FARNHAM.**—For alterations, &c., at Workhouse (women's casual wards), for the Union Guardians. Mr. S. Stapley, Architect, West-street, Farnham:—

Kemp	£395	
Tompsett and Co.	343	
Lee	340	

**HOO (Kent).**—For the supply of road materials, &c., for the Rural District Council. Mr. F. C. Thurston, Surveyor, Hoo:—

	Bells	Hard.	Stoke	Hoo	Wharves	Shamal-	Street	Station.	Office
W. Griffiths	13 9	13 6	13 4	13 4	15 3	15 1			
Shmitt and Co.*	10 9	10 9	10 9	10 9	12 10	12 8			
Jas. Runnalls	11 9	11 9	11 6	11 6					
A. & F. Manuelle	13 0	13 10	12 8	12 8	15 5	15 3			
J. L. Lyons & Co.	13 3	13 11	12 9	12 9	14 5	11 3			
Sommerfield	12 11	12 8	12 5	12 5					
Burnford	11 8	11 6	11 4	11 4					
G. Naylor	5 6	5 6	5 6	5 6					
Tuff and Miskin, Rochester*	5 3	5 3	5 3	5 3					
Bensted and Son, Maidstone*	6 0	5 9	5 8	5 8	7 0	7 0			
Lake	5 10	5 10	5 5	5 5					

**HORNCASTLE.**—For the enlargement and alterations to Gainsborough Workhouse. Messrs. Free and Southwell, Architects, Gainsborough:—

Pattinson, Ruskington	£1,450	
Hatcliffe, Horncastle	1,293	
Fawsitt, Gainsborough	1,065	

**ILKESTON.**—For the erection of a bakery and warehouse, for the Co-operative Society, Limited. Mr. Frederick Smith, Architect, Stephens-buildings, Market-street, Manchester. Quantities by Architect:—

A. Earnshaw	£1,000 0 0	Donnelly and Son	£956 0 0
John Manners	980 0 0	John Harper	781 3 11
Birkin & Rowland	978 0 0		

**LITTLEMORE.**—Accepted for alterations to house at Littlemore, Oxon, for Miss Crawley. Mr. Herbert Quinton, Architect and Surveyor, Oxford:—

Messrs. Williams Bros., Oxford	£23 7	
--------------------------------	-------	--

**LONDON.**—For additions and alterations at the "Jolly Caulkers" public-house, Lower-road, Rotherhithe, for Messrs. Barclay, Perkins, and Co., Limited. Mr. George Hubbard, Architect, 23, Finsbury-circus, E.C.:—

H. Wall and Co.	£698 10	J. Richards	£250 0
Balaam Bros.	685 0	A. White and Co.	625 0
Scotney and Wootton	658 0		

**LONDON.**—For alterations and additions to paperstaining works, Chiswick, W. Mr. Edmund M. Bowyer, Architect and Surveyor, Stanton, Reigate:—

H. Roffey	£2,638	Holland and Hannen	£2,569
T. Adamson and Sons	2,587	T. Nye	2,440

**LONDON.**—For completing "Ashmere House," Brixton. Messrs. Cooper and Goulding, Architects:—

Read	£1,487	Walker	£1,448
Grist	1,618	E. Houghton and Son,	1,364
Mitchell	1,158	Stroud-green*	

**LONDON.**—For the purchase of materials for the repair of the roads and paths at Victoria Park, for the London County Council:—

	Flints.	Hoggins.	Shell.
W. Gibbs	s. d.	s. d.	s. d.
L. Sommerfeld	* 6 0	5 6	7 0
W. Griffiths	* 6 10	* 5 2	* 5 5
	8 3	7 8	6 9

**LYDIARD MILLICENT (Wilt.).**—For the erection of a hospital, for the Cricklade and Wootton Bassett Rural District Council. Mr. R. J. Beswick, Architect, Fleet-street, Swindon:—

H. Flewelling, Wootton Bassett	£310	
--------------------------------	------	--

**MILL HILL (Middlesex).**—Accepted for the Cottage Home Scheme of the Linen and Woollen Drapers' Institution (first contract). Mr. George Hornblower, Architect, London, W.:—

William Tout, Hendon	£12,468	
----------------------	---------	--

**OXFORD.**—For repairs and decorations at the Clarendon Hotel, Oxford. Mr. H. Quinton, Architect and Surveyor, Oxford:—

T. Axtell, Oxford	£235	
Messrs. Williams Bros., Oxford (accepted)	424	

**OXFORD.**—For new lavatories at ditto.

C. Curtis, Oxford	£143	
Messrs. Williams Bros., Oxford (accepted)	132	
For alterations to the shades at ditto.	117	
C. Curtis, Oxford	£70 10	
Messrs. Williams Bros., Oxford (accepted)	70 0	
T. Axtell, Oxford	67 0	

**OXFORD.**—For new portico to ditto.

Messrs. Williams Bros., Oxford	£50	
--------------------------------	-----	--

**OXFORD.**—Accepted for the erection of a detached house and offices at Oxford, for Mr. Councillor Turrill. Mr. Herbert Quinton, Architect and Surveyor, Oxford:—

S. Hutchins, Oxford	£1,775	
---------------------	--------	--

**PONDERS END.**—For new workshops at Ponders End, Middlesex, for the Edison and Swan United Electric Light Company, Limited. Mr. Evelyn Hellicar, Architect:—

T. Almond and Son	£1,983	Fairhead and Son	£3,543
Stimpson and Co.	3,960	W. Cooper	3,391
Perry and Co.	3,784	E. W. Newman*	3,397
Wm. Greagar and Son	3,737		

**PORTSMOUTH.**—For the erection of a board school for the Portsmouth School Board, George-street, Buckland. Mr. G. C. Vernon-Inkpen, Architect, Whittington-chambers, Southsea. Quantities by Mr. C. W. Ball, Southsea:—

W. W. Evans	£20,500	W. R. Light and Son	£19,704
E. and A. Spriggins	20,130	H. Cooke	19,580
J. W. Perkins	20,010	J. Cockerell	19,449
G. Quick	19,449	Hall*	19,000
H. Jones	19,797		

**PONTYPRIDD.**—For the erection of school buildings, Llan Wood, for the School Board. Mr. A. O. Evans, Architect, Post Office-chambers, Pontypridd:—

Alban Richard	£13,765	M. Julian	£11,444
Morris and Thomas	12,964	E. Turner and Son	£11,434
H. Smith	12,000	D. Evans and Son	11,380
Watkin Williams	11,975	Cox and Barlow	11,362
Lloyd Bros.	11,800	J. C. Richards	11,235
C. Jenkins and Son	11,750	Williams and James	11,079
Wm. Davies	11,737	Jno. Jenkins	10,964
Arthur Seaton	11,731	W. Thomas and Co.	10,853
Williams Bros.	11,685	Rowlands and Lloyd	9,900
Rattray and Jenkins	11,613		

**REDHILL.**—For the erection of three detached houses and offices at Redhill, Surrey, for Mr. William Lambart. Mr. Herbert Quinton, Architect and Surveyor, Oxford:—

Messrs. Smith & Sons	£4,493	
E. Worsell, Redhill	£4,493	
J. J. Carrick, Redhill	£5,893	Messrs. Buckland and
Messrs. C. Nightingale	5,287	Waters, Redhill*
and Sons, Reigate	4,873	

**SHEFFIELD.**—For erecting new premises in High-street and Mulberry-street, Sheffield. Messrs. Flockton, Gibbs, and Flockton, Architects, 15, St. James-row, Sheffield. Quantities supplied:—

R. Anderson	£78,918	J. Bland	£67,000
J. Gouley	77,000	Ash, Son, and Biggin	61,700
J. P. Groome	75,000	G. Longden and Son	61,700
J. Cave	67,900	Sheffield (accepted)	61,128

**SNARESBROOK.**—For building villa residence at Snarebrook, Essex, for Mr. Herbert G. Day. Mr. Joseph G. Needham, Architect, 11, Powerscroft-road, Clapton, N.E.:—

W. Scott	£2,320	W. Lawrence	£2,153
R. and E. Evans	2,298	W. J. Maddison	2,150
W. Lawrence	2,215	R. and E. Evans	2,074

**STAVERTON.**—Accepted for additions to school at Staverton, Devon, for the school committee. Mr. C. G. Ash and Hill, Totnes and Staverton:—

W. Chambers, Swindon	£230	
----------------------	------	--

**WEETON (Yorks).**—Accepted for the erection of a farmhouse and outbuildings, Huby. Mr. W. Bevers, Architect, 25, Bond-street, Leeds:—

Brickwork and Masonry, J. and W. Dickinson, Timble Great, near Otley	£372 10 0	
Joining, H. and A. Thomas, Idle, near	160 0 0	
Slating, B. Hartley, Idle	61 0 0	
Plumbing, J. W. Hemmings and Sons, Leeds	28 0 0	
Plastering, J. P. Mountain & Son, Leeds	55 0 0	
Painting, G. Thomson, Leeds	12 10 0	

**WOODFORD.**—For building two houses, Malmesbury-road, Woodford, Essex, for Mr. J. T. Gascoyne. Mr. J. G. Needham, Architect and Surveyor, Clapton, N.E.:—

W. Laurence	£299	H. Wells	£280
R. and E. Evans	959	A. Edwards	795

**WROUGHTON.**—For the erection of house, bakehouse, stable, &c., for Mr. Phillimore, Wroughton, near Swindon. Mr. R. J. Beswick, Architect, Swindon:—

Lyddington and Selby, Swindon	£660	
-------------------------------	------	--



## INDEX OF ILLUSTRATIONS AND CONTENTS.

ILLUSTRATIONS.	PAGE		PAGE		PAGE
Supplement: Plans of Proposed House at Ashbourne, Derbyshire. C. F. A. Voysey, Architect		A City of Art...	150	Professional Items	159-161
Overmantel and Fireplace, Donegal Castle ...	149	In Istria and Dalmatia with a Camera. By W. Law Bros.	151	Trade and Craft	161-163
Donegal Castle. Sketched by L. Edmunds ...	150	Modern House Interiors. By T. Butler Wilson, F.R.I.B.A.	152	Correspondence	163
In Istria and Dalmatia—Pirano—Rovigno—Porta Gemina, Pola—Roman Amphitheatre, Pola—Triumphal Arch, Pola—A Shrine at Pola...	151-153	Bricks and Mortar ...	154-156	Society Meetings	163
		The Origin and Development of Renaissance Architecture in Italy. By C. B. Hutchinson, A.R.I.B.A.	157		
		Keystones ...	158, 163	SURVEYING AND SANITARY SUPPLEMENT:	
		The "Builders' Journal" Problems ...	159	Planning of Small Houses. By H. V. Lanchester, A.R.I.B.A.	xli
		Canterbury Cathedral ...	159	Sanitary Science. By Paul Ogden	xlii
				Bradford Sewage Scheme	xliii
				Surveying and Sanitary Notes	xli
CONTENTS.					
The Last of Chelsea Reach ...	149				
London Naval Statues ...	149				

## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
April 23	<b>BUILDINGS—</b>		
" 23	Halifax—Store and Fourteen Houses	Halifax Industrial Society, Limited	W. Clement Williams, 29, Southgate, Halifax.
" 23	Wakefield—Dwelling-house, Stanley-road		Willie Wrigley, 10, Wood-street, Wakefield.
" 23	Plymouth—Caretaker's House, Roborough Reservoir	Water Committee	Edward Sandeman, Municipal Buildings, Plymouth.
" 24	Addlestone—Alterations, &c., to Houses	T. O. Clark	Albert Veness, Brighton-road, Addlestone.
" 24	Aldroughy, near Elgin—Farm Steading		Alex. Grant, Architect, Inverness.
" 24	Blackburn—Chimney (150ft. high)	Corporation	E. M. Lacey, 10, Delahay-street, Westminster.
" 24	Burgate, near Fordingbridge—Farmhouse		Estate Office, Shaftesbury-street, Fordingbridge.
" 24	Crook and Bishop Auckland, Durham—Police Station	Durham County Standing Joint Committee.	Surveyor's Office, Shire Hall, Durham.
" 24	Crook and Bishop Auckland, Durham—Widening Newton Cop Bridge.	Durham County Council	Surveyor's Office, Shire Hall, Durham.
" 24	Keighley—Shop, &c., Lawkholme lane		W. H. and A. Sugden, Cavendish-street, Keighley.
" 24	Purston—Erection of Three Villas	J. Umpleby	Garside and Keyworth, Ropergate, Pontefract.
" 24	Whitworth, Lancs.—New School, Lloyd-street		Lloyd-street Infant School, Whitworth.
" 24	Wickford, Essex—House, &c., near Railway Station		Croft House, Wickford.
" 24	Featherstone, Yorks.—Erection of Two Villas	J. Shaw	Garside and Keyworth, Ropergate, Pontefract.
" 26	Buckie, Scotland—House		W. Macdonald, Beidgend, Buckie.
" 26	Chatham—Town Hall and Municipal Buildings	Corporation	G. E. Bond, High-street, Rochester.
" 26	Daventry—Six Cottages, Coventry-road	Daventry Co-operative Society	J. B. Williams, Moot Hall, Daventry.

ADCOCK, Mr. W. J., Builder, Dover.

"I have proved your invention easy of application. Both my joiners and apprentices could fix the apparatus without difficulty after having inspected a model."

CRICKMAY &amp; SONS, Messrs., F.R.I.B.A., London, S.W.

"The Patent Windows supplied for Sir Edward Walters' house at Salisbury gave us every satisfaction. We shall continue to use them."

JONES, Mr. PETER, Sloane Sq., London.

"I am glad to be able to bear testimony to the great utility and general usefulness of the N.A.P. Sliding Windows. I am very pleased with them, and should be sorry to be without them."

LUCAS &amp; AIRD, Messrs., Contractors, London.

"Cheap, simple, and effective. We are using some 1200 sets of your fittings on these exceptionally tall buildings."

MORGAN, ISTD &amp; MORGAN, Messrs., Contractors, Southampton.

"A very clever arrangement, and one which will certainly come into daily use."

PERRY &amp; READ, Messrs., F.R.I.B.A., London.

"It is with pleasure that we are able to inform you of our entire satisfaction with the 'N.A.P. Windows,' we shall continue to

specify them."

Write for Full Particulars to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.

## STIFF &amp; SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS, CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS DAMP-PROOF COURSE, ARCHITECTURAL TERRA-COTTA, VASES, &amp;c.

For Illustrated Price Lists apply to

JAS. STIFF &amp; SONS, LONDON POTTERY, LAMBETH, S.E.





## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—(Continued).</b>			
April 26	Elland, Yorks—New Foundry Shed, &c. ...	Perseverance Works ...	W. H. D. Horsfall, 9, Harrison-road, Halifax.
" 26	Fareham, Hants—New Chaplain's Residence ...	Hants County Asylum ...	Cancellor and Hill, 12, Jewry-street, Winchester.
" 26	London, S.E.—Works, &c., at South London Art Gallery ...	Camberwell Vestry ...	Vestry Hall, Peckham-road, London, S.E.
" 26	Old Hill, Staffs.—Fireproof Room at Council Offices ...	Rowley Regis Urban District Council ...	Daniel Wright, Clerk, Council Offices, Old Hill.
" 26	Llangollen, County School ...	County School ...	H. Leather, Andrew-buildings, Queen-street, Cardiff.
" 26	Port Talbot—Erection of Offices ...	Port Talbot Railway and Docks Co. ...	Frank B. Smith, Architect, Port Talbot.
" 26	Richmond, Surrey—Underground Conveniences ...	Corporation ...	J. H. Brierley, Town Hall, Richmond.
" 27	Halifax—Works for taking down Barrack Tavern, &c. ...	Automatic Standard Screw Company ...	Jackson and Fox, 22, George-street, Halifax.
" 27	Sowerby Bridge—New School ...	Guardians ...	S. Wilkinson, Sowerby Bridge.
" 28	Andover—Buildings at the Workhouse ...	Guardians ...	A. Purkess, 16, Junction-road, Andover.
" 28	Farnham—Casual Wards ...	Hedworth, Monkton, and Jarrow U.D. School Board.	S. Stapley, West-street, Farnham.
" 28	Jarrow—Alterations, &c., to School ...	Corporation ...	Clerk of the Works, Jarrow.
" 28	Petrokoff, Russia—Cattle Mart and Slaughter-house ...	West End Congregational Church Corporation ...	Provincial Government of Petrokoff.
" 28	Tunbridge Wells—Slipper and Swimming Baths ...	Highway and Sewerage Committee ...	Borough Surveyor, Town Hall, Tunbridge Wells.
" 28	Halifax—Erection of Church, Luddenden Foot ...	Beeston Urban District Council ...	W. Wrigley, Crossley-terrace, Hebden Bridge.
" 28	Sowerby Bridge—Sunday School ...	Grangemouth Co-operative Building and Investment Society, Limited.	S. Wilkinson, Architect, Sowerby Bridge.
" 28	Cardiff—Chimney, &c. ...	Egyptian Government	C. H. Priestley, Waterworks Engineer, Cardiff.
" 29	Larne—Erection of New Schools ...	Runcorn School Board ...	Samuel P. Close, 53, Waring-street, Belfast.
" 29	Newquay—New Headland Hotel ...	London County Council	S. Treval, Architect, Truro.
" 30	Leicester—Concrete and Stone Bridge ...	Commissioners of H.M. Works	E. G. Mawby, Borough Surveyor, Leicester.
" 30	High Spen—Construction of Twelve Cottages ...	Guardians	Miners' Arms, High Spen, Lintz Green.
" 30	Beeston, Notts—Erection of Council Offices ...	Kensington and Chelsea School Board ...	Hedley J. Price, 24, Low Pavement, Nottingham.
May 1	Bangor, Ireland—Church Tower, &c. ...	Central London Sick Asylum Board	Mr. Stephens, Donegal-square, Bangor.
" 1	Grangemouth, Scotland—Dwelling-houses, New-street ...	Asylums Committee of the L.C.C. ...	G. Dear Page, Old Glebe-chambers, Falkirk.
" 3	Cairo—Prison and Police Barracks ...	Failsworth (Lancs.) Indus. Soc. Ltd. ...	Service Administrative Offices, Cairo.
" 3	Runcorn—School Buildings ...	J. Butler	F. and G. Holme, Westminster-chambers, Crosshall-street, Liverpool.
" 4	London—Shelter in Gymnasium ...	T. Moody	Architect's Department, Spring-gardens, S.W.
" 5	Scarborough—Enlarging Post Office ...		12, Whitehall-place, S.W.
" 7	East Ashford, Kent—Alterations, &c., to Infirmary Chapel ...		Workhouse, Willesboro'.
" 7	London, S.W.—Enlarging School-rooms ...		Cecil Sharp, 59, Fenchurch-street, E.C.
" 10	Hendon—Asylum ...		Giles, Gough, and Trollope, 28, Craven-street, Strand.
" 10	London, W.—Temporary Iron Structure ...		Clerk of the Committee, 21, Whitehall-place, S.W.
" 18	Bucharest—Industrial School, Jassy ...		Roumanian Ministry of Agriculture, Bucharest.
" 18	Buenos Ayres—New Central Railway Station ...		State Government, Buenos Ayres.
No date.	Oldham—Business Premises and Houses ...		F. W. Dixon, Architect, Union-street, Oldham.
"	Leeds—Five Houses, Crossfield-lane, Halton ...		F. J. Butler, Shannon-street, Leeds.
"	Nottingham—Villa ...		H. Sulley, Architect, Albert-street, Nottingham.
"	Guidebridge, Lancs.—Alterations, &c., Railway Hotel ...		J. H. Burton, Architect, 2, Guide-lane, Hooley Hill.
"	Clayton-le-Moors—Club-house ...		W. Hopwood, Lower Barnes-street, Clayton.
"	Carnamoney, near Londonderry—House ...		J. Hutchinson, Carnamoney, Draperstown, Ireland.
"	Halifax—Tower Copley Mills ...		A. G. Dalzell, Architect, 15, Commercial-street.
"	Roundhay, near Leeds—Two Villas ...		Percy Robinson, 72, Albion-street, Leeds.
"	Buckhurst Hill, Essex—Two Pairs Semi-detached Villas ...		Mr. Bating, 7, John-street, Adelphi, W.C.
"	Burley-in-Wharfedale—Residence ...		Issitt and Co., Architects, Bradford.
"	Heaton, Yorks.—Four Houses ...		J. Jackson, Architect, Barry-street, Bradford.
"	Heywood, Lancs.—Houses, Derby-street and Whain-lane ...		Sec. Millbank Brick and Terra-cotta Co., Heywood.



## JONES &amp; WILLIS,

MANUFACTURERS OF

## Wrought Metal Work, Architectural Carving and Joinery

For Ecclesiastical Purposes, Domestic and Public Buildings,

## Lighting Appliances, &amp;c.

Estimates given to Architects' own Designs.

Work can be inspected during execution.

OFFICES AND SHOWROOMS:—79, Edmund Street, Birmingham; 43, Great Russell Street, London, W.C.  
Concert Street, Bold Street, Liverpool.

WORKS:—Eagle Works, Hornsey, N.; Porchester Street, Birmingham.



## DAMP WALLS CURED. BY MASONRY PRESERVED

## SZERELMEY STONE LIQUID,

Which absolutely Waterproofs and Preserves Bricks, Stone, Plaster, Cement.

IT HAS STOOD THE TEST OF TIME.

Approved and Adopted by Her Majesty's Government for MANY YEARS.

EASILY APPLIED, SMALL COST, RELIABLE.

FORTY YEARS' EXPERIENCE.

## PORCELAIN PAINTS

For Interior and  
Exterior Decoration.  
Beautiful Glazed  
Surface.

Do not Chip.

Non-Poisonous.

## SZERELMEY'S

HIGH-CLASS PAINTS.

## IRON PAINTS

For Wood or Iron.

GREAT - -

- - DURABILITY.

Prevent Corrosion.

Offices and Works: ROTHERHITHE NEW ROAD, S.E.

Telegrams:

"SZERELMEY. LONDON."



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
No date.	<b>BUILDERS—(Continued)</b> Aberystwith—School and House Balvicar, N.E.—Ten Houses		Hipkiss and Bassett, Architects, Terrace-road, Sec. Slate Works Office, Balvicar.
April 23	<b>ENGINEERING—</b> Alexandria—Iron Boiler Tubes, &c.	Egyptian Government	Department Stores, Alexandria.
" 23	Annan, Dumfries—Scraping Water Mains, &c.	Burgh Commissioners	Murray Little, Burgh Commission Chambers, Annan.
" 23	Newport—Machinery and Plant	Corporation	Albert A. Newman, Town Hall, Newport.
" 23	Walthamstow—Sludge Tank	Urban District Council	Geo. W. Holmes, Surveyor to the Council, Walthamstow.
" 24	Redruth—Winding Engine	Basset Mines, Limited	N. Trestrail, Redruth.
" 24	Cork—Plinth, Iron Railings, &c.	County and City Courthouse Joint Committee.	Architect, 28, South Mall, Cork.
" 26	Madrid—Iron Bridge over the Rio Noya	Inveresk Paper Company	Direccion General de Obras Publicas, Madrid.
" 26	Inveresk, Musselburgh, Scotland—Conduit, &c.	Urban District Council	Buchanan and Bennett, 24, George-street, Edinburgh.
" 27	Rugby—Filter Bed	Metropolitan Asylums Board	D. G. Macdonald, Engineer, Rugby.
" 27	Vienna—Bridge	Metropolitan Asylums Board	Austrian State Railway Department, Vienna.
" 28	London, E.C.—Steam Warming Apparatus	Corporation	A. and C. Harston, 15, Leadenhall-street, E.C.
" 28	London, S.W.—Engineering Work, Western Hospital	Highways and Sewerage Committee	A. and C. Harston, 15, Leadenhall-street, E.C.
" 28	Yeovil—Covered Service Reservoir	East India Docks	Borough Surveyor, Yeovil.
" 30	Leicester—Construction of Stone & Concrete Bridge, &c.	Rural District Council	E. Geo. Mawby, Town Hall, Leicester.
" 30	London—Drawing Piles, &c.	Guardians	East India Docks, London.
" 30	Nantwich—Bridge, River Weaver	New Ross Gas Company	J. R. Whittingham, London-road, Stapleley.
" 30	Tenbury—Water Supply and Drainage Works	United Gas Light Company	W. S. Davis, Clerk, Tenbury.
May 1	New Ross—Gasholder	United Gas Light Company	D. Hunt, Gasworks, New Ross.
" 1	Sheffield—Cast-iron Water Tank	Sutherland County Council	Fletcher W. Stevenson, Gasworks, Sheffield.
" 1	Sheffield—Enlarging Water Tower	Sutherland County Council	Fletcher W. Stevenson, Gasworks, Sheffield.
" 1	Golspie—Waterworks	Leigh & Atherton Joint Sewerage Board	J. A. Hosie, Surveyor, Golspie.
" 1	Golspie—Drainage Works	Great Western Railway Company	E. Pritchard, Engineer, Birmingham.
" 3	Leigh, Lancs.—Machinery	London County Council	Engineer at Gloucester Station.
" 4	Gloucester—Reconstructing Bridge		The Clerk, 21, Whitehall-place, S.W.
" 10	London—Iron Structures at Asylum		
April 24	<b>IRON AND STEEL—</b> Folkestone—500 Dust Bins	Sanitary Committee	John White, Dover-road, Folkestone.
" 28	London, N.E.—Sewer Ironwork	Hackney Vestry	James Lovegrove, Chief Surveyor.
April 27	<b>PAINTING—</b> Brownhills, Staffs.—Painting, Cleaning, &c.	Urban District Council	J. H. Shaw, Surveyor, Brownhills.
April 23	<b>ROADS—</b> Newark—Supplying Granite and Slag (4000 tons)	Rural District Council	T. Vickers, Surveyor, Newark.
" 23	York—Whinstone (1000 tons)	Bishopthorpe Rural District Council	G. Leeming, Museum-street, York.
" 23	Grimby—Street Works	Accrington and District Railway Ser-	A. E. Skill, 7, Macaulay-terrace, Grimby.
" 23	Accrington—Cartage	vants' Coal Association.	Secretary, 70, Scatchell-street, Accrington.
" 23	Winchcomb—Hauling Materials	Highway Board	A. E. Sharp, District Surveyor, Winchcomb.
" 24	Great Harwood, Lancs.—Supplying of Setts, Flags, &c.	Urban District Council	R. Chippendale, Surveyor, Great Harwood.
" 24	Neston—Team Labour, 1 Year, March 31, 1898	Urban District Council	Surveyor, Town Hall, Neston.
" 24	Stafford—Cartage, 1 Year, March 31, 1898	Staffordshire County Council	James Moncur, County Council Buildings, Stafford.
" 26	Halifax—Dross and Granite	Rural District Council	F. Gordon, Clifton, Bridgehouse.
" 26	Halifax—Kerb and Flags	Rural District Council	F. Gordon, Clifton, Bridgehouse.
" 26	Nelson—Street Works	General Purposes Committee	B. Ball, Borough Engineer and Surveyor, Nelson.
" 26	Stratford-upon-Avon—Road Metal	Town Council	Roder Dixon, Municipal Offices, Stratford-upon-Avon.
" 26	Newington—Street Works	Paving and Sewerage Committee	Thomas Longdin, Town Hall, Warrington.
" 26	Leyland, Chorley—Lance-carting, &c., 1 Year	Highway Board	Clerk, District Surveyor, Leyland.
" 27	Gretton, Uppingham—Carting 870 tons of granite, &c.	Gretton Rural District Council	John E. Willford, Clerk, Uppingham.
" 27	London, N.W.—Materials	Willesden District Council	Council Offices, Willesden.
" 27	Lytham, Lancs.—Levelling, Paving, Asphalting, &c.	Urban District Council	Council Offices, Lytham.
" 27	Acton—Paving and Making of Streets	District Council	D. J. Ebbetts, 242, High-street, Acton.
" 27	Willesden—Land and Thames Ballast	District Council	O. C. Robinson, Dyne-road, Kilburn, N.W.
" 27	Willesden—Road-making and Paving	District Council	O. C. Robinson, Dyne-road, Kilburn, N.W.
" 28	London, N.E.—Wood Paving	Hackney Vestry	J. Lovegrove, Chief Surveyor, Hackney.
" 28	Penygroesheol, Wales—Widening Road	Rural District Council	W. Bevan, Deri, near Cardiff.

(Continued on page 164.)

## THE ST. PANCRAS IRON WORK COMPANY, ENGINEERS & IRONFOUNDERS.



Manufacturers of  
**IRON STAIRCASES**  
(Straight and Spiral),

**IRON ROOFS, FOOT BRIDGES,  
IRON DOORS,  
VERANDAHS, BALCONIES,  
PORCHES, GATES & RAILINGS.**

**GENERAL WROUGHT & CAST-IRON WORK.**

LARGE SHOWROOMS AT

**The St. Pancras Iron Works,**  
PANCRAS ROAD, LONDON, N.W.

(Close to King's Cross, St. Pancras and Euston Stations.)

R 2

**TALBOT & CO**  
LEEDS

**ARTISTS  
IN  
STAINED  
GLASS**

**TILE PAINTING  
& MOSAICS  
GLASS ENBUSSING**

**CASEMENTS  
IN WROUGHT IRON  
& GUNMETAL**

**SPECIAL DESIGNS  
AND  
ESTIMATES**



# "OPALINE"

The New Sanitary  
Slab Work for Wall  
Linings, Urinals, etc.

SEE ALSO

**ADAMS & CO.'S**  
.. SANITARY CATALOGUE ..

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary Works; MANCHESTER—Albert Square; YORK—Engineering Works;  
BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

THE LEEDS FIRECLAY CO. LIM

**BURMANTOST'S WORKS LEEDS** TELEGRAMS: Burmantosts LEEDS and Burmantosts LONDON

**CLAZED BRICKS**

**TERRA COTTA**

**FAIENCE**

**TILES**

**SANITARY WARE**

**POTTERY**

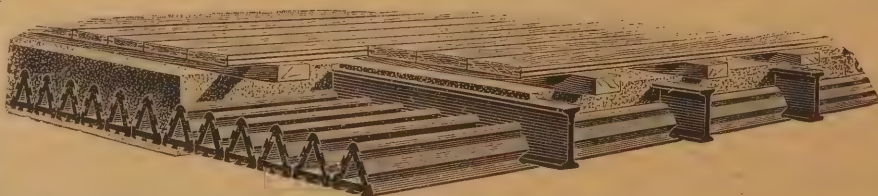
**SPECIALTIES**

**MANTELS FIRESIDES & HEARTHES**

SHOWROOMS & OFFICES, 16 Charterhouse St. LONDON. E.C.

## HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders.

CONSTRUCTIONAL STEEL AND IRONWORK,  
GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS**

LONDON { Offices: 17, GRACECHURCH STREET, E.C.  
Works: RATCLIFF, E.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

MANCHESTER { Offices: 10, MARSDEN STREET.  
Works: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



# Surveying and Sanitary SUPPLEMENT.

APRIL 21ST, 1897.

## PLANNING OF SMALL HOUSES.

(Continued from page xviii.)

By H. V. LANCHESTER, A.R.I.B.A.

No. IV.

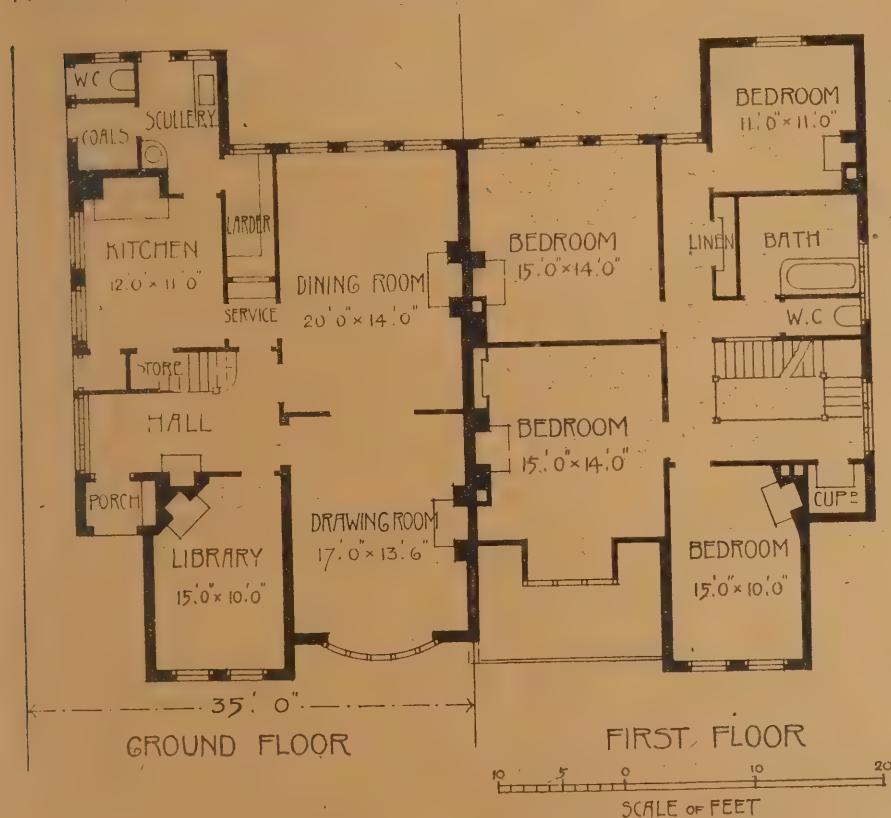
THE three designs given this week are for somewhat larger semi-detached houses, the two latter being placed on sites having larger frontages; these might, with slight

a reasonable size for the latter is somewhat unnecessarily large for the former. With the average household, one, or at most two, large bedrooms may be required, and the rest would be better divided into smaller apartments.

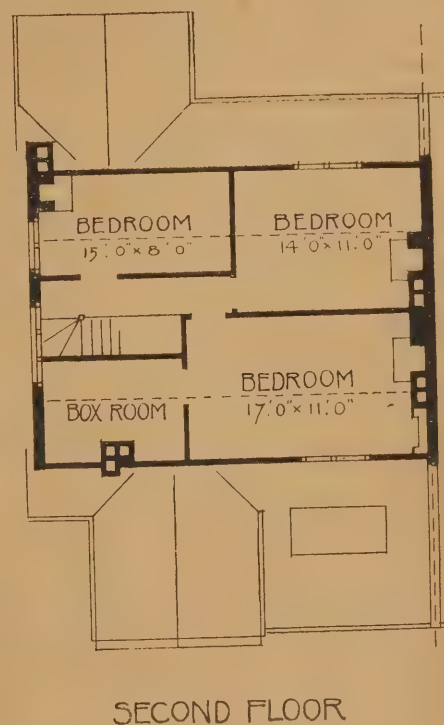
Where there is a second floor it may be conveniently utilised as nurseries when such are required, but it is hardly profitable in buildings of this size to make special arrangements for the purpose, however desirable it may be in larger houses, and where they are erected to meet personal requirements.

mind that the upper part of the window opening contributes much the larger proportion of the light, and if it is not taken up to within, say, a foot of the ceiling, compensation must be made by increased area. Under ordinary circumstances the proper height for the lower sight line for the glass is 2ft. 6in. for sitting rooms, and 3ft. to 3ft. 3in. for bedrooms. In the case of a particularly attractive outlook, and more especially where the ground falls sharply from the building, these heights should be reduced, and in the case of attics with

No 10 - SEMI-DETACHED HOUSE



CUBE AT 12° = £150



modifications in positions of chimneys and the form of roof, be found suitable for houses entirely isolated.

It will be observed that all these plans provide the convenient adjunct of a service lobby between kitchen and dining-room, that the number of bedrooms is fairly proportioned to that of the sitting-rooms, and that the former are of reasonable size. One often notices in houses rather above the smaller class that the bedrooms on the first floor follow the sizes of the rooms underneath, whereas

No reference has been made to the proper proportion of window area required to satisfactorily light a room. A good old rule gives one-tenth of the floor area as a suitable size. This should prove sufficient, except in the neighbourhood of large towns, or when the windows are on the shorter side of the room. It is better, however, to make the windows rather larger than this, as the amount of light is frequently diminished by the use of heavy curtains, though the deep valance is, happily, a thing of the past. It should be borne in

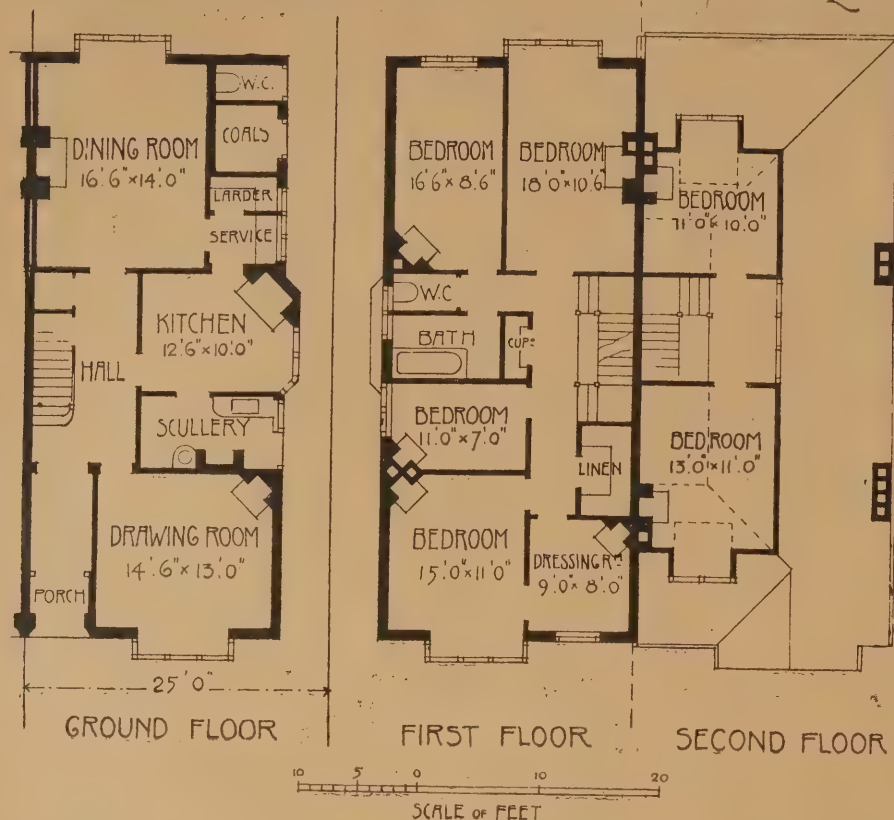
dormer windows, it is frequently convenient to place the sills somewhat higher. Where the windows are casements, with mullions and transoms, it is important to arrange that the latter do not interfere with the outlook of a person standing in the room; the under side should not be less than 6ft. 3in. from the floor level.

Since the general introduction of electric light instead of gas, it has been possible to reduce the height of the rooms. A room 10ft. high with several gas burners becomes intoler-



N<sup>o</sup> 8 - SEMI-DETACHED HOUSE

CUBE AT 12' = £110



able in the course of two or three hours unless ventilators are provided at the ceiling level, whereas when gas is not used a height of 9ft. is ample, and as regards appearance is to be preferred. Another old rule gives as the proper height for a room the third of the total produced by adding length and breadth together; this errs, if anything, on the side of excess of height; while it is, perhaps, suitable enough for a public building, or where the rooms are elaborately decorated, it is less in

agreement with the more homely character of domestic work, and 6in. to 1ft. may fairly be deducted in the latter case. Where there are several rooms considerably varying in size, of course some compromise must be effected with regard to a suitable height; at the same time careful planning may often enable one to give greater height to a larger room and less to a smaller, as, for example, in the case of the kitchen offices to plan No. 9. Moreover, considerable difference can be made in the apparent

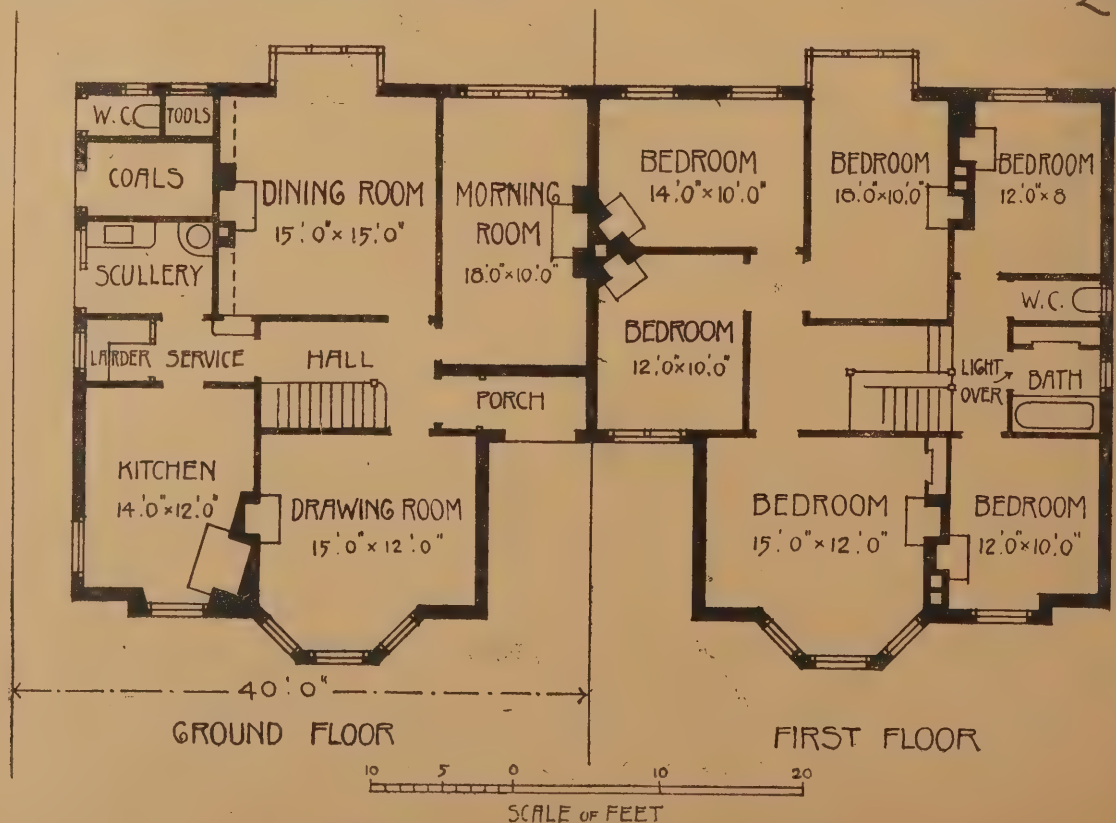
height of a room by the treatment of the ceiling cornice and walls, so that under the usual conditions with a small house one hardly risks failure in this matter.

At the Court-house, Helmsley, last week, an enquiry with reference to an application made by the District Council for permission to borrow £500 for works of sewerage and sewage disposal, was held by the Local Government Board Inspector.—Mr. Robert Pearson, clerk to the Helmsley District Council, explained that in the first instance a loan of £1500 was granted for carrying out the plans approved of by the Local Government Board. These plans had been carried out in their entirety by a special local committee, and the actual expenditure on the drainage was £1913. The lowest tender had amounted to £2,223, and thus the committee had saved £310.—The various items which had occasioned the excess of expenditure over the £1500 was explained by Mr. Fowler, the engineer of the works, who showed that the scheme had been carried out in conformity with the requirements of the Local Government Board and their inspector.

At Bootle, the Breeze Hill reservoir, which has just been completed, is designed to provide for fluctuations in the hourly and daily demand, and to ensure a steady uniform flow throughout the twenty-four hours, as well as to store water for use during temporary stoppage in the delivery from Prescott or from the pumping stations. The site at Breeze Hill is at an elevation of about 145ft. above the sea level, and the population to be supplied is about 80,000, requiring an average daily supply of from 2,000,000 to 3,000,000 gallons. The capacity of the reservoir exceeds 6,000,000 gallons. Its length is 268ft., breadth 240ft., and average depth 16½ft. The area at top-water is 7147 square yards. The arching of the roof consists of seventeen rows of parallel arches, 12ft. span and 240ft. long, with thirty-four groined abutment arches, 12ft. span and 22ft. long. The arches are covered with soil, which will be grassed, and the top of the reservoir laid out with walks. The walls of the reservoir are composed of concrete, with clay puddled backing, and lined with asphalt. The piers which carry the arches are of brick-work, and the floors of concrete with a facing of asphalt. The cost of the work was £16,661.

N<sup>o</sup> 9 - SEMI-DETACHED HOUSE

CUBE AT 12' = £130





## SANITARY SCIENCE.

(Continued from page xxiii.)

By PAUL OGDEN.

## HOUSE DRAINS.

CONCLUDING this short series of articles, I come to the question—the very important question—of house-drains. The properties of a sewage-flow are (1) its viscosity, (2) its velocity—which depends upon two subsidiary properties, viz., the hydraulic mean depth of the stream and its inclination—and (3) the scouring action of the stream upon the bottom of the channel. In respect of the first of these we may take it to be equivalent to that of water. As to the second property, if the cross sectional area of a stream is divided by the width of its cross-section measured along its bed, the result is the hydraulic mean depth, and the greater the depth the greater the velocity, providing, of course, the inclination remains the same. Coming to the question of the velocity of a sewage-flow—the flow of a liquid is influenced by the friction between it and the channel through which it flows, and it is more or less retarded, accordingly as the extent of the surface of the channel with which it flows in contact is great or small, in relation to the quantity of liquid flowing through the channel. The quantity of liquid discharged by any channel of given size, as in a pipe of given diameter, is the result of the sectional area of the stream multiplied into its velocity. It is desirable that the velocity of the sewage should be considerable. In circular pipes the least extent of surface is offered in relation to the quantity discharged; therefore the least obstruction to the flow of sewage, when the sewage half fills the pipes, in all cases within the limits of practice. Dealing with the question of solid deposit, the third property has necessarily to be considered so that

## STOPPAGES OF THE SEWER

or drain may not take place from the accumulation of solid matter. In Beardman's hydraulic tables it is stated that 30ft. per minute will not disturb clay with sand and stones, 40ft. per minute will sweep along coarse sand, 60ft. per minute will sweep along fine gravel, 120ft. per minute will sweep along round pebbles, 180ft. per minute will sweep along angular stones. Mr. Wicksteed made some experiments with a channel having a semi-circular bottom, and he found that with a bottom velocity of 12 $\frac{1}{2}$  in. per second coarse sand, small pebbles, rounded stones, and pieces of brick 2 in. in diameter were carried along, the larger ones moving rapidly and stirring up the sand and small stones, which moved slowly. With a velocity of 21 $\frac{1}{2}$  in. per second iron borings, together with all the previous substances and pieces of brick 3 in. in width were carried along. In these experiments the fall of the surface with the water and the bottom of the channel were the same, viz., 1 in 139. The velocity in a 6 in. pipe running half full, and having a fall of 1 in 60, would be fully 250ft. per minute, and this multiplied into the sectional area of the stream would give a discharge of 24 cubic feet per minute, or 150 gallons. If we take the fall at 1 in 120, which would give a mean velocity of 3ft. per second, or 180 per minute, we should have a discharge of 100 gallons per minute. No household discharges so much sewage as this. If the sewage does not half fill the pipe the velocity will not be so great. Some authorities calculate the discharge of rain and sewage water from one house as not exceeding two cubic feet per minute. A 6 in. pipe is large enough for a mansion or for four or five ordinary houses. The stoppage of a drain in most cases is the result of bad laying; the points have not been left clean, or if the socket is not quite perfect no attempt is made, in laying, to adapt or fit them one to the other. Another cause is the inclination to irregularity of course. This is more apparent when the fall is slight. The bottom of

## THE TRENCH

should be carefully prepared of an uniform inclination, the pipe-sockets being let into the

bottom, not packed up in loose stuff, as is sometimes the case, with pieces of stone or slate or brick-bats; if the sockets are let into the bed the whole pipe takes its bearing. The bottom half of a circular pipe joint should have the greatest care and attention; it should be made true upon the inside and a woodrake cut to the section of the half circular to clean any cement or other material used in pointing, in order that the flow may be perfect and free from interruption, for if care be not taken in this matter the sewage will collect at points where cement protrudes, and foul the drain. When the pipe is bad, or riddled, at any rate small stuff should be evenly rammed on each side and under, coarser material being used on top. Opinions differ as to whether the top half of the joint should be left in such a way that it will serve to take the moisture like a butt joint or field pipe; when this is done it is usual to cover the socket with broken stone or gravel to form a kind of filter. Probably the best course would be to make the joint tight in cement, and employ a separate drain near the surface to drain the land. When drains go under a house—and they never should do so where it can possibly be avoided—the pipes should be embedded in concrete; some have suggested the use of iron pipes, with the joints run in with lead, and this, I believe, is the most common practice nowadays. These pipes are about nine feet long, and consequently, there are fewer joints, and they resemble the joints of a gas-main. Junctions should enter the drain in

## THE DIRECTION OF THE FLOW,

and never at right angles. Some have proposed the insertion of inspection-eyes at all the breaks; others say they are not advisable, because they become receptacles for sewer gas which might escape. Various patent lids to pipes have been taken out, and are mostly of an oval shape, so that a sweep's brush may be inserted, and the drain cleared and inspected. The lids should be of iron, strongly made, and fastened down with Roman cement, which does not set so hard as Portland, and which consequently allows more easily of the removal of the lid.

## BRADFORD SEWAGE SCHEME.

THE Borough Surveyor of Bradford has prepared a statement giving particulars of the proposed new sewage purification works. From it we learn that the scheme consists chiefly of beck and road improvements. The net area of land available for sewage disposal purposes is 36 $\frac{1}{2}$  acres, of which it is intended to appropriate 17 $\frac{1}{2}$  acres for precipitation purposes, including tanks and buildings, and 19 acres for filtration areas. Between 12 and 13 acres are occupied by the chemical works, Dumb Mill, and the beck and road improvements. An agreement has been made with the Midland Railway Company for an exchange of land. The existing sewage works may be kept in operation during the carrying out of the beck and road improvements. The largest item of expenditure is for improving the Bradford Beck, which at present winds its way almost through the centre of the site. It is proposed to construct an entirely new course for the beck, 24ft. in width, for a total length of 1300yds. The new watercourse will have a gradient of 1 in 500, and sufficient capacity to cope with the heaviest rains. The removal of the weir behind Dumb Mill will enable the Corporation to lower the bed of the beck about 5ft., and prevent any further possibility of flooding to the adjoining lands, to which they have hitherto been subject. The lowering of the beck will also furnish a difference of level of 22ft. between the invert of the main sewer where it enters the new sewage works, and the point where the effluent is finally discharged into the watercourse. This difference in level will be of great advantage, as it will admit of the sewage and effluents passing easily through the precipitation tanks and filter beds by gravitation.

## THE INVERT OF THE BECK

is intended to be formed with a foundation of cement concrete, covered by two rims of brick-

work, the lower rim being of red bricks and the upper rim of blue Staffordshire bricks laid in cement mortar. The Canal Road, as improved, will run at a higher level alongside the beck, and for a considerable length it will be necessary to provide a retaining wall to support it. The present proposal also includes the widening and improvement of the high and low level roads adjoining Frizinghall Station. Although these roads are formed at a much higher level than that of the beck course, there will be no need in this case for an expensive retaining wall, as there is ample space to admit of the formation of slopes. Unfortunately, in the previous case, a retaining wall is absolutely necessary, as the width of the site is already too limited for the construction of tanks, buildings, beck-course, and a 16yds. road. In fact, if the space would have admitted of it, the road should have been shown 18yds. in width. Other road improvements are also necessary before the ground can be properly utilised for sewage disposal purposes. It is proposed to divert a portion of Stanley Road, placing it closer to the west side of the canal for a length of 333yds. In this case the road will be formed with slopes, and the gradient will be 1 in 117. At present it has an inclination of 1 in 42. The road is intended to form the approach to the new destructor which is proposed to be placed near the bridge which carries Stanley Road over the canal. Gazeby Lane, between the roadway and the canal, is to be raised so as to give an inclination of 1 in 26, supported by retaining walls, with archways or subways under the road for connecting the northern and southern portions of the site. A new bridge of brickwork and masonry will be necessary to carry this road over the Bradford Beck. It is also very desirable that a new bridge should be made over the canal near the "Venture" Inn, and it has been suggested that the Canal Company and the Corporation should contribute equally towards the cost, but as the negotiations between the two bodies are not yet completed, the construction of the bridge has not been provided for in the present estimate. The level of Gazeby Lane will, however, be kept up to suit the level of the new bridge whenever it is made. In addition, the two outfall sewers from Bradford will require diverting and extending to the new works. The intercepting sewer for the Heaton and Frizinghall drainage will also need to be extended to the new works, and it is proposed to convey the drainage from the Bolton Woods district by means of a

## A SYPHON UNDER THE CANAL.

All these will flow to the new works by gravitation, but the drainage of a limited area around Frizinghall Station and Dumb Mill, comprising about 128 existing houses and some 200 houses which will probably be erected on the building land belonging to Mr. B. Wood, will require to be forced up to the new works, or otherwise specially dealt with. It will also be necessary to divert the large water and gas mains which are at present laid under the footpath through Exley's field, and place them under the new roads. Another item of expenditure is £350, the half cost, for providing and fixing a lattice girder bridge for foot passengers over the Midland Railway, in lieu of the present objectionable tunnel at Gazeby Lane. Negotiations are now pending with the Railway Company, which is equally interested with the Corporation, in providing a new footbridge, seeing that their line at this point is to be doubled in width. The Corporation purchased the Dumb Mill estate, subject to a water right belonging to the Shipley Fields Mill. Water is taken from the beck above the weir behind the old Dumb Mill, and conveyed under Valley Road in a culvert to the new mill, where it is used for condensing purposes. The removal of the weir and lowering of the beck will necessitate the relaying of this channel to the new mill at a lower level. Finally, it is proposed to stop up the public footpath which runs diagonally across the fields near the chemical works from Gazeby Lane to the canal bank, nearly opposite Messrs. Holden's grease works. The total estimate is £40,000.



## Surveying and Sanitary Notes.

A SCHEME prepared by the Baths Committee of the Liverpool Corporation entails, if carried out, a cost estimated at £40,000, for public baths at the Pierhead, apart from a sum to be laid out in preparing the site by sinking steel piles and laying a bed of concrete, &c., some 5ft. in thickness, as a foundation. In the course of examinations of the existing building it has been discovered that its insecurity and insanitary condition are due to the percolation of water from the river through the Pierhead wall, which is spongy and pervious. The result is that a considerable part of the subsoil has been gradually washed away. The present swimming baths, too, are sunk to a depth of about 10ft. below the level of the Pierhead, with the result that at certain states of the tide the baths cannot be emptied. In the plans drawn up by the baths engineer the new baths will be some 2ft. or 3ft. only below the Pierhead level. The exterior of the building will be of red brick and terra-cotta. At the north end it is proposed to place a clock tower. It is also part of the design to construct on the roof a public promenade, 12ft. in width, extending the whole way round the building. This promenade will form the roof of the dressing-rooms, offices, and Turkish, Russian, and other baths on the top or second floor. Access to it will be gained from the entrance hall of the building or through the café, to which there will be a separate entrance in the north front, adjoining the access to the Landing-stage. The café it is proposed to locate on the first floor, and it will comprise, besides a café proper, a smoke-room 46ft. by 15ft., and a dining-room.

COLONEL J. T. MARSH, Local Government Board Inspector, has held an enquiry at Paul, near Penzance, into the application of the District Council to borrow £500 for the Newlyn drainage scheme.—Mr. O. Caldwell explained the estimate and plans, and that this was only an instalment of what really should be done at St. Peter's Hill. At present there was no system for the disposal of sewage, and house refuse was thrown out of the front door. The Inspector pointed out that they proposed to go to the expense of a drain to empty into an antiquated rough unventilated bolt. Mr. Caldwell said his instructions only went that far.—The Inspector thought it looked like spoiling the thing for a ha'porth of tar. It was evident that from where the scheme ended it was an incomplete one.—Mr. Caldwell replied that it was so, probably because of the poverty of the district.—The other portion of the scheme, that for draining Street-an-Towan, was explained, and the Inspector suggested carrying the outlet below low water-mark.

In the monthly report, submitted at a meeting of the Leeds Waterworks Committee, it was stated that there were 2506 million gallons of water in the city reservoirs, as compared with 2504 million gallons at the corresponding period. The committee decided to lay a new 22-inch main to deliver water from the filter bed to the two new pumping engines now being put down at Headingley. It was also resolved to construct an additional 18-inch main from the end of Stonegate Road to carry water from the pumping station to the Moortown reservoir. Instructions were given to get out tenders for the execution of this work immediately. The construction of the reservoir at Harehills was reported to be progressing satisfactorily, and a contract has already been let for the construction of a 30-inch main to carry water from this reservoir to the end of Meanwood Road.

MAJOR-GENERAL H. D. CROZIER, R.E., one of the Local Government Board Inspectors, has held a public enquiry at the Municipal Offices, Harrogate, respecting the application of the Corporation for a provisional order to repeal the Local Acts, and to enable the Town Council to borrow £3150 for works required in conveying a supply of mild sulphur water from

lands about 2½ miles south-west of the borough. The Corporation has for some time been making experiments with the springs at Beckwith, and having been successful in separating the iron water from the sulphur, has entered into agreement to purchase an acre or an acre and a half of land, as required, for £750 or £900. This supply of water is looked upon as a very valuable one for Harrogate, as it is rich in alkaline properties, and will be a great acquisition in connection with the new baths for bathing purposes, the treatment of skin affections, and ailments. The daily yield of the water is about 1200 gallons. It will be forced over Harlow Hill by means of a hydraulic ram, and conveyed to Harrogate in gun-metal pipes.

A LOCAL Government Board Inquiry was recently held at the Hove Town Hall, relative to the application of the Hove Urban District Council for sanction to borrow £1800 for purposes of street improvement and sewerage. It was explained that the money was required for the widening of Sackville Road, it having been previously widened in May, 1892. Sackville Road is not a main road, but a public thoroughfare repairable by the inhabitants of Hove. It is proposed to widen and sewer the road from the Railway bridge up to the Old Shoreham Road on the west side. The existing width varied from 17ft. 6in. to 19ft. 6in., and when widened the road will be 50ft. wide. The length of the sewer would be 645ft., the estimated cost of which, including ventilating shafts, would be £693. It was proposed to use concrete tubes.

THE Merthyr District Council has paid a visit of inspection to the new waterworks in process of construction at Upper Neuadd. Part of the work is being carried out by the Council, and part by Messrs. Holme and King, of Liverpool. The reservoir is intended to be of sufficient capacity to provide a supply of about 360,000,000 gallons a day. This quantity is in excess of what will be needed to meet the necessities of the Council's district, and it is computed that it will be able to furnish to other authorities outside their own district a daily supply of something like 2,000,000 gallons. The supervision of the work on behalf of the contractors is being done by Mr. Clinton Holme, while on the part of the Council it is being looked after principally by Mr. Harvey, their engineer.

LITTLE time is being lost in utilising the land opposite the Cardiff Cemetery, which has for some years been used for allotments. Plans have been submitted to the Plans Committee of the Cardiff Public Works Committee, showing the way in which the Bute authorities proposed to lay out that land. Plans were also submitted for houses to be situated in one of the prettiest spots around the Roath Park. The site, which is for about a dozen houses, lies between the Fair Oak bridge on the Rhymney line and the railway bridge which passes over the road just at the entrance to the lake section of the park.

THE Cardiff Corporation Waterworks Committee's meeting has confirmed the acceptance of the tender of Mr. T. D. Ridley, of Cardiff and Middlesbrough, for the extension of the filter beds at the Heath. The engineer (Mr. Priestley) estimated the cost at £10,548, and Mr. Ridley's tender was £10,114. Other tenders received were Messrs. Turner and Sons, Cardiff, £10,132; Messrs. Harrison and Co., Swansea, £10,277; and Mr. James Allan, Cardiff, £11,570.

THE Sanitary Institute has accepted the invitation of the Leeds City Council to hold the autumn congress and exhibition in Leeds next September. The congress will last for a week. The programme includes general addresses and lectures; sectional meetings for the reading and discussion of papers relating to sanitary science, engineering, Architecture, chemistry, meteorology, and geology; and conferences of medical officers, engineers, and sanitary inspectors. Visits are to be arranged during the congress to the waterworks, sewage disposal works, the hospitals,

and other places of interest to sanitarians. There will also be a health exhibition, containing all the newest forms of sanitary appliances and machinery relating to municipal and domestic sanitation.

THE Farsley Urban District Council having applied to the Local Government Board for sanction to borrow £14,700 for purposes of sewerage and sewage disposal, and also having applied for the appointment of an Inspector to make inquiry into the propriety of certain of the said works which are to be constructed beyond the limits of the urban district, Major-General H. D. Crozier, R.E., the Inspector, recently held the usual inquiry. The estimated expenditure on the proposed scheme is £14,700, viz.: £5770 on the sewage outfall works and £8930 on the general drainage scheme. For the outfall works it is proposed to purchase 13½ acres. In 1873 plans of a proposed sewerage scheme were prepared by Mr. Filliter, C.E., Leeds, but matters still remain as they were, the drainage at present being a primitive system of sanitation.

A MEETING of representatives of District Councils in the western valleys from Monmouthshire was held recently to consider the disposal of sewage of the valleys from Ebbw Vale and Nantyglo. Alderman W. H. Powell explained that, so far as the western valleys were concerned, the representatives at the recent conference at Newport were not decided, but wished to keep the matter open. The eastern valleys had withdrawn from the trunk scheme of the Monmouthshire County Council. The representatives stated that none of their Councils had pledged themselves to any scheme. It was unanimously resolved:—"That the surveyors and engineers of the various District Councils of the Western Valleys, in conjunction with the county surveyor (Mr. Tanner), consider the trunk scheme, and obtain as nearly as possible the cost of same and report to another meeting."

THE usual meeting of the Sanitary Inspectors' Association was recently held at Carpenters' Hall. Twenty-two new ordinary members were added to the roll, and Mr. Charles Seale-Hayne, M.P., was elected an hon. member. Mr. T. W. Crocker read a paper on "Nuisances from Certain Trades," and a discussion followed. Subsequently a conference on "Tenure of Office" was initiated by Mr. G. T. Dee.

THE annual meeting of the North-Western and Midland Sanitary Inspectors' Association was held at the Royal Institution, Liverpool, on the 10th inst., under the presidency of Mr. William Urquhart, of Crewe. The officers elected for the ensuing year were Dr. Francis Vacher (medical officer of health, Cheshire County Council), president; Dr. E. W. Hope (medical officer of Liverpool), Dr. Edward Sergeant (medical officer, Lancashire County Council), Dr. William Carter, J.P. (Liverpool), and Dr. George Reid (county medical officer, Stafford), vice-presidents; Mr. William Urquhart (Crewe), chairman of council; Messrs. Wm. Stansfield (Manchester), F. T. Poulson (Stafford), and Ernest Worrall (Penmaenmawr), vice-chairmen of the council; Mr. N. Coates, treasurer; Mr. H. H. Spears (Waterloo), secretary; and Mr. William Gleaves (Liverpool), librarian. The tenth annual report stated that the work and progress of the session were unexampled in the records of the association. The total number of members was now 213, as against 142 in the previous session, and the area represented was 87 distinct urban and rural sanitary districts, as against 48 in the preceding year. An amalgamation with the Staffordshire Sanitary Inspectors' Association had been effected. A library of standard works on sanitary and allied subjects had been established, together with a museum of sanitary appliances. At the close of the routine business, Mr. J. F. Burnett delivered a lecture on "Simple Methods of Water Analysis," his remarks dealing largely with the means of detecting contaminations in water.





### Varnishing Day at the Academy.

"I AM not aware of the limitations of the Royal Academy," said Mr. Whistler recently at the trial of Pennell v. Sickert, when counsel asked him if he knew that transfer lithographs were not accepted at that institution. We should like to share that delightful state of innocence with him, so far as Architecture is concerned at least. It would be better for our own peace of mind, and we imagine that of a good many others besides ourselves. How can we be innocent of the Academy's limitations, however, when "Architecture limited" is the very first thing that greets you at its doors this year? Written legibly on a large exhibit, what could be plainer?—except, indeed, it were written on the door-head itself. Such delightful satire, such uncertain humour there is in the phrase, that one is almost inclined to believe the picture was purposely accepted and hung to point a moral and to adorn a tale—the moral of modern Architecture, a tale of woe! No premeditated scheme could possibly have hit upon a more fitting title to describe this year's exhibition of Architecture than that. Nothing could be nearer the truth there than "Architecture limited"—and worse than the commonplace. "One gets tired of eccentricities and welcomes the commonplace as a relief," said an Architect friend of ours on varnishing day, and looked around for relief and found none, nothing but "Architecture limited" everywhere. Sad, indeed, those few brilliant exceptions which serve mainly to show of what poor stuff the rest are made. No saying concerning the Academy Architecture is more aggravatingly trite—aggravating, because it is so true, than that you constantly hear: "It is the worst I have seen yet." The repetition of the phrase gets tiresome after, say, a dozen years of it. We went, therefore, to this year's show firmly resolved to have nothing to do with such unpleasant things. We would look at the bright side mainly, even polish up—to the best of our abilities—the dull one. We would go placidly to work with a strong preconceived idea to bless. Nothing, we argued, could possibly pass the Hanging Committee but that which contained some merit either of drawing or design. If the latter, we would praise their wisdom, for surely Architecture should be first considered. If the former, we would improve our minds by studying the Artist's deft treatment of an unlovely subject, his clever handling of delicate effects of light and shade, his cunning in subduing fussiness and triviality. It is true that here and there in the waste we found such things. Such lovely creations as those by Mr. Wilson, illustrating his work at Welbeck Abbey for the fortunate Duke of Portland; such living virile work as that by Mr. Beresford Pite, illustrated by Mr. Joass; or again, Mr. Belcher's work by the same Artist, and some equally good drawings by Messrs. Nicholson, Corlette, Blanford, C. C. Brewer, and a few more; but with these, and say half-dozen others, the list is nearly, if not quite exhausted, the remainder falling as we had said, and with sorrow, pitifully below the commonplace, and the commonplace which is not relief. Personally we prefer eccentricity; it is at least amusing, if it does at times exasperate. Now we don't believe that this

sort of thing is due entirely to the indifference of Architects themselves, we prefer to put the blame, plumply, in the right quarter, viz., the Hanging Committee—that much-criticised body of men of whose sins, both of omission and of commission, it would take long to tell, extending, as they do, over the whole period that the Academy has thrown its light and shade over the aspirations of the Artist. It is an easy matter to question the discrimination of the Hanging Committee, but we must call it again to account. We cannot do otherwise with the evidence we possess at this moment at the Office of the Architectural Review—the evidence of rejected pictures. It would be a most entertaining and instructive thing, in proof of this, were we to publish a few "Academy

such a thing, it is better to say our Art is so little cared for, so ignored, that the effort itself would not be worth attention.

### Art of Plastering.

"PLASTERING, Plain and Decorative," by William Millar, plasterer and modeller, is a book to which—being compiled by a Craftsman—we would wish to give a cordial welcome; not only for its own sake, but also for the evidence it shows that there are still Craftsmen among us who have something of the old love for their Craft—men whose interest in their work is not solely confined to the necessary living it brings. Our modern life, with its spirit of unrest, has done much to destroy this feeling; but it has lately come to be



parallels" in our pages. The evidence would be overwhelming. Some of the most beautiful things we have ever seen—beautiful alike both in drawing and design, Architecture which the nation itself should be proud to possess—have been rejected for works that would disgrace an estate agent's window. Whose fault is this if it is not that of the Hanging Committee? With such proof you are almost inclined to think the Academy is wishful to prove that Architecture, once mistress of all the Arts, is indeed upon the town, fallen below the level of the streets. And this from the institution formed to foster and encourage the Arts! Perhaps, however, it is unfair to seek to convict the Academy of

more clearly understood that the best Craft, like the best Art, is not a matter of routine—the mere soulless labour of unthinking and unfeeling workmen, working simply for their hire. It is felt that to produce good work there must be intelligence and interest, untiring patience, and a love of the work for its own sake. In such fashion wrought the great Craftsmen of the past, whether in plaster, as did Vittorio, or in wood, as did Sheraton, or in iron, as did Huntingdon Shaw. To such as these work well done was its own reward. It is because this book seems to have caught some breath, however faint, of the spirit which animated the Craftsmen of old—some lingering echo of the great voices of the past—that it has a claim upon our sympathy. Any evidence



tending to prove the existence of a right spirit in the Crafts must always be to the Artist a source of gratification. The author, in his preface, tells us that this is the work of a lifetime, that he has felt the want of a practical book on plastering, and that he believes this to be the first complete one ever published. A prefatory note is contributed by Mr. G. T. Robinson, in which we learn under what adverse circumstances this book was written, and with what courage it was taken up again, after the manuscript and drawings had been destroyed by fire. A most interesting introductory chapter, giving a general history of the progress of plastering from the earliest times, is also written by the same hand, chiefly from historical material collected by Mr. Millar, who himself devotes his first chapter to the history of his Craft in the British Isles. After this first chapter we find two dealing with materials, and then chapters on such subjects as Lime Plaster, Fibrous Plaster, Decorative Ceilings, &c.; on such processes as modelling, wax and gelatine moulding, &c.; and, finally, one on tools and appliances. The book finishes with a most useful appendix, giving plasterers' memoranda, recipes, and glossary. The subjects illustrated are of unequal Artistic merit, but as illustrating the material or the process, rather than the design, they serve their purpose. Some are examples of elaborate Renaissance work at Venice or Fontainebleau; others of the wonderful work of the Moors in Spain; and others again show specimens of the work done in England and Scotland, such as that at Audley End. This book aims at being a complete and exhaustive treatise on the whole Art and Craft of plastering, dealing both with materials and workmanship; and not only with plastering as the term is generally understood, but also with such allied subjects as terra-cotta and concrete. Here may be found a wealth of information as to the processes used by plasterers at all times and in all countries, and the relative advantages of various materials for various purposes. The most valuable part of the book seems to be that in which the author, a practical plasterer, describes the technical details of his Craft, the proper preparation and use of materials, and the various methods of their application. Of less value are such chapters as the one on Rudimentary Geometry and Architecture, dealing with such subjects as the setting-out of various kinds of arches, the proportions of the orders, and different sorts of classic features, such as gateways, niches, pediments, and mouldings. Here the author appears to wander somewhat from his subject, to occupy himself more with the design than with the execution. This chapter, compared with the others, is necessarily, perhaps, incomplete: not enough geometry to enable the plasterer to set out intricate problems, not enough Architecture to give him an intelligent appreciation. These matters are dealt with more fully elsewhere. The edition of "Vignola," by Leveil, may be consulted with greater advantage for the proportions of the orders; while for the geometrical problems involved in the process of setting out elaborate details, numerous handbooks on geometry already exist, which are naturally more complete. While in a critical mood, we may say that we think the book generally is perhaps a little unwieldy and diffuse, and that it might be improved by the omission of everything (with the exception of the history) that does not strictly bear on the technical side of the subject. The author's enthusiasm sometimes leads him into such statements as those on pp. 522-3, on the elements of Architecture, which is a matter outside his province, and on Gothic mouldings, when he makes a statement which, according to Viollet-le-duc, is the exact contrary to the truth. Every man who writes from his own personal observation and experience is always interesting, and generally instructive, but not when he is simply retailing secondhand information. We are inclined to echo Mr. Robinson's desire that other Craftsmen may be tempted to write their "shop knowledge," for, as Viollet-le-duc once put it, a workman who knows his work is one before whom the Architect may stand, cap in hand, and learn what he can. The Artistic use of plaster work for

decoration has increased of late years, and interest in this material has grown with it. Modern requirements of speed and economy are found to be satisfied. The publication of this book is therefore opportune, and should help in diffusing a wider knowledge of the possibilities of the material. On its value as a textbook for young plasterers others can speak with greater authority, but we can safely say that to the Architect it will be found an interesting and valuable book of reference.

["Plastering, Plain and Decorative." By William Millar. Illustrated. B. T. Batsford, High Holborn, London, W.C.]

#### BUILDING AT BIRMINGHAM.

**BIRMINGHAM** is rapidly extending its borders. Previous developments have been chiefly within the municipal boundaries, but the population of the city is now fairly overflowing in almost every direction, and the districts immediately outside have been the scenes of an almost mushroom-like growth, both of manufacturing premises and residential quarters. The erection of new buildings is still going on with undiminished rapidity. Contractors are occupied to the utmost of their capacity, and coincident with this is a marked rise in the cost of building, which, within the last two years, has increased as much as 15 to 20 per cent upon the already high rates which had previously prevailed. In Edgbaston, where certain restrictions are imposed when the erection of houses is concerned, there is a large area of land ready for the builder, and the same may be said of Harborne, where similar reservations limit the growth of the district. A good deal of building is going on there, however, particularly in the conversion of houses into shops, as well as in the addition of new streets near the railway station.

#### BUILDING OPERATIONS

of an extensive character have been in progress for a long period on the Dudley Road side of the city, and stretching across to the Hagley Road as well as in the direction of Smethwick. The Gillott estate is "ripe," and in that vast district there is room for an enormous population. Streets of houses, chiefly small villas, are being erected, and it will not be long before the neighbourhood of City Road, which runs between Dudley Road, Sandon Road, and Hagley Road, is covered with residences. Several new thoroughfares running parallel with City Road are projected, and these will be intersected by other streets from the city boundary to Rotton Park Road. Balsall Heath has extended so rapidly of late years that very little land remains available, and when the open spaces near Cannon Hill Park have been utilised, the district, except in small isolated spots, will rarely require the services of the builder. In Sparkbrook, building operations on an extensive scale have been carried on for years. The intervening land, chiefly fields, between Stratford Road and Balsall Heath, near the boundary line, has been covered with rows of houses, and new thoroughfares are being cut from the neighbourhood of Anderton Road in the direction of the boundary, so that in time the whole of the area on the Small Heath side of Sparkbrook will be built upon. There is plenty of open land ripe for building purposes at Small Heath, especially in the Hobmoor Lane locality, and similarly a considerable development is in prospect at Saltley and Little Bromwich, where an elaborate growth has been noticeable within the last ten years. On the other sides of the city, like the centre, there is practically no room for extension. The main feature about the building enterprise in Birmingham is the steady increase in the number of residences, chiefly, of course, for the artisan and lower middle classes. Last year 1852 new houses and shops were put up, as compared with 1806 in the previous year, and about equal progress has been made during the first quarter of the present year. On the other hand, the erection of warehouses and shopping

has been unusually extensive, the number of such

#### BUILDINGS ERECTED LAST YEAR

being 247, against 197 in 1895, an increase of about 25 per cent. A curious feature of the growth of the suburbs is the decisive manner in which diverse interests have been concentrated in sharply defined localities. This is especially noticeable in the vast area comprising the parish of King's Norton and the parish of Northfield, governed by the King's Norton District Council. The entrance to Moseley is marked by a long row of comparatively new shops, the village "Green" has become merely an ornamental flower bed, and the site of the adjoining garden of recent times now contains seventy houses and shops, as well as the tramway depôt. On the other side of the road, the Moseley Hall Estate, with the exception of some ten acres surrounding the Convalescent Home for Children, is being prepared for building purposes, and already imposing roads stretching across to Cannon Hill Park have been planned. The process of development is seen in the fine residences of Chantry Road, which runs by the side of the estate, and the villas of a similar character in course of erection in Salisbury Road, which cuts through the grounds. The fields and gardens formerly existing on the Alcester Road have been largely covered with houses, completely uniting Moseley with King's Heath. On the far side of Moseley building operations are also steadily proceeding. Some hundreds of houses have been built, and others, chiefly on the Grange Estate, which was acquired last year and plotted for the erection of about 900 houses, are in course of completion. There is still room for development, and signs are not wanting that in the course of a few years Moseley, King's Heath, and Stirchley will so broaden as to ultimately unite and form one huge community, with Moseley as the "West End." In the parish of Northfield similar progress is being made. Several streets have been built opposite to "Kirby's Pool," and other roads are being laid out; while a little nearer Birmingham the Selly Grove estate, ranging from the hotel to the city boundary, has been developed within the last twelve months, and upwards of 130 artisans' dwellings have been built or are in process of erection. On the upper side of Selly Oak the land in Harborne Lane is also being

#### FILLED WITH HOUSES

for the working classes, and a similar enterprising condition is to be observed in the neighbourhood of the workhouse. As in other suburbs, so at Sparkhill, the development is due, in a great measure, to the operations of the Freehold Land Society, which has been responsible for the erection of some hundreds of houses. Now the society has acquired another estate near Moseley College, and the whole of that vast district will in time be built upon. Sparkhill and Greet are but a small portion of the parish of Yardley, but taking the hill at Sparkhill as the centre, there are within a radius of a thousand yards at least 13,000 inhabitants, and of that number it may be safely said that 10,000 are residing in houses erected during the last dozen years. The extension is chiefly in Sparkhill and Greet, where considerably more than half of the 450 or 500 houses erected annually of late years have been built. Hay Mills is a rapidly-developing industrial community, but the other villages of Acock's Green, Hall Green, Yardley, and Stechford are residential suburbs, and their populations are steadily advancing. Handsworth is another suburb which has made gigantic strides during the last five and twenty years. On the West Bromwich side the whole neighbourhood of the New Inns is being built upon very rapidly. Many new streets have been opened, and others are in course of construction; but there remains a vast area of undeveloped land awaiting the attention of the builder. That attention will be paid to it in the near future is certain, and it is estimated that 600 additional houses will be erected within a short radius of the New Inns during the next two years.



## In Istria and Dalmatia with a Camera.

By W. LAW BROS.

### II.—ARBE AND ZARA.

**T**AKING leave of the Peninsula of Istria, and sailing for a few hours across the Quarnero, brings you among the many islands which form a breakwater to the Dalmatian coast; and skirting along the low-lying island of Veglia, you see the lofty spire of Arbe, on the island of the same name, the first stopping-place in Dalmatia proper.

This island was for many centuries an important naval station of the Venetians, and during their almost incessant wars with the Turks, became a very important town. In the middle of the fifteenth century it was devastated by a pestilence, which destroyed nearly the whole of the inhabitants, and since that date it has never recovered its wealth, population, or importance, but lies stranded, so to say, its *raison d'être* gone, and without any inducements for settlers from outside to repopulate its deserted streets, which retain many rich and beautiful traces of the magnificent structures in which its inhabitants delighted

borrowing our pantomime from Florence, do not suspect that, in adopting the lean and slippered pantaloons, we are perpetuating a Florentine mediæval political representation of the great Republic of Venice.

I could have wished to linger among the deserted streets of Arbe, but time did not permit, and, having obtained a few snap shots, was obliged to proceed (the boat only calling at very irregular intervals) to my next stopping place, Zara. This is the capital of Dalmatia, and boasts about 12,000 inhabitants, and is celebrated among lovers of creature comforts for its liqueur Maraschino, and among lovers of the Fine Arts for its graceful Venetian Architecture. You naturally turn your steps towards the Cathedral on first landing, and find a fine thirteenth-century front, which might have come from Pisa or Central Italy, but under such unfortunate surroundings, so far as photography is concerned, that from the small piazza in which it stands it is impossible to get in the whole of



CHURCH TOWER, ARBE.



PORTA MARINA, ARBE.

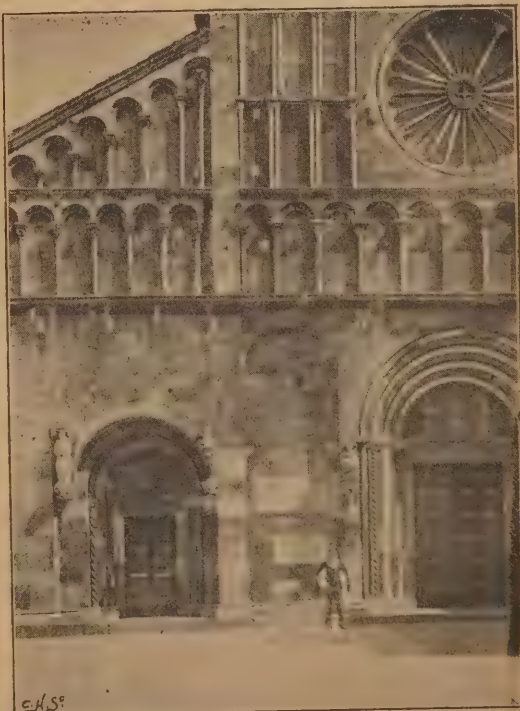
in the days of their prosperity. It is in point of fact a fourteenth-century town, full of delightful corners, in which you can linger with very great pleasure and profit, tempered with regret at seeing these busy haunts of men now silently crumbling into dust from neglect and decay. The accompanying illustrations show the fine Venetian thirteenth-century tower, which, in my opinion, may well vie in beauty of proportion and chastity of style with the more florid and highly decorated tower of Giotto, at Florence. If one may venture on a criticism, it is that its Art in duplicating the windows in each successive story is a little too apparent. Be that as it may, you rarely meet with a tower of more beautiful construction or more pleasing design.

The Piazza dei Signori also gives an idea, although an inadequate one, of the way in which these old fourteenth-century citizens vied with each other in decorating their town mansions. The water-gate, through which you arrive and depart, is also an interesting structure. Very rough and crude in construction, it bears conspicuously over the gateway the emblem of Venetian sovereignty—the lion of St. Mark—whose effigy may be seen over many a public building in Greater Venice. The piantaleone, or planter of the Lion, became, indeed, a favourite figure of speech for Venice, and under this name political rivalry delighted to represent Venice as a decrepid old man; and we Anglo-Saxons, in

the front. Under these circumstances there are two courses only open—to take a portion correctly, or to take in the whole, but at such an angle that violent foreshortening and distortion are inevitable, and give a painful impression rather than a pleasurable one. For myself, I chose the former. It is rarely that English Architects have a chance of showing their skill on the Continent, and I note with pleasure that the effective modern tower of this Cathedral is the design of our recently-elected R.A., Mr. Jackson, whose valuable book on Dalmatia is deserving of study by all those who are interested in this out-of-the-way country. Passing into the interior of the Cathedral, we find a somewhat simple but effective building about a century earlier than the west front. At the east end is a very interesting ciborium, dating from 1332, with elaborately carved columns, which, together with the stalls, show in their blackness a very strong contrast with the white stone walls and roof. Under the choir is a curious early crypt with pointed arches, which contrast somewhat curiously with the later semi-circular vaulting of the roof of the nave and choir.

But the Cathedral is by no means the

only building of interest in Zara. The ninth century Church of St. Donato is an octagon building, very much on the same lines as the central portion of Charlemagne's Church at Aachen, and a visit to it shows that the foundation consists entirely of early Roman monuments. Here are fragments of Roman altars, capitals, bases, cornices, all jumbled up together, and forming a mass of foundations on which the ninth-century builders laid their first corners of masonry. The tympanum of the door at St. Michael's has a curious archaic representation of the patron saint, who is performing his two functions simultaneously: with one hand he is weighing the souls of the departed, and with the other, fighting a demon, who, however, is such a little one, that much glory can hardly have been gained by the conflict, unless the virulence of the demon was in inverse proportion to his size. The fight, however, can hardly have been carried on without a loss of that impartiality which should



WEST FRONT OF CATHEDRAL, ZARA.



be in fullest force while the weighing of the souls was being carried out.

At St. Simeone's Church the superb silver ark of the saint, one of the most beautiful pieces of the silversmiths' craft of late fourteenth-century work, is to be seen; but as a copy of this is exhibited in the Museum at South Kensington, it is unnecessary to do more than mention it here.

Turning to the secular buildings, you notice the watergate, or Porta di Terra Firma, of which an illustration is given. This was



INTERIOR OF CATHEDRAL, ZARA.

originally a Roman work, but rebuilt by the Venetians in 1543, as recorded by its inscription, in that tasteless style of bastard Romanesque which causes the monuments of that date to be such eyesores to the lover either of Classic or Gothic form; it is, however, a very typical specimen of its style and time.

Of Roman work little remains: the successive invasions of Goths, Hungarians, Venetians, and Turks have destroyed nearly all traces of the old Roman city of Jadera, and to-day the most conspicuous relic of the Imperial city is the solitary Corinthian column which stands in the Piazza della Erbe, and is all that remains of the Forum. Even this relic has suffered the degradation of serving as a pillory, and at the present day are still to be seen the chains to which malefactors were fastened, and which have worn deep grooves into the stone across the fluting of the Roman work.

The varied interests in and about Zara are by no means exhausted by a visit of three days, and we therefore push on further south to Sebenico and Trau, which will form the subject of my next article.

The new Technical College in George Street, Paisley, plans of which have just been passed at the Dean of Guild Court, will cost £20,000. The building will be three stories in height, and is designed in a simple style of Italian Classical Architecture.

The Glasgow Tramways Company has decided that an experimental trial of the overhead trolley system should be recommended for the Springburn route. It was understood that in putting forward this recommendation at the next meeting of the Corporation, the Committee should point out that by adopting it the city might get over the difficulty of street lighting by electricity, as both objects, lighting and traction, could be worked in conformity from the common station situated as centrally as possible.

## THE ORIGIN AND DEVELOPMENT OF RENAISSANCE ARCHITECTURE IN ITALY.\*

(Continued from page 158.)

By C. B. HUTCHINSON, A.R.I.B.A.

THE earliest structure of which any record exists is the Ark of Noah, the dimensions of which were 300 cubits long, 50 cubits wide, and 30 cubits high, or in length and breadth 300 to 50 cubits, or one-sixth, and length and height 300 to 30, or one-tenth, thus forming proportions identical with those of a human body floating as the Ark itself would on the water. To show the importance placed on a system of proportion employed in a sacred edifice, we find in the building of Sienna Cathedral, that on February 14th, 1321, the work which had been begun was stopped because the proportions were not set out according to ancient rules, and a commission appointed to inquire into the matter. Brunelleschi's Churches show a study of Classic detail gained probably during his several visits to Rome, and a careful reproduction of its features and mouldings. It is strange how in both Churches, S. Spirito and S. Lorenzo, he places a small entablature on the top of the capitals, instead of springing the arches direct from their capitals. No doubt this is correct according to an "order," but an arcade is not an "order," and this unnecessary feature should be left out. The first building in which it was so is the Palace of Diocletian at Spalato, in Dalmatia, erected in the third century, and yet it was not again followed till the fifteenth century. Brunelleschi's great work, however, was the completion of the Dome cupola to the Cathedral at Florence, which was commenced in 1420, and not quite completed at the time of his death in 1444. The construction

of a dome of such immense size had never been before attempted by the Italians, and many were the methods suggested for its construction. It was not thought advisable to entrust so great a work into the

He determined to get it all into his own hands. His method of procedure is probably well known. He pretended to be very ill, and so Ghiberti was left in sole charge, who soon found out that he was quite unable to carry on the work, and then Brunelleschi stipulated with the Church authorities that he would finish the dome if he had the responsibility placed in his hands alone. These two men had before competed for the bronze gates to the Baptistry at Florence. Here Ghiberti was distinctly the finest Artist, and so had the work entrusted to him. The dome of the Cathedral is 136ft. across and 293ft. high, the total height to the top of the cross being 385ft. His instructions were that "it should surpass everything that human industry and human power had conceived of the great and beautiful." Brunelleschi had already, in his earlier days, been to Rome and studied the Pantheon, and his boast was that he would now take that dome and raise it in the air at Florence. He again goes to study the construction of this wonderful Roman dome, but the one he builds is different in having two separate domes visible outside or inside, instead of the single hemisphere of the Pantheon. There are many different kinds of domes. In some Byzantine Churches it is merely an internal stone roof, with a wooden roof outside, similar in idea to our vaulted Gothic Cathedrals. Or it may be a single semi-circular vault, as in the Pantheon and Sta Sophia at Constantinople, the thinnest part of the masonry being at the apex and thickening towards the sides as the pressure increases; and merely cemented over on the outside to exclude the weather. This method was adopted in several Churches in Jersey. Or it may have two separate internal and external domes, as at Florence and St. Peter's at Rome, which forms a far finer feature when seen from the outside. St. Paul's has an internal dome with a false dome-shaped roof outside, and an internal brick cone between these two to carry the stone cupola on the top. A dome may be circular on plan, with a circular dome above, as at the Pantheon. Or a square on plan gathered over at the by what are termed pendentives to a circular dome, as we see at Sta Sophia, or St. Mark's at Venice. Brunelleschi's dome is an octagon on plan, with octagonal domes above and massive ribs at each angle to bind the inner and outer domes together. Michael Angelo's dome at St. Peter's is on the same lines as Brunelleschi's, but circular instead of octagonal.



PORTA DI TERRA FIRMA, ZARA.

hands of one man, and so Ghiberti was appointed as joint Architect. Brunelleschi soon saw that Ghiberti was of no use, and did not understand how to construct this dome.

\* A Paper read before the Oxford Architectural and Historical Society, on February 9th, 1897.

A REMARKABLE DOME, almost as large as the Pantheon, was built in 1860 at a village in Malta, and was practically carried out by the local mason. It was erected without scaffolding, by the simple expedient of notching each stone on to the one below it by setting back part of the surface a few



inches, thus preventing the voussoirs from sliding. The second great pioneer of the Renaissance was, as already stated, Alberti, 1398-1472, consequently he was twenty-one years younger than Brunelleschi. He was a Florentine of noble birth and liberal education, considerable knowledge of Roman literature, and he adopted Latin usually for writing and often for speaking. He studied the works of Vitruvius, and then wrote his own book on Architecture, entitled "De re Aedificatoria," upon the same lines. His Church of S. Francesco at Rimini, which was never completed, is a good example of refined Classical Architecture adapted to suit the Mediæval requirements of that time. A typical example, and one of his best, is the Church of St. Andrea at Mantua, and is interesting as having set out the lines for planning a Church, which were followed for the next two centuries afterwards. It resembles Brunelleschi's San Spirito, at Florence, in several points, being in the form of a Latin cross, twice as long as its breadth, and its width one-sixth its total length, but it has no columns, there being only arched openings in the nave walls for the series of small chapels ranged along the sides, which are alternately a square on plan and a square, by the length of its diagonal, a form of proportion so often noticed during this period. There are lofty pilasters on the nave walls carrying an entablature such as is seen at St. Peter's, with a coffered semicircular vaulted roof inside, the height to the top of the cornice being the width of the nave, thus forming a perfect cube for the space where the nave and transepts cross, and where the High Altar with its baldche usually stood, the cube being a form regarded from the earliest times with peculiar sanctity. The west front has four lofty pilasters carrying an entablature and pediment, the remaining space being cut up into smaller features; it is, however, all guided by certain lines of proportion. The whole Church is impressive from the proportion of the design, and it is all simple, elegant, and refined, and a good example of the earlier period of the Renaissance. It may be compared to the simplicity of our Early English Gothic, contrasted with the succeeding Decorated, or the over elaboration of the Perpendicular. Renaissance palaces are on the lines of Roman ones, with the atrium and impluvium, and the internal cloistered courtyard with its fountain, such as we see in Pompeii. The Roman palaces have the traditional portico with its column and entablature; but at Florence the Etruscan element again shews itself in its massive palaces with their rusticated masonry for the ground floor stories. Alberti died in 1472, and at that time the Renaissance was well established as an Architectural style in Italy. Its two great forerunners had now passed away, and yet a whole century more elapsed before Renaissance Architecture was seen in England; though there was a distinct tendency in that direction in the detail of the later Tudor work. The first at all complete work was at Caius College, Cambridge, and this was designed by a foreign Architect, and is not of a pure form in its detail. It was not till a century and a half after the death of Alberti that the first large pure Renaissance building was erected in England, namely, the Palace of Whitehall, built in 1619 for James I., the drawings for which are in Worcester College Library. It was soon, however, universally adopted by such men as Wren, Gibbs, Hawksmoor, and Vanburgh, and many beautiful buildings erected, such as St. Stephen's, Walbrook, the Radcliffe Library, and St. Paul's Cathedral. Most of our Architects of this period went to Italy to study, just as our Sculptors and painters did, and still do, but it is remarkable that the greatest of them all, Sir Christopher Wren, never went to Italy. Let us now consider the last of the three great pioneers, namely, Bramante (1444-1514). The lines upon which he worked were similar to those of Alberti; but a further development, especially in richness of detail and the introduction of Sculpture. Bramante had the privilege of working under Mantegna at Mantua, where Alberti also for some time resided, and built

the Church of St. Andrea, already mentioned, which he would have carefully studied, and the not far distant Roman remains at Ancona. Rimini and Verona would afford good study of Classic Architecture, though he went to Rome as well at an early age. Art, in all its branches, had wonderfully developed by this time; Masaccio, Perugino, and Leonardo da Vinci were in the prime of life. Donatello was an old man, and had completed his life's work; and Luca della Robbia was producing his beautiful terra-cotta, which Bramante often used in his buildings, such as the Pazzi Chapel, at Sta Croce, Florence. The parallel lines taken by painting and sculpture, or their contemporary development, is well shown by the carved arabesques on the façade of the Certosa at Pavia, and those painted by Raphael in the loggia of the Vatican. They are called "grotesques," and are so named from the decorations which were discovered in the "grottos" of the Baths of Titus at Rome. It is too generally supposed that Roman Classic work is confined to definite forms of Sculpture, and mere Ionic or Corinthian capitals.

#### THE CARVED WORK

at Diocletian's palace at Spalato, or at Baalbek and Palmyra, or the used-up capitals at St. Lorenzo, at Rome, show great freedom of composition, and closely approach Renaissance carving. Bramante's Church of S. M. delle Grazie, at Milan, contains some rich detail, and several new forms, such as the candelabrum-shaped pilasters, such as are so noticeable at Pavia with most elaborately carved capitals. Another feature is that of an arch with two concentric archivolt with carved medallions between, first used by Bramante, and so often emphasised in his designs. A typical and very beautiful work of Bramante is the small octagonal sacristy to the Church of S. M. Presso San Satiro at Milan, 1474. It has pilasters in each angle, covered with delicate arabesques and richly carved capitals. The frieze of the cornice is taken up with children singing and playing, full of life, vigour, and beauty, evidently inspired by those of Donatello at Florence. In the centre of each side is a medallion, with a head in high relief. The upper cornice contains another series of children, but somewhat smaller in size. The whole work is of pure Classic detail, of great beauty and refinement, and a good example of the power and chasteness of

#### BRAMANTE'S WORK,

and illustrates the full development of the best period of Italian Renaissance. The latter part of Bramante's life was spent in Rome, and his buildings here are of a simpler type and far less ornate as regards Sculptures than his buildings in Lombardy. The Cancellaria, the Pal. Girand, the cloister of S. M. delle Pace, and the beautiful tempietto at St. Pietro in Montorio are typical examples; they have refined detail and mouldings, but the design itself is of a simple type. This was due to his having studied systems of proportion, and depending upon this element rather than upon any ornateness, and all the leading lines will be found to be based upon a pre-arranged plan often taking the square with regular subdivision as the motive, or some fixed proportions for all its lines and features, such as guides Greek designs. A good example is in his design for St. Peter's, in which all the leading lines were proportioned as 1-2, 1-4, 1-8, 1-16, or a progressive ratio of 1-2. But, as Michael Angelo said, "proportion comes from not only having a compass in your hand, but also one in your eye." And now a few words in conclusion. We have seen how the Artists of the Renaissance period began by study of Classic works, and so gradually absorbed this material and evolved a new style. Nature seems to have poured out a lavish profusion of gifts upon them, and in some cases something beyond talent, but genius, that power which "cometh not by observation," but is a Divine gift. It has also been defined as "the infinite capacity for taking pains." A mind to which nothing is too great, or nothing too small to be beyond the limits of its comprehension; like Nature herself, in which the microscopic animalculæ

are perfect organisms, and yet the stars themselves revolve in orbits of untold magnitude with mathematical accuracy. These Artists, though brought up in certain schools, yet struck out their own individuality afterwards, for surely "there's a Providence that shapes our ends, rough hew them as we will." An early Raphael is almost identical with a Perugino, or a later one shews the influence of Andrea del Sarto or Fra Bartolomeo, and yet none equal Raphael. L. delle Robbia derives his motives from Donatello and yet is different, and in the case of Nicola Pisano, Cimabue, or Brunelleschi, the personality is even more distinct from their predecessors. These men took the dry bones of classic Art, clothed them with flesh, and imbued them with a new life. Mere copying of bygone Classic precedent may be good in its way, and beautiful as an Academic study, but it is "faultily faultless, icily regular, splendidly null," for it lacks that one essential but indefinable quality, a living spirit. It is only the alphabet of Art, and lacks meaning till these letters are put together to form words which convey an intelligible meaning. It was to Nature herself that the men of this period went for inspiration, and for those higher qualities which are beyond mere technical study, for "there are more things in heaven and earth than are dreamed of in our philosophy." The handiwork of Nature is reproduced in marble under the hands of these Italian Artists, and its higher qualities of power, dignity, beauty, and unerring truthfulness their guiding inspiration. Art cannot be a mere Archaeological reproduction, but must be guided by these principles if it is to be a living Art, and be equal to the duty to which it is called, namely, to exercise a refining influence.

THE Lighting Committee of the Liverpool City Council has decided on the extension of electric lighting, at a cost of £22,000.

THE foundation stone of St. Michael's Church, Southfields, Wandsworth, was laid recently. The sum of £5000 had been subscribed by all classes in the district.

PROFESSOR BANISTER FLETCHER is designing the huge grand stand Mr. Maskelyne intends to erect in St. Paul's Churchyard on the site now occupied by the warehouse of Messrs. James Spence and Co.

MR. and Mrs. T. Wrightson, Norton Hall, have offered to defray the cost of a peal of bells for Thornaby Parish Church. It is proposed to erect a belfry and spire to the Church at a cost of £950. The bells will cost about £500.

A NEW school for boys was recently opened in the parish of St. Paul, Truro, and more convenient buildings are being erected in the place of the British Schools, which are unsuitable. When this is completed the supply of schools for the city will be amply sufficient.

THE recently-erected tablet to the memory of the late Field-Marshal Sir Patrick Grant was unveiled by the Duke of Cambridge, at the Royal Hospital, Chelsea, a few days ago. The tablet is placed in the corridor south of the chapel, and under the bust is a record of the actions in which Sir Patrick Grant took part.

WHILE excavating in Silent Street, Ipswich, in order to lay down new water-pipes, some workmen found the bones of seven men. The skulls were in excellent preservation, and as hard as flint, but the remaining portions of the skeletons broke during disinterment. The site of the discovery is near where the old priory stood, and Cardinal Wolsey is said to have lived there.

AN estimate, prepared by Mr. Derry, the Leeds City Accountant, has been submitted to a meeting of the Corporate Buildings Committee, and shows that for the year ended March 25th last the sum of £976 had been expended upon the Judges' Lodgings, £3360 upon the Town Hall, £2754 upon the Municipal Offices, in addition to £2126 spent upon electric lighting. The estimated expenditure for the ensuing year is as follows:—Judges' Lodgings, £504; Town Hall, £4200; Municipal Offices, £2400; and upon electric lighting, £2250.



### SUGGESTION FOR THE WEST CENTRAL IMPROVEMENT SCHEME.

By H. V. LANCHESTER.

THE various schemes that have been before the public and the London County Council for the relief of the traffic in the congested portions of the Strand, Chancery Lane, and other thoroughfares of the W.C. district have, in my opinion, all been conceived in a spirit lacking boldness and grasp, and consequently display a triviality which results in the expenditure of considerable sums in patchwork schemes, when a really effective and broadly-treated improvement could be effected at a not disproportionate outlay. For instance, one of the leading ideas of the improvement is to rid the Strand of the continual block created by the traffic from Waterloo Bridge to the north of London crossing that going east and west. This can only be effectively done

ages in leading thoroughfares for the Patent Office, King's College, and other buildings of a public or semi-public character, is one of sufficient importance to deserve consideration. The scheme has the additional recommendation that it might be carried out in three or four separate instalments, each bringing considerable alleviation to the present congested state of the traffic, and the whole forming an improvement that, both practically and architecturally, may fairly be considered as second to none that have hitherto been carried out in the Metropolis.

A FREE picture exhibition was recently opened at the 'Public Hall,' Canning Town. Some 200 pictures were on view, including specimens of Lord Leighton, Mr. G. F. Watts, Mr. Briton Rivière, Sir E. Burne-Jones, Mr. W. Holman Hunt, and Mr. H. Herkomer. Among those who lent pictures were Sir James



- |                      |                        |                        |
|----------------------|------------------------|------------------------|
| 1. British Museum.   | 4. Drury Lane Theatre. | 7. Law Courts.         |
| 2. National Gallery. | 5. Somerset House.     | 8. Patent Office.      |
| 3. Covent Garden.    | 6. King's College.     | 9. Smithfield Markets. |

SUGGESTION FOR THE WEST CENTRAL IMPROVEMENT SCHEME.

by carrying the one route by a viaduct over the other, to which arrangement the levels fortunately lend themselves. The suggested bridge, starting from the Waterloo Road and continued over the Strand, would relieve Waterloo Bridge and this thoroughfare of the whole of the traffic from South London to the Northern Railway termini, while the suggested road from Holborn Circus to Cambridge Circus would both assist in distributing the traffic from the south and form a new and direct main artery between the City and West End, to the great relief of the narrower parts of Holborn, the Strand, Long Acre, and other streets at present taking this traffic. The only other road required to complete this improvement would be the spur-street passing over the ground (most of which is now cleared) between Wellington Street and Lincoln's Inn Fields, forming a new route for local traffic between the Strand and Holborn. Most of the property through which the proposed roads pass is old and dilapidated, and but few blocks of importance would require to be scheduled, while the advantage of providing important front-

C. Lawrence, the Earl of Jersey, the Countess of Pembroke, Mr. Cuthbert Quilter, and the directors of the South Kensington Museum.

IN St. Mary's Church, Haggerston, is an organ with a past. But that will be its only claim to attention unless the vicar is able to raise some £80 or £90 to cleanse it from the dust of two centuries and make some needful repairs. It was originally built to the order of Charles II. for St. George's Chapel, Windsor, by Father Smith, renowned as an organ-builder, and some sixty years ago it was purchased by a vicar of the Church which now boasts its possession.

THE Nelson Wesleyan Circuit has resolved on putting up new chapels and schools where necessity demands. In the Bradley district a new chapel and school are to be erected, to cost about £4000, to hold about 600 persons. Land has also been secured in the Barkerhouse Road district, whereon a new school-chapel will shortly be constructed, with a similar holding capacity. In Barrowford a new Sunday school is to be constructed to hold about 800 children adjoining the new Wesleyan Chapel.

### Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

April 28th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

DR. I. F. J. SYKES, D.Sc., Lecturer on Public Health at Guy's Hospital, has prepared an important report with regard to encroachments upon open spaces about buildings. He points out that in the London Building Act, 1894, although by Section 40 it is provided that a new domestic building, with a habitable basement, should have an open space of not less than 100 square feet, old houses possessing yards, areas, or open spaces at the back or front, or both, are being rebuilt in such a manner as to entirely cover the whole ground area two or three stories up, leaving not a particle of open space, not even a shaft for the purpose of allowing the drainage to discharge in the open. Hence the health conditions of domestic buildings in London would rapidly become worse, and the bye laws, regulations, and directions of the County Council and the sanitary authorities, which are all devised so as to cause drainage to be excluded from or to be placed outside of domestic buildings, were rendered useless by a Building Act, which enabled a domestic building to embrace the whole of the drainage of the premises within its external walls. The matter were an even more serious aspect when considered on a wider basis. The words "open space" originally bore the common meaning of ground space, to most persons they still bore that common-sense meaning, and Parliament had attached that meaning to the words in the Open Spaces Acts. But in the later Buildings Acts the provision of open spaces had successively been lifted from the basement to the ground floor, thence over the ground floor to sixteen feet above the ground level, and in due time might be made by future Acts of Parliament to ascend higher, so that eventually a house might be held to have supplied the necessary open space on the roof top instead of at the ground level. It is only by tracing the result to its logical conclusion that the past, present, and prospective perversion in the Building Acts of the meaning of "open space" can be fully understood, and the seriousness of the position realised.

THE British South Africa Company's new hospital at Gwelo will be opened early in June. The building is nearly finished, and will be in habitable condition by the time the three Nursing Sisters, who leave England on May 1st, arrive at Gwelo to take up their hospital duties among the Europeans and native miners in the district. The Bulawayo Hospital, built in memory of the victims of the Matabele campaign, has raised the standard of hospital construction in Mashonaland, for it is an extremely comfortable building. Until this hospital was put up, the sick of Bulawayo were treated in thatched, unburnt-brick huts, while Kafir patients were nursed and Sisters accommodated in native huts.

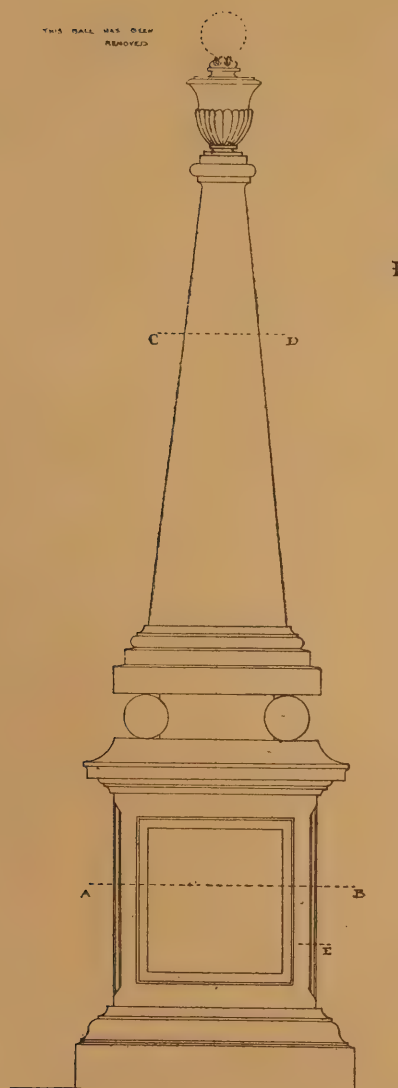
IN luxuriance of imagination archaeologists and mining experts run one another pretty close. Visitors to Margate this Easter may possibly have been lured into visiting "The



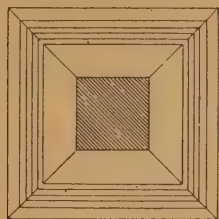
OLD TOMB IN CHURCH-YARD  
THAMES-DITTON

MEASURED AND DRAWN BY T. F. HAWKES  
SEPT. 1896.

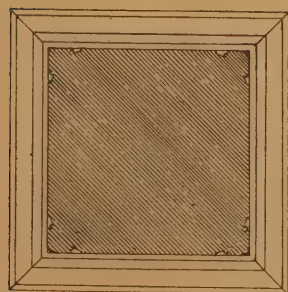
THIS BALL HAS BEEN  
REMOVED



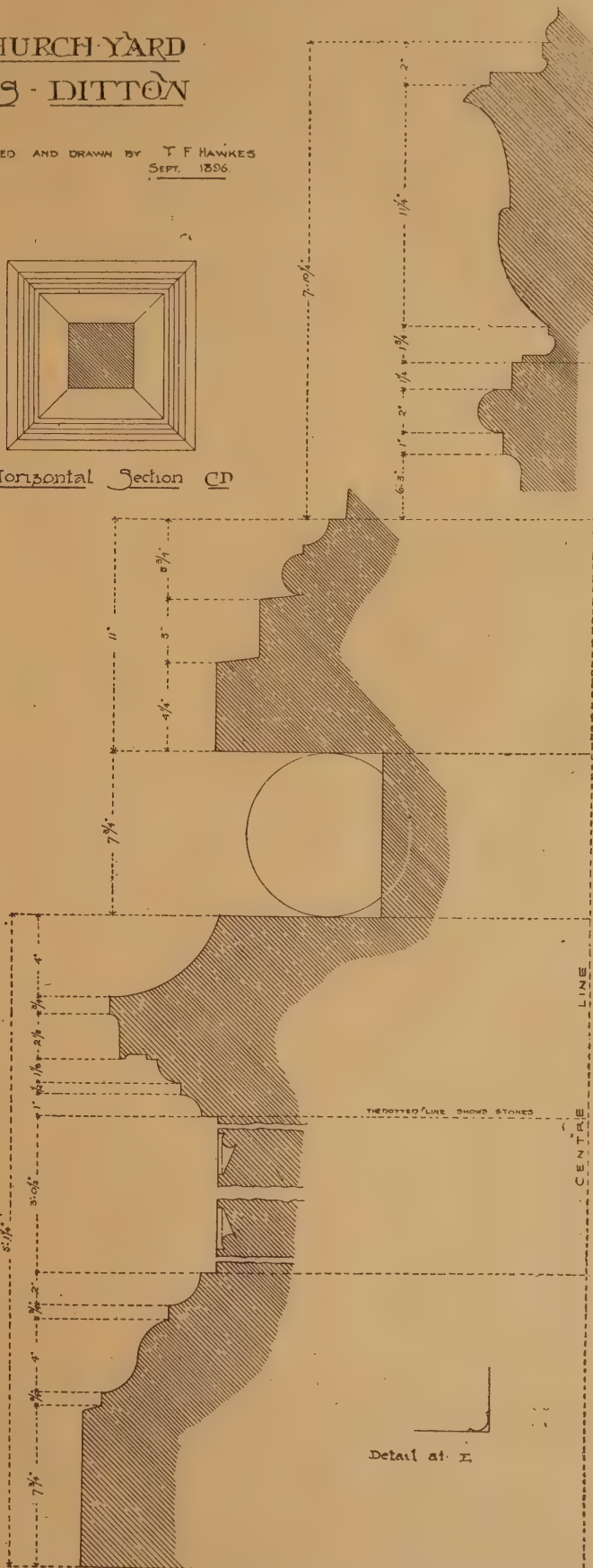
Elevation



Horizontal Section CD



Horizontal Section AB



Vertical Section

ONE QUARTER FULL SIZE

Scale of feet

Scale of details

MEASURED AND DRAWN BY T. F. HAWKES.



Grotto," to which we referred in a recent issue, and they need not grudge the sixpences charged for a peep into this strange subterranean chamber. Eminent authorities have quite decided that the cavern is at least a relic of Roman times, and certainly not less than 2000 years old. The cement was identified as corresponding exactly with that used to build the Pharos at Dover. Unhappily for all such theorists a couple of unpatriotic citizens have revealed the truth in the local papers. One of them knew quite intimately the noble Roman who constructed the grotto. He was a bricklayer, and a disused lime-kiln served as the field of his operations. The other asserts that his wife's uncle, Bowles by name, had the chalk dug out for burning, and that his brother-in-law carted the shells from Sandwich about seventy years ago.

MR. W. H. BREWER in a letter in the Daily Graphic on "The Nun's House" says:—"It has been proposed to secure that very picturesque old mansion called 'Eastgate House,' at Rochester, for the Corporation of that city. There are several reasons why this should be done. In the first place, the building is quite a gem of Tudor domestic Architecture, and is one of the few old-town houses left in the city, which, half a century back, was rich in such examples. Not only is this the case, but Eastgate House has become intimately associated in the minds of Englishmen with the recollection of Charles Dickens, as it is usually presumed that what he describes as 'Miss Twinkleton's establishment for young ladies,' called 'The Nun's House,' in 'The Mystery of Edwin Drood,' was inspired by Eastgate House. An exceedingly quaint and pretty feature of the building is the staircase turret projecting at the side, roofed over very quaintly with a gable, which gives the strange idea of having been taken from some other part of the house and clapped on accidentally. It is certainly much to be desired that this interesting building should be preserved."

WINCHESTER Cathedral organ is being reconstructed, with considerable additions and improvements, by Mr. Henry Willis. It was originally built by him for the Great Exhibition of 1851. Dr. Wesley, who was Cathedral organist at Winchester at that time, admired it so much that he induced the Dean and Chapter to buy it, and the restoration of the instrument on which he played for sixteen years will be a very fitting memorial of that distinguished musician. As it stands the organ is not so complete as it was originally built, and the parts are not perfectly balanced. One object of the reconstruction now undertaken is to redress this inequality by increasing the number of solo stops and improving their tone. But one of the greatest improvements will be the application of pneumatic action, with the best modern improvements, to the pedals and to the four rows of keys.

THE annual spring visits in connection with the Architectural and Building Construction Classes of the Glasgow and West of Scotland Technical College were made a few days ago—the places selected for special study this year being Edinburgh and Chester. The visit to the former city took place on Monday, the 19th inst., when a party of about thirty students was conducted by Professor Gourlay, who had made arrangements for studying the more important works of Architectural interest—ancient and modern—in Edinburgh, including St. Giles's Cathedral, St. Mary's Cathedral, St. Margaret's Chapel in the Castle, and the McEwan Hall, while the Museum of Science and Art received much attention in respect of its interesting collection of Architectural casts and other remains. The visit to Chester was made under the guidance of Mr. James Lochhead, and extended over four days, which time was principally occupied in studying by sketching, measuring, and photographing in and about the Cathedral, St. John's Church, and the numerous half-timber houses and fronts with which the city abounds, and of which the time at disposal only permitted too brief an examination.

BRUSSELS Exhibition, which opens shortly, bids fair to prove a draw in the most comprehensive sense of the word. A word or two with reference to the Exhibition buildings may be of interest. The granite of the country is admirably adapted to the construction of the monumental portico which ushers the visitor into the vast hall, 1200ft. in length, constituting the main building, and crowned by a dome. From this central edifice accessory halls stretch away to the right and left to a distance of 220 metres. The whole block embraces an area of a million superficial feet, and is framed by a landscape which nature and Art have alike contributed to beautify. In conjunction with the erection of the Exhibition buildings a nobly-devised avenue is in course of construction, which serves as a setting for the whole, and further connects the Parc du Cinquantenaire, or site of the main building standing in Brussels, with the historic park of Terveuren, a village five miles away. The Avenue de Terveuren has been designed with a lavish regard to the various means of locomotion to which two-legged beings may have recourse. Trees are planted on either side, and the avenue itself is divided longitudinally into five sections, along which one may respectively walk, ride, drive, cycle, or fly through space in an electric tramcar.

A PECULIARLY attractive feature of the Exhibition is the reproduction, under the name of Bruxelles-Kermesse, of a conglomeration of quaint old-fashioned shops and dwellings, modelled upon the buildings which still existed in the first half of the century, when picturesque façades, small green window panes, low doorways, and casual angles and corners gave the charm of unexpectedness to the Architecture of the day. Here we see again the fantastic badges with the still more fantastic Flemish legends environing them, that gave such individuality to each separate shop and drinking booth, while to render the illusion still more complete, the residents and promenaders are attired in the costumes of 1830. As regards the revival of an ancient part of the town, it must not be forgotten that in the real every-day Brussels, in the lower part of the city, the visitor may see a living and lasting presentment of the Architecture of the fifteenth and sixteenth centuries that nothing can surpass, in the beautiful Grande Place, with its world-renowned Gothic Hôtel de Ville and Maison de Roi, hovering between the Gothic and the Renaissance, and its ornate houses of the guilds, with their symbolical and decorative façades. The entrance to Bruxelles-Kermesse takes the form of a faithful reconstruction of the celebrated triumphal arch, designed by Rubens in honour of the arrival of the Archduke Albert and his wife Isabelle, while the houses follow the lines of those which composed the old quarter of the town known as the Marché au Beurre. Some sixty or seventy of these are utilised as cafés, restaurants, brasseries, and establishments for the sale of what the Germans call "Galanterie Waren." Others are reserved for the exercise of industries and crafts peculiar to Brussels, such as lace making, carpet weaving, &c.

"It is reported," writes a correspondent, "that the contract for the warming and ventilation of the new Liverpool museum buildings had been let to an outside firm. Of this I would be the last to complain had it been secured in competition, and had Liverpool firms, who are quite as well able to plan and carry out the work, been asked to tender; but such was not done, and I can hardly think that either the Library Committee or the Council was aware of this fact. I in no way wish to claim that Liverpool municipal work should be given to Liverpool firms, but I certainly claim that they should have an opportunity of tendering, and, everything else being equal, should have the preference, seeing that they are ratepayers and employers of local labour. It may be pertinent to ask—How is it that a very minor contract has been settled, when the main contract for the building has not yet been decided upon?"

THE London County Council has been adding to the attractions of Waterlow Park during the winter months. One novelty is the construction of a waterfall, crossed by a bridge, between the upper and lower ponds. But either the supply of water is inadequate to furnish the necessary motive power, or something has gone wrong with the works. The miniature Niagara is certainly not a success at present, but rather a succession of stagnant pools at different levels. One improvement the County Council might profitably contemplate is an addition to the refreshment-room accommodation. The small portion of Nell Gwynn's historical mansion—Lauderdale House—falls considerably short of average requirement.

A NEW ZEALAND native wharfe, or dwelling-house, that has been lifted bodily from amidst the scenic grandeur of Wairoa, now stands in the grounds of Lord Onslow's country seat. The walls of the wharfe are of rough slabs about 6ft. high, and the roof, which overhangs them rises sharply to the ridge-pole 20ft. from the ground. The interior is 15ft. square, but the side walls and roof project 4ft. beyond the entrance, forming a sheltered portico the width and height of the house. The front walls end in two large-sized panels, bearing huge, leering figures with defiant, protruding tongues and iridescent eyes, each of a whole haliotus shell. They are presumed to be graphic representations of the tribe's hero, some warrior leader whose bones have lain long in the earth from whence he sprung. Characters in curved and rigid lines run along panels pendent from the roof, and between them drape soft "raupo" matings of many patterns above the hard rammed earthen floor. From the face of the ridge-pole an absurdly ugly "god" keeps a wary look out for the approach of evil spirits. Around the interior, in artistic disorder, lay the treasures of Maori lore and customs collected or presented to Lord Onslow during his period of office as the Queen's representative in New Zealand.

It is an interesting fact that in Saigon, a city in the French portion of Cochin China, there is a Cathedral with twin spires, formed entirely of metal, the octagonal framework consisting of double angle-bar ribs tied together by six intermediate horizontal octagons of H-bar with radial connections from the centre to the ribs, and stiffened by angle-bar diagonals between these horizontal members. The upper ends of the eight ribs are connected into an eight-rayed casting, and above this are fastened to a large cross of cast-iron and wrought-iron angles with which each spire terminates. In four of the eight sides gabled openings are formed, the gables being supported on cast-iron columns, resting on the base of the spire. The base is secured to the masonry of the towers by means of brackets, 7ft. 4½in. deep, on the inside of the walls, and tied together by a framework of H-bars, which also carries a cast-iron chequered floor. The height of the spires is 78ft. 9in. from the top of the masonry to the base of the cross, which is 10ft. 2in. high. The weight of the ironwork in each spire is 28½ tons, and that of the zinc covering about 2½ tons.

At a recent meeting of the London County Council, on the paragraph in the report of the Establishment Committee dealing with charges for central office expenses and for the Works Department, Lord Onslow moved that it be an instruction to the committee that, before the consideration of the Special Report, the estimates of the actual cost of works executed before March 31st last should be presented. Mr. Shaw-Lefevre moved that it be referred to the Finance Committee to consider and report as to the expediency of inserting a clause in the Money Bill of the Council for the coming year, authorising the Council to use the money of the sinking fund for the purchase of well-secured freehold ground-rents within the metropolitan area. He pointed out how rapidly the value of freehold ground-rents was increasing, and that the Council had power to retain ground-rents in the case of street improvements. If they purchased ground-



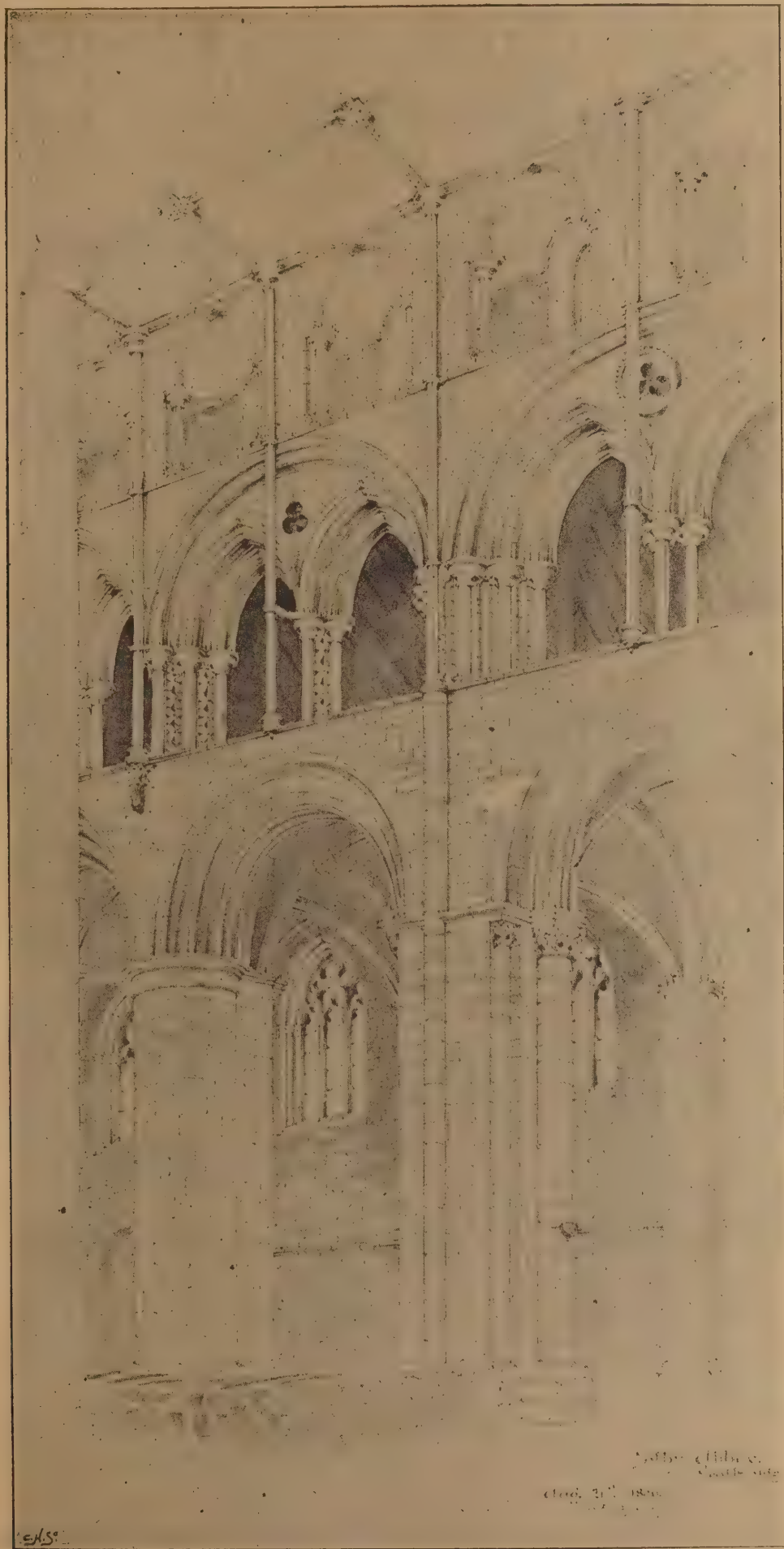
LIBRARY  
OF THE  
UNIVERSITY OF ALABAMA





THE PUGIN STUDENTSHIP. HOWDEN CHURCH, THE EAST END. DRAWN BY C. DE GRUCHY.





THE PUGIN STUDENTSHIP. SELBY ABBEY, SOUTH SIDE. DRAWN BY C. DE GRUCHY.



UNIVERSITY OF MICHIGAN  
LIBRARY



rents when opportunity arose they would largely increase the income of the Council, and would gain more than £6000 a year over the amount paid by local authorities for money borrowed. In fifty or sixty years the property would be worth five or six millions. Mr. Costello seconded the motion. The motion was adopted unanimously.

THE collection of miniatures formed during many years by Dr. Lumsden Propert, who is regarded as the first authority on the subject in England, has been purchased by the Fine Art Society, and will very shortly be exhibited at its Bond Street Galleries. The collection has been formed with the dual object of comprising not only a complete historical survey of the school of miniaturists from Holbein downwards, but of the celebrities whom they painted. Thus, from Holbein's celebrated portrait of Jane Seymour onwards, there is everyone of the Tudor and Stuart royalties, as well as portraits of Cromwell, Milton, Drake, Raleigh, Evelyn, Nell Gwyn, and the beauties of the Stuart and Georgian Courts. There are also three of Shakspeare, two being known and engraved as the Somerville and Auriol portraits. Of specimens of the celebrated and rare early miniaturists there are no fewer than nine Hilliards, eleven Olivers, and fifteen Coopers, with undoubted pedigrees. Nor is the collection confined to the seventeenth and eighteenth century English masters, for it is rich in enamels by the Petitots and the foreign schools of miniaturists.

At a recent meeting of the City Commission of Sewers, Mr. H. G. Smallman presiding, the committee brought up a report upon applications from the Post Office authorities for permission to take up carriage and footways in the City for laying telegraph-wire pipes. In reply to inquiries by the Commission, the Post Office stated that certain pipes would be now for both telegraphic and telephonic purposes. The Commission had refused to allow the National Telephone Company to open the streets to lay down telephone tubes unless they made certain concessions to the public in the matter of their charges, which they had declined. The company had surmounted the difficulty by approaching the Post Office, who charged them a rent for the use of the Post Office circuits. The committee recommended that application should be made to the Treasury to institute an inquiry into the action of the Post Office authorities in constructing underground circuits and allowing them to be used by the company for telephone purposes without the consent of the Commission as the statutory authority. This was carried, Captain Hall, the chairman of the committee, observing that the Post Office was seriously hampering the public authorities in their efforts to obtain telephonic concessions from the company.

THE tessellated pavement which was discovered a short time ago, when excavating for the bases of the pillars of the Roman Portico in Bailgate, Lincoln, has been taken up in one piece without breakage, and is to be placed in the museum at the school of Science and Art. The pavement is most elaborately designed, and is believed to be one of the most beautiful specimens of Roman pavement ever discovered.

PROBABLY owing to the all-powerful influence of the Jubilee celebrations, the summer Art season will commence a little earlier than usual. To the New Gallery will fall the honour of opening the ball. As far as can be foreseen, this is likely to be a rather lean year in matters of Art. Few leading Artists are sending any pictures of special importance either to Piccadilly or to Regent Street, while several are very poorly represented, and a few do not exhibit at all. If, however, the year's work leaves something to be desired in regard to quality, there is no falling off in the quantity of the output. Some twelve or thirteen thousand pictures were sent in to the Academy, and these are supplementary to the large number of works shown at the galleries of the Institute of Painters, the Royal Water-Colour Society, and the Society

of British Artists. The marvel is what becomes of all these pictures. Presumably there is a market for them or they would not be produced in such quantities year after year.

THERE has recently been designed a pair of memorial tablets for Stevenson's grave on the summit of Yae Vaea Mountain, and these are now on their way to Samoa. The tomb of Tusitala in every way resembles that of a Samoan chief. It consists of a simple block of concrete resting upon a platform of the same material. On each side of this curious sarcophagus will be fastened the two tablets. On the one is inscribed the "requiem" written by himself many years ago, and simply setting forth the years of his birth and death, the Greek Alpha and Omega, "the Beginning and the End." On the other tablet will run, in Samoan, "The High Chief Grave of Tusitala," with the Scottish thistle and the hibiscus of the South Seas.

UNTIL recently there stood at the south-west corner of Dean's Yard, Westminster, one of the most magnificent planes in London, tall, straight, and stately, and well over a hundred years in age. Unfortunately, the recent clearances and widening of the roadway in Great Smith Street have necessitated its removal. There is just room on the site cleared for the erection of two good houses facing into Dean's Yard, one of which is to be occupied by Dr. Troutbeck, the coroner for Westminster. Every foot of space was needed, and so this noble tree was first lopped of its branches and then hewn to the ground. Its destruction was no doubt inevitable, but Westminster Abbey and its immediate surroundings are the poorer for the loss.

THE Fine Art Society in Bond Street was, if we mistake not, the first to inaugurate the "one-man shows" which have proved to be so popular. The latest turn in the art-kaleidoscope introduces us to the works of Mr. Graham Petrie and Mr. Charles Hazlewood Shannon. The first named Artist gives us a collection of close upon eighty landscapes of infinite variety, painted in England and abroad. Wherever Mr. Petrie may be he has a rare eye for the picturesque and a fine feeling for colour. This is equally evident in a homely scene such as "Buttercups: Netton, near Salisbury," or in the translation of the Architectural beauty of "S. Giorgio Maggiore, Venice." Though Mr. Shannon's present collection is less important than last year's, it is one of very great interest, and shows the enormous amount of trouble the Artist takes over the most minute detail. In this collection there are no fewer than sixty specimens, which comprise lithographs, studies in sanguine and black and white, essays in silver point, and pictures in pencil. Students will especially find this collection valuable, being full of suggestion and abounding in knowledge and power; the Artist's fine feeling for grace of line and beauty of form is evident in well-nigh every drawing here exhibited.

At the last meeting of the Society of Antiquaries, held at Burlington House, Mr. W. H. St. John Hope, the assistant secretary, read an exhaustive report on the results of the excavations made at Silchester. During the course of last year's work a hitherto unknown gateway was revealed in the western wall, to the south of the main entrance to the city on this side. Sections of the ditch outside the wall disclosed the fact that there had been a mound in the centre of the ditch, the object of which was no doubt to serve as a foundation for the trestle for supporting the drawbridge. A similar mound was found some years ago in front of the Aldersgate entrance to the Roman City of London. Insula xvi. is situated to the east of Insula xv., and is separated from the central Insula (No. iv.), containing the forum, by Insula iii., explored in 1891. It will be remembered that in 1895 the first example of a Romano-British pump was dug up at Silchester. Further light has now been thrown on the hydraulic engineering of the period by the discovery of a line of wooden water pipes, with peculiar joints made with

iron rings, similar to those used in Gaul, and of a well, lined with wood and flint rubble, in an unusually good state of preservation. The well was sunk to a depth of about 18ft., partly through vegetable mould and partly through gravel, until an impervious bed of clay was reached. At the bottom of the well was a rectangular frame, constructed of four oak timbers jointed at the corners like an Oxford picture frame. Above this was a tub 5ft. high and about 3ft. 6in. in diameter, wider at the top than at the bottom, and made of twenty-six fir staves. The remaining portion of the interior of the well above the tub was lined with a wall of flint rubble.

A correspondent writes that a pressing need in Birmingham is the absence of residential chambers or flats, such as are to be rented in other cities. If flats were erected in a pleasant central position, such as the Five Ways, with modern improvements and conveniences, they would be a boon to many, and no doubt would be eagerly sought after.

THE Government has at last decided to accept Lady Wallace's bequest, and to purchase Hertford House, where the great collection of Art treasures is now placed. The Chancellor of the Exchequer hesitated at the cost of finding a building for holding and exhibiting the treasures, which was one of the conditions of Lady Wallace's will. The price of the house, including the freehold of the site, will probably not be under £150,000.

THE Vestry of Hampstead has for some time had under consideration the question of providing a suitable coat-of-arms, crest, and motto for the borough, and at its next meeting the vestry will be asked to adopt a design of which the following are the details:—Coat-of-arms—Azure on a cross argent a mitre between four fleurs-de-lis 'gules, a chief indented or, fretty 'gules. Crest—A buck's head couped argent, gorged with a wreath of holly fruited proper. Motto—Tout bien ou rien. These insignia have been arrived at on the historical method by combining and adapting certain coats-of-arms of families that have played an important part in the history of Hampstead. The "parent" arms are those of the Abbey of Westminster, to which the Manor of Hampstead was granted in 986, and those of the families of Hickes, Noel, and Langhorne. The wreath of holly is intended to commemorate the present seal of the vestry.

DR. BLISS's latest report on the excavations in Jerusalem says:—"With the exception of a few remains, all our discoveries, achieved by arduous work of tunnelling, have been covered up again. Walls and towers, streets and mosaics, unseen and forgotten for centuries, have during the last three years been once more looked upon by a few observers, and again have been buried under the soil. Since the double wall on the western hill was excavated, a crop of barley has been sown and reaped in the ground which again covers it. I never fail to feel a sort of melancholy when I give the orders to repack the tunnels and to fill the shafts level with the surrounding fields. The one satisfaction is that it is safer to leave these ancient remains under the protecting covers of debris than to irresponsible landowners, who would see in these monumental stones only material for building walls and houses. It is a comfort to feel that the Crusading Tower, found in the land of the Augustinians, has been left open, and is being carefully protected by the proprietors."

THE Earl of Radnor has given a site in Radnor Park, Folkestone, for a new Congregational Church. At the laying of the memorial-stones the contributions to the building fund amounted to about £850.

THE mosaic decoration of the interior of St. Paul's Cathedral, from the designs of Mr. W. B. Richmond, is going on apace, and Messrs. Powell's workmen are putting forth special efforts to expedite the work.



## PLYMOUTH CORPORATION WORKS.

## A SANITARY SCHEME.

THE Borough Surveyor of Plymouth has prepared a very lengthy report, in which he detailed a scheme for Corporation sanitary work. In it he said during the past three years a large amount of work had been executed by the Corporation without the intervention of a contractor, which had given him an opportunity of forming an opinion as to the character of the work the Corporation should take in hand, and he had come to the conclusion that it should be, all road-making, street-widening, sewerage, and recurring work. The erection of all new Corporate buildings should be let by contract. In the carrying out of new works by the Corporation, it was undesirable to employ any of the ordinary staff engaged for the maintenance of existing sewers and buildings; a separate staff should be employed. He pointed out that the Committee was already committed to many important works in main drainage, reconstruction of subsidiary sewers, widening of Old Town Street and Tavistock Road, widening of Embankment Road, repairing of sundry streets, making and sewerage of new street from Cattedown Road to Breakwater Hill, sewerage of Pennycross and Laira Green, in addition to which there were a great number of new streets and lanes laid out, and in process of being laid out, which would require to be made and completed at an early date. The existing depôts at Mill Street, Sutton Road, and Coxside were inconvenient and inadequate, and he would suggest the desirability of combining the first two into one, and placing it on corporate land at Prince Rock. In order to carry out any portion of the works before-mentioned by Corporation workmen, it would be necessary to appoint as a minimum staff a superintendent of works, a book-keeper, a cost clerk, timekeepers and clerks of the works according to the number of jobs on hand and the extent of the work. In connection with the

## CARRYING OUT OF CORPORATION WORKS

great inconvenience, delay, and extra expense had been incurred consequent upon the unsatisfactory way in which the cartage contract had been carried out, and he would suggest that the Corporation provide its own horses, carts, &c., for the general cartage, as well as the street watering and cleansing. The report also dealt with the collection of house refuse, and its disposal. It was generally admitted that the work of collecting and disposing of the house refuse of the borough had not been satisfactory, having been carried out in a most perfunctory manner, frequently causing much inconvenience and danger to health. This had arisen, in his opinion, from improper and insufficient plant, and a low contract price for carrying out the work. The present method of disposal was open to much objection upon sanitary grounds, and it was desirable that some approved method of disposal should be adopted at the earliest possible moment. He presumed that a destructor would be necessary to dispose of the refuse, and considered in all 77 horses would be required, 12 for street watering, 15 for sweepings and brooms, 15 for general cartage, and 35 for refuse removal. He submitted an estimate of the capital expenditure, which included the provision of stabling for 95 horses, sheds for 180 carts, forming yard surfaces, &c., drainage, stable plant, destructor, land for depôt, fittings and appliances for depôt, making in all £29,481. Then the plant for house refuse removal would cost £3908 10s. more, for street watering £679 10s., for removal of street sweepings and horse broom £1635, and for general haulage £1533, making an aggregate of £37,237. The estimated annual charge was £10,605 18s. 6d., of which £814 18s. 9d. was for stabling, £1071 15s. 8d. for destructor (less £500 saleable manure), land repayment £233 4s., depôt £411 5s., plant for refuse removal £4438 8s. 10d., street watering £1087 10s. 9d., street sweepings, &c. £1532 6s., and plant for general cartage £1516 9s. 6d. The present annual expenditure was £6483 7s. 2d., but the Surveyor pointed out that the

new estimate covered the whole of the extended borough. In the capital estimate £6000 was allowed for land, but it was pointed out the Corporation already possessed land in every way suitable. In the estimated annual expenditure £1308 represented repayments, which, after a given number of years, would be completed, and would consequently lessen the total by that amount.

## A LONDON WIDENING SCHEME.

TO pull down no fewer than a hundred houses, to excavate about a quarter of a million yards of stiff London clay, to construct bridges or covered ways under fourteen streets and two railways, to erect a remaining wall 1½ miles in length and 25ft. in average height, and to rebuild three passenger stations, is what the Midland Railway Company is now doing, to widen its line at the London end. Parliamentary powers for the widening were obtained in 1894, but the arrangements connected with the evacuation and demolition of so many houses naturally took time, and it was not until March last year that the contractors, Messrs. John Aird and Sons, could take the work fairly in hand. The progress since made has been strikingly rapid considering the nature of the undertaking. The section of the line which is being widened runs throughout the whole distance in a deep cutting, and this, having been made after the neighbourhood had become thickly populated, is flanked, not as cuttings ordinarily are by slopes, but by high retaining walls, supporting land which, until the present work was begun, was covered with houses right up to the railway on both sides. The line is crossed, moreover, as already mentioned, by no fewer than fourteen streets, the chief of which are Kentish Town Road and Camden Road, while south of the latter thoroughfare its type of construction is that known as "cut and cover"—that is to say, a tunnel was built in an open trench, and the surface then restored over it. In widening it now there has been no alternative but to follow the same very expensive methods. Where open cutting between retaining walls had to be made before, the same method of construction has had to be adopted again. Where streets or other railways had to be under-bridged before, they have again to be under-bridged, and in this case what difference there is in the two operations is not on the side of economy. Kentish Town Road and Camden Road carried no tramways when the Midland line was first made beneath them. The engineers could do their work of bridging then with much less compunction than they are now obliged to show as to interference with the street traffic overhead. In streets the work now in hand is practically a repetition (including, it must be added, the reconstruction of the Camden Road and Kentish Town stations) of a very important section of the original work of carrying the Midland into the Metropolis. The latter, it is true, was the bigger work, inasmuch as it involved the laying of four tracks instead of two. But the present work probably is the more difficult as an engineering feat, not only because of the heavier street traffic already referred to, but because it has to be carried out immediately alongside an existing main line of railway, with the crowded traffic of which it must not for one minute interfere. The first thing done was to construct the new bridge beneath the Kentish Town Road. This was felt to be the key to the position. The Kentish Town Road once got under, rails could be laid from a junction with the existing line north of that place to the scene of the main excavation, and the "spoil" removed by truck-loads instead of by the much more costly and less efficient process of carting. In the main thoroughfare no fewer than thirteen houses had to be demolished, and Leighton Road, too, which joins Kentish Town Road just where the railway passes under, has had temporarily to lose several buildings. It added to the difficulties of the work at Kentish Town—and this, indeed, is the case with every one of the new bridges required for the widening—that the railway crossing is very much "on the skew," i.e., it runs under the road slantways.

All obstacles, however, have been successfully surmounted; the new bridge has been in its place since December last, and the temporarily demolished public-house at the street junction is now being restored as rapidly as possible.

## KEYSTONES.

AT Mundesley-on-Sea it has been decided to erect a new chapel to seat 250 persons, at a cost of £850.

A NEW public school for Denny, erected at a cost of £7000, to accommodate 526 scholars, was opened the other day.

AT a recent meeting of the City Commission of Sewers several applications to erect stands in or near St. Paul's Churchyard were unanimously refused.

IN connection with the Wesleyan Reform denomination, a new chapel has been opened in Doncaster Road, Barnsley, which has been erected at a cost of £2000.

IT has been decided to enlarge the melting-house at the Mint on Tower Hill. This step will involve an expenditure of £1100, which has been sanctioned by the Treasury.

MR. ALFRED SHUTTLEWORTH has given a site, valued at over £1100, for a new mission church at Lincoln, and £500 towards a mission hall to be used until a permanent church can be built.

A NEW Roman Catholic school is being built at Penzance, in the parish of St. John, as a substitute for part of the Old National Schools, and the Wesleyan School has been improved at considerable cost.

MIDDLESBROUGH Town Council has decided to expend £3000 on improving its streets, £2500 on new baths, £3000 on an organ for the Town Hall, and £2000 on beautifying Victoria Square, in Commemoration of the Diamond Jubilee.

THE Birkenhead Town Council has resolved to expend £20,000 in extending the electric lighting of the town. It is stated that an expert opinion has been obtained to the effect that there is no danger in using water gas combined with 50 per cent. of coal gas.

A LARGE club house is now being completed for the accommodation of the Edinburgh Burgess Golfing Society at Barnton, about three miles west of the city. The building, it is said, will be the finest of the kind in Scotland, the cost being about £6000.

THE artist and engraver, Monsieur Pierre Gusman, who lately was the holder of the travelling prize under the Ministère des Beaux-Arts, is to give an exhibition of his exquisite Pompeian water-colours at the Ecole Nationale des Beaux-Arts, in Paris, from the 15th to the 26th May.

SUBURBAN theatres are now springing up in all directions round London. One of the best structures of the kind is that in course of erection in the centre of the thoroughfare of the Broadway, S.E., between Deptford and New Cross Stations of the London, Brighton, and South Coast Railway. The theatre will accommodate an audience of over 3500 persons. The entire building will be lighted by electricity.

A SYNDICATE has been formed in Denver to build a 1000 mile bicycle tourist circuit in the mountains, starting from Denver and extending to Estes Park, seventy-five miles distant. From there it is proposed to circle west and south to Manitou, via the Ute Pass, and returning to Denver by way of Manitou Park and South Platte. The plan includes the building of cabins about twenty miles apart, and hotels about seventy-five miles apart.

THE Select Committee of the House of Commons has given its decision in the City and West End Railway Bill, and of the Brompton and Piccadilly Circus Railway Bill. The Committee has heard a great many witnesses for and against the Bills, and has now decided that the preamble of the Brompton and Piccadilly Bill is proved, and it rejects the City and West End Bill. It has also heard evidence with respect to the deep level scheme of the Metropolitan District Railway Company between Earl's Court and the Mansion House but the further consideration of this Bill was adjourned.



## A NEW BRIDGE ACROSS NIAGARA.

DURING the past fortnight there has been brought to a climax one of the greatest engineering feats in the way of bridge-building the United States has seen for some little time. This was the joining of the two sections of the great new steel arch bridge which during the past few months has been in course of erection across the Niagara gorge. This enormous all-metal arch is being built to take the place of the old railway suspension bridge over which the trains of the Grand Trunk Railway have for years crossed the Niagara chasm. It is worthy of note that, despite the difficulty of the work and the dangerous nature of the locality, the work of erecting the bridge has progressed steadily without loss of life, and, furthermore, no serious accident has happened on the work. The abutments of the arch are placed about half-way up the slope between the top of the cliff and the water's edge. They are four in number, two on each side of the river. They are built of huge blocks of stone obtained from the best of quarries. It is on these abutments that the bed plates of the arch rest. Preparatory to the erection of the steel superstructure the space between the abutments and the cliffs was filled in with huge scaffolding or false work, on which the end spans of the arch were built. From this point the panels of the arch were fitted piece by piece, gradually nearing the centre, where, high over mid-stream, the last panel was fitted on Sunday, March 28th, and on Monday, March 29th, the task of joining the two ends took place. At either side of the old suspension bridge, at both the Canadian and New York State ends, great screws were laced, and by means of these screws the sections of the arch were lowered. Between the ends of the two sections there remained a space of about 2in., which required adjusting. The levers of the screws had been manned by gangs of men, and at a given signal they began to turn the levers, which allowed the two sections gradually to come together. This work naturally required the greatest skill, and Chief Engineer L. L. Buck was personally in charge. First one corner, then another was lowered, until finally all the screws were operated together and the sections met so accurately that the bolt holes matched perfectly. As evidence of the engineering skill of the present day it was a great triumph. It is expected that the arch will be completed in June. It will have a span of 550ft., connected at either end with the cliff by a trussed span 115ft. long. It will have an upper and a lower deck. On the upper deck will be laid the tracks for the accommodation of the steam railroads. The suspension bridge has but a single track, while the new arch will have a double track, thus greatly increasing the facilities of crossing the gorge. On the lower floor there will be room for a carriage-way, side-walks, and trolley car tracks. These trolley tracks will be the first to be stretched across the gorge, and will allow of an exchange of trolley traffic between the two sides of the river, resulting finally, probably, in a belt line about this great beauty spot between the two countries. In its complete state the new arch will have about 6,000,000lb. of steel in its make up, and it is expected to carry a load of 10,000lb. to the foot, which is a very heavy load. As it stands to-day the arch is built under and about the old suspension bridge, which will soon be removed, all it is expected, without delay to travel. This suspension bridge was first opened in 1855. When originally built the superstructure was of wood, the towers being of stone. In 1880 the suspended structure was renewed in steel, and in 1886 the stone towers were renewed in steel, all under the direction of Engineer Buck. The arch is being built by the Pennsylvania Steel Company of Steelton, Pa., for the Niagara Falls International Bridge Company and the Niagara Falls Suspension Bridge Company, one being a Canadian and the other a New York State incorporation.

THE Prince of Wales recently laid the foundation-stone of some new buildings at the English hospital at Cannes.

## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

## THE ELECTIONS.

(COMMUNICATED.)

THE list of members, officially nominated for election, to serve on the four standing committees for 1897-98 has just been issued. On these committees there are sixty-four positions, and for these no less than sixty existing members have (officially) renominated themselves. This appears to be distinctly unfair to others who may wish to come forward, and it is contrary to the best interests of the Institute that the same names should appear year after year, thus excluding new men and fresh ideas; the compulsory retirement each year of a certain proportion of the members would give others a chance of being useful to the Institute. Members have a tendency to vote for those candidates with the asterisks before their names, shewing them to be existing members of committees, but one-fourth only of the members appear to vote at all; the election is an expensive affair, and seems scarcely justifiable when so few new names are brought forward by the Institute authorities, as may be seen from the following:—

## LIST OF MEMBERS NOMINATED TO SERVE ON THE STANDING COMMITTEES FOR 1897-98.

The Balloting Paper for the election of the Four Standing Committees (to be announced on June 14th, 1897) will be issued a few days after the Annual General Meeting, Monday, May 3rd, 1897.

*Art Standing Committee (Fellows: Ten names only to be returned).—*\*Anderson, John Macvicar; \*Belcher, John; \*Brooks, James; \*Brydon, John McKean; \*Caroe, William Douglas, M.A., F.S.A.; \*George, Ernest; \*Mountford, Edward William; \*Pite, Beresford; \*Waterhouse, Alfred, R.A.; \*Weatherley, William Samuel; \*Young, William. (Associates: Six names only to be returned.)—Balfour, Robert Shekleton; Dawber, Edward Guy; \*Fleming, Owen; \*Gibson, James Sivewright; \*Hare, Henry Thomas; \*Romaine-Walker, William Henry; Simpson, John William.

*Literature Standing Committee (Fellows: Ten names only to be returned).—*Bibby, George Henry; Caws, Francis Edward; \*Florence, Henry Louis; \*Graham, Alexander, F.S.A.; \*Hebb, John; \*Ingelow, Benjamin; Perry, John Tavenor; Pite, William Alfred; \*Smirke, Sydney; \*Spiers, Richard Phené, F.S.A.; \*Street, Arthur Edmund, M.A. Oxon.; \*Townsend, Charles Harrison; \*Unsworth, William Frederick; \*Waterhouse, Paul, M.A. Oxon. (Associates: Six names only to be returned.)—Bolton, Arthur Thomas; \*Fletcher, Banister Flight; \*Flower, Arthur Smyth, M.A. Oxon., F.S.A.; \*Prentice, Andrew Noble; \*Smith, Ravenscroft Elsey; \*Waterhouse, Leslie, M.A. Cantab; \*Worthington, Percy Scott, M.A. Oxon.

*Practice Standing Committee (Fellows: Ten names only to be returned).—*\*Batterbury, Thomas; \*Boyes, Henry Cowell; \*Clarkson, Samuel Flint; \*Hall, Edwin Thomas; \*Harris, Thomas; \*Kersey, Alexander Henry; \*Mathews, Joseph Douglass; \*Nash, Walter Hilton; \*Ridge, Lacy William; \*Woodthorpe, Edmund, M.A. Oxon. (Associates: Six names only to be returned.)—\*Atkin-Berry, William H.; Goldsmith, Francis Thos. Wilberforce; \*Hardcastle, Frederick Henry Appleton; \*Hare, Henry Thomas; \*Julian, George Richards; Mundy, Thomas Edward; \*Tanner, Augustus William; \*Wilkinson, Robert Stark.

*Science Standing Committee (Fellows: Ten names only to be returned).—*\*Angell, Lewis, M. Inst. C.E.; \*Farrow, Frederic Richard; \*Quilter, John Salmon; \*Joseph, Delissa; \*Searles-Wood, Herbert Duncan; \*Smith, Percival Gordon; \*Solomon, Lewis; Seth-Smith, William Howard; \*Street, William Charles, Assoc. Inst. C.E.; \*Tabberer, Benjamin; Young, Keith Downes. (Associates: Six names only to be returned.)—\*Burrows, Henry William; \*Clarke, Max; Cole, Robert Langton; \*Dicksee, Bernard John; \*Garbutt,

Matthew, Assoc.-M. Inst. C.E.; \*Pearson, George.

N.B.—The asterisk (\*) denotes a member of the existing committee.

With regard to the Council nomination list matters are even worse, the president, vice-president, and members of Council and secretary number twenty-four, and of these twenty-three are renominated, not by the Institute, but by themselves!

It is to be hoped that the members, and especially those in the provinces, will not be led to vote for candidates merely because they have asterisks before their names, and that they will remember that it may be possible to deal with the very large income of the Institute to greater advantage than hitherto, if new councillors and committee men should be brought forward. Any seven members (if including four fellows) may make private nominations for elections to the above positions.

## KEYSTONES.

New electric light works have been erected on the Irrigation Farm at Harrogate. The total cost of the installation for the borough is about £25,000.

The Sheffield City Council has decided to buy the undertaking of the Sheffield Electric Light Company. The corporation some years ago acquired the water undertaking, and recently took over the city tramways.

The laying of new water pipes in High Street, Berwick, has revealed, near the Black Bull Yard, at a depth of 4ft. or so from the surface, foundations of a substantial nature. These are believed to be the foundation of the Main Guard, which stood at this place from 1741 to 1815, when it was removed to the present quarters adjoining the Quay Walls.

The workmen engaged on the reconstruction of the Broomielaw Bridge at Glasgow came upon what is undoubtedly the foundation-stone of the old Broomielaw Bridge, which was laid with full Masonic honours by the Lord Provost, the Hon. James Ewing, on Tuesday, September 3rd, 1833. The stone, which is of fine granite, is as clean as though it were fresh from the hands of the cutter.

The clock in the tower of St. Mary's Church, Great Dunmow, has fallen down and been smashed to atoms in the churchyard below. For some time the condition of the tower generally has been considered unsafe, and notices have now been posted warning the public of the fact. The tower is regarded as one of the oldest in Essex, and is a stately building. An effort is being made to thoroughly restore it.

The necessity of further under-building the walls of the Albert Institute is engaging the attention of the Works Committee of the Dundee Town Council. The City Architect has stated that £650 would complete the work. The Committee is of opinion that only one wall should meantime be treated, at an estimated cost of £300, and it has instructed the Architect to procure and bring up tenders for the work.

An interesting discovery has just been made at Mr. Labouchere's residence, "Pope's Villa," Twickenham. The house, it is known, stands on or near the site of the house where lived Alexander Pope, but the exact location has not been known until the discovery by some workmen of an old stone, hidden by some masonry. This stone bears the inscription, "On this spot stood until 1809 the house of Alexander Pope. The grotto that formed its basement still remains."

The Whitefriars' Monastery gateway, included within the precincts of the Coventry Workhouse, has now been so far improved that the earth, which hitherto has almost filled it up, has been removed. The original floor is about 4ft. below the yard level, and stone seats on either side the entrance are brought to view. It is now proposed that the ground should be cut away in front of the archway, and so bring the entire structure out to the better view of visitors, who in summer time are very numerous.



### LONDON: ITS GROWTH AND HISTORY.

IT seems difficult to imagine that there ever was a time when London was a small place, yet when the Queen was born it was very little larger than Glasgow is now, and only double the size of Birmingham. To properly appreciate the leaps and bounds by which the metropolis has grown during the present century, a rapid glance should be taken at its past history. It is usual to praise "the good old times;" but, until a comparatively recent period, London made surprisingly little progress. Originally a stronghold in the woods, strengthened by ditch and rampart, it became an aggregation of rude, hive-shaped huts of bark, clustered around the ford, which preceded the first London Bridge, where the people, clad in skins, lived in primeval simplicity. Under the Romans for four centuries, it became a walled city, and made some progress towards civilisation; only to disappear from history for six centuries under the Saxons, who despised the palaces of the Romans, preferring to live in the open, and to fight under cover of the woods than from behind walls. For a large part of this time it lay desolate and uninhabited, the only signs of life being at the village of Charing, within bowshot of its ruins, with Kensington and Fulham on the west, Hampstead and Islington on the north. Though largely rebuilt under Alfred, London did not become a city of any importance until the rule of the Normans, when magnificent buildings, including the White Tower, Old St. Paul's, and Westminster Hall were erected. At this time, as shown by the Domesday Book, London was almost entirely

#### CONFINED WITHIN ITS OWN WALLS.

Westminster had no existence as a town; the principal suburban houses, if any, were on the eastern parts of the City, between the wall and the River Lea, towards the Thames Marshes on the south, and on the rising ground Hornsey way. Stepney was the most populous place in the neighbourhood. Neither King nor Parliament had any fixed local habitation until long afterwards, when London became the metropolis of the country and the commercial emporium of the world. Yet for five centuries more, London grew but slowly. It is usual to compare the glories of the present reign with those of Elizabeth, but between the London of to-day and that of "Good Queen Bess" there is really no comparison. London was still girt around by the walls built by the Romans, and was largely enclosed within them. The mansions of the great lay outside the City walls, chiefly on the way from the Strand to Westminster. There were few stone houses, and none tiled or slated, being mostly built of wood and thatched with straw. Beyond the Royal Palace at Westminster was open country, and marsh lands formed the sole feature of the landscape across the river. On the other side of the City was open country, with "Merrie Islington" a village in the distance. Where St. Sepulchre's Church now stands were slums. In Golden Lane was a row of curious old houses which had been used as a nursery for the children of Henry VIII. Round about the Moor Gate were large houses, and further out a watery tract which abounded with wildfowl. The citizens used to exercise themselves here with archery practice and sport. In Bishopsgate the Earls of Devonshire had their palace. Houndsditch was a foul ditch, the receptacle for sewage; and there was a similar ditch on the western side of the City.

#### SANITARY SCIENCE WAS UNKNOWN.

The paving of the streets was in its infancy, except with regard to a few of the principal thoroughfares; each inhabitant paved as much as he liked before his own door with the materials that his pride, poverty, or caprice might suggest. The streets were obstructed with stalls, sheds, sign-posts, and projections of every kind; kerbstones were unknown, and only in a few thoroughfares were the footpaths divided from the carriage way with posts and chains. This was the London of Elizabeth, just three hundred years ago—a very different City from that of to-day—a London gradually

becoming foul and pestilential, ultimately to be cleared and purified by the Great Plague, which carried off a fifth of the inhabitants in 1665, and the Great Fire of the following year which involved 400 streets, 13,200 houses, 88 Churches, St. Paul's Cathedral, and four City gates. Before the fire it is estimated to have contained from 10,000 to 12,000 streets, alleys, and lanes, 156,000 houses, and about 700,000 inhabitants. So that in seventeen centuries London had grown to a population of under three-quarters of a million. Rather than to Elizabeth, London owes its growth to Charles II., for after the Restoration those who returned with him did not care to return to their old City houses, but built themselves mansions further west, leaving the City to the merchants, by whom it has ever since been monopolised. To James I. we owe Pall Mall; and Kensington was originated by the creation of a Palace there when Whitehall was burned down. It is a curious feature in the growth of London that it has always been considered to be

#### OVERBUILT.

As far back as 1580 it was forbidden to erect new buildings "where none had existed before in the memory of man"—the reasons given being that "it was calculated to encourage the existence of the plague; create a trouble in governing such multitudes; bring about a dearth of victuals; multiplying of beggars, and an inability to relieve them; an increase of artisans more than could live together; impoverishing other cities for lack of inhabitants." The decree also stated that "lack of air, lack of room to walk and shoot, &c., arose out of too crowded a city." But it was impossible to stem the increasing tide of population. The only result was to cause overcrowding, which proved a still greater evil than over-population, and led up to the horrors of the plague year. Even at the beginning of this century, when London consisted of 160,000 buildings, standing in 8000 streets, it was declared that London was overgrown and too big; and there was an outcry because the parishes had to pay £10,000 per annum to scavengers for removing ashes and refuse from the houses, whereas in former years the scavengers used to pay the parishes £25,000 for the privilege of taking away the ashes for brick-making purposes. Those were evidently the days of the "Golden Dustman." Yet building went on, until in 1873 there were 66,132 miles of streets and 528,794 inhabited houses. During the Queen's lifetime cobbled roadways have almost disappeared; cabs and omnibuses have come into vogue; railways have supplanted the stage coach; the toll-gates which met Londoners at every turn have been pulled down; the Fleet Prison has gone, with others which had rivalled its evil reputation; Temple Bar has been removed; and endless changes effected. The old narrow streets, with their flat-fronted houses, have been largely replaced by wide thoroughfares and handsome stone buildings. A few facts bring home to us the rapid growth of London. In 1760 the land beyond Montagu House was occupied as a farm. All beyond Portland Chapel was open country; St. Pancras Church was still "a mile from London." Camden Town was begun in 1791, and afterwards Paddington also. As recently as the reign of George II. there was a spring of crystal water in what is now Hanover Square, and snipe and woodcock were there shot by sportsmen. During the lifetime of the Queen there were marshy fields, the haunt of the wild goose, plover, and mallard, where now are Belgrave and Eaton Squares. Many other instances might be given of the rapid growth of London, facts which make one wonder whether there will be any finality.

THE Bootle Free Library and Museum Committee has prepared a scheme for the erection and equipment of a technical school at an estimated cost of £16,800.

At Lockerbie, the new school buildings erected in connection with Dryfesdale Schools were formally opened a few days ago. The buildings were erected at a cost of £4300, from designs by Mr. F. J. C. Carruthers, Architect, Dumfries.

### THE LAST OF ADDINGTON PARK.

IT is understood that the Ecclesiastical Commissioners have determined to dispose of the house and land at Addington Park, Surrey, which has been occupied for many years as the country and summer residence of the Archbishop of Canterbury, and this decision is for several reasons to be commended. The mansion itself is large and cumbersome, and the Episcopal estate proper consists of a demesne of nearly 500 acres, while, in addition, an adjoining property of 700 acres is leased to the Archbishop by the Commissioners. The maintenance of such an extensive establishment is, of course, a great drain upon the present reduced revenues of the See, nor is the expenditure to be justified on grounds either of sentiment or utility. In 1780 the Palace at Croydon had been for some time vacant. It had been occupied continuously as a residence from the days of Archbishop Peckham to the time of Archbishop Cornwallis, and it is not quite easy to understand why it had fallen into disuse. In its way it was stately enough, and full of historical interest, and although Archbishop Grindal declared it to be "no wholesome house," he yet petitioned to keep it when urged to resign the Archbishopric, and it is related of Whitgift that "he had ever a great affection to lie at his mansion-house at Croydon for the sweetness of the place, especially at summer time." However, for some reason or other, it grew into disfavour, and with its meadows and gardens, covering some fourteen acres, was accordingly disposed of for £2520, and a new palace was ordered to be built at Park Hill, within half a mile of Croydon, where the Archbishop had purchased the leasehold interest in a farm belonging to the See. But this was never done, nor indeed anything else in the matter for twenty years afterwards, though a good deal of money was available for the purpose. In addition to the amount received for Croydon Palace there was a sum in Consolidated 3 per Cents bought with money received for dilapidations, and amounting, with accumulated dividends, to £2360, and also £5402 Old South Sea Annuities, which had been bought with money allowed by the Commissioners for building Westminster Bridge as compensation for the horseferry from Lambeth to Millbank, and of which the dividends were received by the Archbishops for their own use, and with the funds thus provided Addington was bought in 1808. The manor is an ancient one. The house is large, solid, and unpretentious. Its internal arrangements are devoid of any striking feature. The entrance hall contains a few portraits—Queen Elizabeth, Queen Mary, Charles I., William III., Sir Walter Raleigh, and the Young Pretender. In an inner room hangs Archbishop Warham, dated 1527, a copy of the famous Holbein which forms the gem of the Lambeth collection, and of which another copy is in the Louvre. There is a touch of characteristic sly humour still remaining in the house, which it is to be hoped no future tenant will remove. The entrance to the study is through double doors, and on the outer of these a card is affixed, duly sealed, and bearing in Archbishop Benson's handwriting the inscription:—"To close one of these doors is an act of obligation; to close both is an act of merit." The chapel added by Archbishop Howley—his predecessor dispensed with one for twenty years—was said by Bishop Wilberforce to look like a county court. It is still very plain, but it was rearranged by Archbishop Longley, and the late Primate presented some ornaments and hangings, for the disposal of which, with remarkable provision, he made arrangements in his will in the event of the building being turned to any other use. The walls are adorned with some well-designed pictures in stencil—Christ before Pilate, the Wedding at Cana, Lazarus at the Gate of Dives, and others. The old Church of Addington is well worthy of a pilgrimage. It has been simply and suitably restored—practically rebuilt—by Archbishop Howley. In and around sleep the remains of five successive Archbishops of Canterbury, whose tombs and memorials may be seen in an excellent state of preservation.



## CHELSEA HOSPITAL.

THE recent erection, on grounds belonging to Chelsea Hospital, of a score or two of lofty red-brick houses, dwarfing Wren's beautiful building and disfiguring the river bank, should draw attention to the danger which threatens a most charming fragment of old London, writes a correspondent in the Times. In Ministerial circles there is a restlessness on the subject of Chelsea Hospital which bodes no good. Within the last thirty years no fewer than three departmental inquiries have been held on the subject. Chelsea Hospital is of about the same age as the standing army of the country. It would be out of place to dwell upon Wren's work. Constructed of the simplest materials—brown and red bricks and grey slates—the hospital has that freedom and nobility of line, combined with delicacy of finish, so rarely to be met with in buildings of the present day. Facing towards the river, it stands on a succession of broad, low terraces, while on all sides wide walks and spacious lawns were designed by the Architect to harmonise with the central structure, and to carry on the prevailing idea of size and repose. The building itself remains substantially as it issued from Wren's hands, but in its surroundings changes have taken place. Originally canals, after the fashion so dear to the French school of gardening, ran below the terraces of the hospital and on either side of the broad walk to the river, to which access was given by

## A HANDSOME FLIGHT OF STAIRS.

The canals have disappeared, and an unmeaning row of bushes has been planted at the foot of the terraces, while the Chelsea Embankment has—very unnecessarily, one would think—abolished Wren's stairs. Landward, the hospital looked upon a noble garden, almost as spacious as that on the river side, and this in turn was approached from the King's Road by a long double avenue. Garden and avenue still remain, but the garden has been severed from the building, to which it gave dignity and importance, by a modern road which passes almost under the windows of the hospital. Thus detached, the garden has been laid out as a cricket ground, and now goes by the name of Burton's Court. On each side of the avenue small houses, in no way in keeping with such an approach, have been built, and the treatment of Burton's Court, as well as the interpolation of the new road, has obscured the meaning of the original plan. There have been some filchings, also, for building purposes, notably an acre and a half leased for industrial dwellings about twenty years ago. Nevertheless, until the recent erection of the new houses on the river frontage, no very serious injury had been done. The simple but beautiful lines of the hospital could still be seen from all sides; and its rich, sober colouring, in contrast only with the grass and trees of its grounds, was still saved from the intrusion of any jarring element. This can no longer be said. From Battersea Suspension Bridge the new houses obstruct the view of the hospital; and from the Battersea bank they are painfully conspicuous—inharmonious in height, in colour, and in the evidence they obtrude of painful effort to house large numbers on a small plot of land—an object so foreign to the amplitude of Wren's design.

## AN UGLY BLOT

has been made upon a beautiful picture—a picture of the greater value to London, because she possesses so few of them. It is for the public to see that this blot is not followed by others, until the picture is blurred beyond recognition. Such places as Chelsea Hospital, indeed, sorely tempt that desire to make money for money's sake which constitutes a weak side in the English character. Here is a large area of land, used merely as the garden of an old-fashioned mansion, and as an open space upon which a few old soldiers may breathe the fresh air, sun themselves in summer, and see something of their neighbours. It is true that the garden is open to the public and is incidentally of great value to the crowded districts of Chelsea. Still, it might

be sold for building by the square foot. There are persons who have a feeling that it is almost sinful to waste such an opportunity, although they may value the place in itself and may have no very distinct views as to the use to be made of the money produced by a sale. The rent of the land now occupied by new houses—£750 a year—has been applied, we are told, in giving extra comforts to the pensioners of the hospital. Every one would wish that the invalid veterans should have all possible comforts; but, seeing that Chelsea Hospital is now supported mainly by Parliamentary votes, it would surely have been better to add the paltry sum required to the amount voted by Parliament rather than to

## DISFIGURE THE HOSPITAL GROUNDS.

It is pleasant, indeed, to note that there is some growth of opinion on these subjects. The committee of 1894, in discussing the proposal to demolish the hospital, question whether "the public, the London County Council, or Parliament" would look with equanimity upon the covering of the ground with streets and houses after the sweet will of the speculative builder. The danger is, that steps to this end may be taken without the full knowledge of the public. The hospital estate is administered by a board of Trustees or Commissioners appointed by the Crown and composed mainly of military and civil representatives of the War Office; and these Commissioners have been advised that they have power to let the hospital lands on building leases. In the exercise of this power the charm of the hospital has already been marred; further leases for the purpose, for example, of enlarging the hospital, may produce yet worse effects. It should not be in the power of any Commission to injure a national possession of the great value of Chelsea Hospital, and to deprive its inmates and the public of London of a priceless open space without the authority of Parliament, given after full discussion. Whatever the interests of the Army may from time to time demand—and upon this question opinions have differed in the past and are likely to differ in the future—it is abundantly clear that in the interests of the capital and of the nation a beautiful specimen of the genius of the most characteristic English Architect should be left intact in the midst of the harmonious surroundings which alone enable the graceful simplicity of the

## DESIGN OF A MASTER-MIND

to be appreciated. When the New Forest was threatened with destruction at the hands of a Government Department, Mr. Fawcett obtained a pledge that no further action should be taken without the sanction of Parliament. A similar undertaking should be obtained in relation to Chelsea Hospital.

Mr. Delissa Joseph has written to the Times on this subject as follows:—"As a lover of old buildings and open spaces, I find myself in complete sympathy with your article. But, as the Architect of the houses and flats which form the text of the article, and upon which you vent your wrath, I feel that your note of warning would have been equally effective without the incidental attack upon the design of my work. It is an ineffective form of criticism that would compare the old and the new in Architecture. It is unjust to the new, and a slight upon the old; and the argument that the amenities of Wren's structure should not be disturbed, is not helped by taunts thrown at modern work, produced under such different conditions and for such different purposes. If my buildings dwarf Wren's structure they do not necessarily 'disfigure the river bank' any more than other groups of buildings, by more eminent hands, which line the remainder of the Embankment. All red bricks are 'glaring' until the weather has toned them; and the unconscious charm of the hospital itself is largely due to the mellowing influences of the atmosphere. Although the land I have covered is part of the estate of Chelsea Hospital, it was not part of the familiar grounds which still surround it. As a matter of fact it was a triangle of ground detached from the hospital gardens, and

formerly part of the grounds of Gordon House, at one time the residence of General Gordon. The land itself was more or less waste land, and had been the scene of the Naval Exhibition of 1891, and of the Military Exhibition preceding it. With due regard to a profitable development of the land, I have made every endeavour to preserve the

## AMENITIES OF THE NEIGHBOURHOOD,

in illustration of which I may state that, of the total area of about two acres, only about five-sixths of an acre is occupied by the houses known as Embankment Gardens and by the flats known as Chelsea Court, the remaining one and one-sixth acre being devoted to spacious roads and ample gardens; thus completely answering the suggestion in your article that the development is evidence of 'painful effort to house large numbers on a small plot of land.' The encroachment now being an established fact, it may not be out of place to consider its economic advantages to the institution. A ground-rent of £750 a year has been established in favour of the institution, with a reversion, at the end of eighty years, to buildings that have cost something under £150,000 to erect—more than the cost of the building of the hospital itself, as stated by you. This ground-rent could be sold, no doubt, at thirty years' purchase, producing a capital return of £22,500 for the two acres, which represents £11,250 an acre, and which compares favourably with the £1000 an acre paid for the land in 1683. This operation would thus produce a sum of money which could be usefully applied for the enlargement of the present hospital. As a detail of secondary interest, I may point out that the execution of my designs for the houses and flats has given employment to many hundreds of artisans in all trades over a period of more than two years. Personally, I am accustomed to these outcries as soon as the new impinges upon the old; for example, when, some years ago, I pulled down St. Paul's Schools in St. Paul's Churchyard, and built thereon huge stone warehouses, an agitation was started for throwing this priceless land into the public way in order to improve the view of St. Paul's Cathedral. However much one's pulse may be stirred by the noble monuments of the unapproachable Wren, and however much one may hunger to preserve all possible open spaces in this overcrowded City, it will be found impossible to resist the natural tendency in the development of a huge Metropolis towards the new encroachment upon and obscuring the old."

THE first completed block of buildings forming the Clarence Barracks, Portsmouth, has just been brought into use. The new barracks, when finished, will be among the finest in England.

New Sunday schools erected in connection with the Castlemere Chapel, Rochdale, have just been opened. The schools, which will accommodate 700 persons, have been erected at a cost of £3500.

An order sanctioning the expenditure of £16,000 to complete additions and alterations, to carry out a scheme of heating and ventilation, to build a new chapel, and to carry out plumbing work, &c., in Omagh District Lunatic Asylum has just been issued.

CAN a building constructed below the street level—underground in fact—be said to be erected? A contemporary puts the question for the benefit of the Sanitary Committee of the Sewers Commission, in the hope that when it next undertakes a building of that description it will give instructions for the commemorative inscription to be appropriately and correctly worded.

THE lighting of the central hall of the Scottish National Portrait Gallery, which has been defective, is to be improved by taking down a wall separating three small rooms in the front of the building from the ambulatory, and the hall will then be decorated to illustrate Scottish history by Mr. William Hole, R.S.A. The fee for the work will be 3000 guineas, and it is to be completed within three years. Mr. Hole is going abroad to study Italian decorative Art in North Italy previous to commencing the work.



## Professional Items.

**BRIGHOUSE.**—The committee appointed to consider the best method of carrying out the free public library proposal in celebration of the Queen's Diamond Jubilee, has agreed for the purchase of the Rydings mansion, house, and grounds, situated in Halifax Road, Brighouse, for the sum of £3600, the project being to utilise the mansion and house for the public library and reading-rooms and the grounds as a public park. The grounds are between three and four acres in extent, are centrally situated, and cost, with the mansion, it is said, over £10,000.

**BURY.**—The Town Council has resolved to acquire a site in Silver Street and Moss Lane for the purposes of an Art gallery and free library for Bury. Plans will be open to public competition.

**CARDIFF.**—At the Seamen's Church, Bute Crescent, Cardiff, Canon Thompson has unveiled the memorial window erected to the memory of the late Captain Pomeroy, who for a great many years was dockmaster at Cardiff. The window, which has been erected by Mr. A. Savill, of Albany Street, Regent's Park, is a large five-light one. It illustrates in the centre light the Crucifixion, with St. John and Mary Magdalen kneeling at the foot of the Cross, whilst the openings on each side of the centre represent soldiers and the multitudes. Mr. Savill introduced in the first and the fifth lights a representation of the stilling of the tempest. The whole of the subject is surrounded with a rich architectural base and canopy work in keeping with Mr. Corbett's design of the Church.

**CROYLAND.**—The corner-stone of the new chancel of Croyland Abbey was laid a few days ago. The work now in progress is carried on as nearly as possible on the lines of the old work. The new chancel is simply the removal of the recently erected east end to the next bay or to the original western arch of the north transept. By this addition the unique Norman arch of the nave will be greatly strengthened. About £1500 is needed for the preservation of the Abbey.

**DEWSBURY.**—A large shed which has been in course of erection for the last twelve months at the Ratcliffe Mills, Dewsbury, belonging to Messrs. Wormalds and Walker, Limited, is now almost completed. The building is about 200ft. square, and consists of a basement with a floor area of about 3100 sup. yards, which will be used for storage purposes, and is lighted, in addition to windows on three sides, by floorlights from the room above. Eighty-eight cast iron columns support the floor above, which is constructed with steel girders and joists from the works of Messrs. Dorman, Long, and Co., of Middlesbrough. This upper story will be used for the raising and finishing of blankets, and the floor is specially adapted to the machinery which will be placed upon it, having sinking with outlet gulley to every couple of machines. The roof of the shed is supported on ninety-six columns of special design and manufacture, as are those also below. In addition to these two large places, a couple of rooms, 40ft. x 15ft. each, are provided for tentering machines, one room, 31ft. x 30ft., for burring machines, and an engine-house, consisting of engine-room, 61ft. 6in. x 14ft., and dynamo-room, 14ft. 9in. x 14ft. The former is fitted with a new compound horizontal engine of 140 indicated horse-power and a 14ft. rope driving fly-wheel with eight channels. The walls of the engine-house are lined with best quality enamelled bricks, and the ceiling is of pitch pine. The engine-bed is of Horsforth ashlar, 10ft. deep, resting upon a concrete bed of considerable depth. The site of the building is next the river, and has furnished the sand required for all purposes and the gravel required in the concrete foundations; but, however, this nature of the stratum has necessitated the foundations being carried very low. The total cost of the

building, exclusive of ground, machinery, and lighting, is over £10,000, and the various departments of work have been carried out by the following firms: Excavating, masonry, and bricklaying, Messrs. Chas. Whitehead and Sons, Ravensthorpe; carpentry and joinery, Mr. W. H. Clegg, Dewsbury; slating, Mr. W. R. Thompson, Dewsbury; plastering, Mr. Wm. Parker, Heckmondwike; plumbing and glazing, Mr. F. Newsome; concrete and steel work, Phoenix Fireproof Flooring Company, Manchester; cast-iron work and general castings, Messrs. J. and J. Horsfield, Dewsbury. The Architects are Messrs. C. H. Marriott and Son, of Dewsbury, and the whole of the work has been carried out under their superintendence.

**DUNDALK.**—At the weekly meeting of Dundalk Town Commissioners, Mr. P. Hanratty moved that the byelaws regulating the building of houses be so altered that houses 30ft. high and under may be built with 9in. walls of good brick and mortar, instead of 14in., as is required at present. He referred to the extra cost of building the thicker walls as a reason for the renting of houses at figures difficult for working men to pay, and stated that in Belfast houses three stories high are built with 9in. brick walls, and in Liverpool as high as five stories. The motion was opposed by several members on the ground that the present bye-laws have been found to result in substantial and healthy houses being built, whereas in former times, before the bye-laws were made, the houses were put up in very poor style, and were now unsanitary and defective in many ways. It was also urged that tenants would not benefit by the change, but the builder would pocket the amount of the decreased cost. Eventually the motion was withdrawn.

**EDINBURGH.**—The Lord Provost's Committee of the Edinburgh Town Council has agreed to accept the offer of Messrs. Bruce and Sons, amounting to £32,000, for the erection of the cable-power station at Shrubhill, and the offer of Mr. Colin Macandrew, amounting to £36,800, for the station at Tollcross.

**GOVAN, N.B.**—Messrs. Thomson and Sandilands, West George Street, Glasgow, have been the successful competitors with their designs for Govan Municipal Buildings. The estimated cost of the building is £25,000.

**HAWICK WILTON.**—The halls which have just been erected in connection with Wilton Parish Church have been built from plans by Mr. J. P. Alison, Hawick, at a cost, exclusive of furnishings, of about £2500. Externally the buildings are faced with terra-cotta and red brick from Pen-y-bont, Ruabon, Wales, and are designed after the manner of the brick buildings of the early part of the sixteenth century, with mullioned and cusped windows and highly decorated chimneys.

**LIVERPOOL.**—Recently a resolution was adopted by the City Council that a project of improving Cook Street should be carried out by means of the formation of a piazza on the south side of that thoroughfare, provided it could be accomplished at an expenditure not exceeding £30,000. The owners of the property and leaseholders and others concerned have agreed to take this amount to meet compensation and the value of the land involved, they undertaking to construct the piazza, using Purbeck marble columns with granite bases. The proposition has been accepted by the Health Committee, and it is understood that the work of improvement will be commenced without delay.

**NEWCASTLE.**—At a recent meeting of the Town Improvement Committee of the Newcastle Corporation mention was made of a new kind of wood pavement which is now being used in some towns, notably in Sydney, New South Wales. It was suggested that a trial of the new pavement might be made in Newcastle, and the Committee decided to instruct Mr. Laws, the City Engineer, to have that portion of Blackett Street which lies between

Pilgrim Street and the Monument laid with the new material, as an experiment.

**SHEEPWASH.**—The decoration of the parish Church of St. Laurence has now been completed. The whole of the constructional stone work has been left in its natural state, colour having been applied to the plaster and wood only, the latter having been allowed, throughout the roof both of Church and nave, to remain as a groundwork for the decoration. The reredos is of oak, richly carved, divided into three bays, with overhanging canopies and pierced work, designed after the old local type; the finial of the central canopy terminates in a floriated cross, backed by pierced work and flanked by crocketed pinnacles; the side panels are surmounted by coves, decorated with gold stars on a blue ground, an elaborately carved cresting surmounting the whole. The whole of the work has been designed and executed by Messrs. Fouracre and Son, of Plymouth; the wood carving is by Mr. Herbert Read, of St. Sidwell's Art Works, Exeter.

**SWANSEA.**—Plans were recently prepared of new post-office buildings for Swansea, and the estimated cost of erection was £47,000. Much dissatisfaction was felt in Swansea with the character of the buildings, and pressure was brought to bear by the Town Council on the Government to grant a post-office of a more elaborate and imposing appearance. A few days ago it was announced that this effort had been successful. The revised plans give an elevation one story higher, and there will be a fleche tower above.

**YEovil.**—The Church of St. Michael and All Angels will be dedicated and opened for Divine service on or about June 14th next. The Church is a handsome structure, composed of Ham stone, in the fifteenth-century style of Architecture. There is a chancel, nave, and north and south aisles. "In the north aisle is a lady chapel. A prominent feature of the interior of the Church will be a splendid carved oak rood-screen, and in harmony with it will be the pulpit, the two altars, choir stalls, and lectern. Over the altar, in the sanctuary, angel faces are carved out in Ham stone. The tower is square and battlemented, and rises to a height of about 80ft. The drawings provided for pinnacles to the tower, but the experience of a recent gale resulted in the abandonment of them. The Architect is Mr. J. Nicholson Johnston, of Yeovil, and Mr. Pollard, of Bridgewater, has the building contract in hand. The Church is heated throughout with modern apparatus, supplied by Messrs. Petter and Sons. Messrs. Harry Hems and Sons, of Exeter, are executing the carving work and supplying the oak fittings.

At Skegness the Urban District Council has resolved to erect a tower and clock on the parade, opposite Lumley Road, at a cost of not exceeding £400.

The appearance of the choir of Westminster Abbey has greatly benefited by the fine carved oak casing which has just been added to the northern portion of the organ. The Gothic design came from the hand of Mr. J. L. Pearson, the Architect to the Abbey, and the work has been carried out by Messrs. Shillitoe, of Bury St. Edmunds.

The restoration of the exterior of Thirsk Parish Church has been commenced on the south aisle. The restoration, which is calculated to cost well up to £2000, is expected to extend over two years. The interior was restored in 1876 and 1877, and re-opened for service in October, 1878. Mr. Carnforth, who has for many years been engaged on the exterior of York Minster, is the clerk of the works.

CONSIDERABLE opposition is likely to be offered to the proposal to close Watling Street Fire Station when the new premises in John Carpenter Street (near the Thames Embankment), now rapidly approaching completion, are occupied. It will be remembered that for a lengthened period Watling Street was the headquarters of the brigade until the Southwark depot was established.



## Trade and Craft.

### A FROST-PROOF WATER PIPE.

A syndicate has recently been formed in Birmingham to develop certain patents for preventing the splitting of water service pipes under the action of frost. As is generally known, water at the moment of congelation expands with an almost irresistible force, the usual result being the fracture of the service-pipe, and the consequent flooding of the house, on the advent of the thaw. With the new pipe it is guaranteed that the occupier of a house can rest comfortably through the most Arctic winter, secure in the fact that when the thaw comes the water will flow through its proper channels. We are informed that some very severe tests of the pipe have just been made in Birmingham. With the aid of a large local ice-making plant lengths of the pipe, after being filled with water and having the ends hermetically sealed, were frozen solid throughout, then thawed, and tested for leakage under pressure, this cycle of operations being repeated on one length of pipe ten or eleven successive times without a sign of a fracture.

### ELECTRIC LIGHTING AT DERBY.

The electric light is making considerable progress at Derby. Work was started at the close of 1893, and current was then supplied for forty-five arc lamps and 7500 eight-candle power incandescent lamps. In fifteen months it was found necessary to provide engine power for seventy-seven arc lamps and 9133 private lamps. In 1895 the Town Council fixed its first 250 horse power engine for electric lighting purposes. Last year another of these engines was fixed, and at the close of 1896 the arc lamps numbered 77, and the private lamps 16,105. Another 1000 lamps have been already supplied this year, and before long the station will reach its utmost limits of production. It is now proposed to make provision for the next three years, and instead of gradually putting down a small plant, to save expenditure by obtaining a larger engine-room. It is intended to spend £10,232 in machinery, £8650 in mains and services, £450 in buildings, and £650 in accumulators, &c. Messrs. Bramwell and Harris have been engaged as consulting electrical engineers for three years.

### A NEW ENGINEERING PROJECT.

Since the completion of the Rigi line in 1872 Switzerland has given us many bold and romantic examples of applied engineering science in the shape of mountain railways, but nothing so daring and gigantic has yet been attempted as the scheme of Herr Guyer-Zeller for the construction of a line of railway up to the summit of the Jungfrau, 13,670ft. above sea level. The Scheidegg station, 2060m. above sea level, will be the starting point of the new line. From here the Jungfrau railway will run on the western slope of the Fallbodenhubel, making straight for the foot of the Eiger Glacier. Thence it will turn due east, and later on due south in a tunnel winding round the solid body of the Eiger as far as the Eiger station, which is to be laid open, like most of the other stations, in galleries similar to those found along the Axenstrasse. The tunnel will then proceed in a direct line towards the Mönch and the Jungfraujoch, which point it will reach at a depth of 105m. below the surface. It will finally curve round the uppermost pinnacle of the Jungfrau, terminating on a plateau, well known to guides, at 4100m. above sea level. From this level a lift—probably something after the pattern of the American elevators—will take the passenger to the highest point.

### JARRAHDALE JARRAH.

The "Helena Mena" has arrived in London with 125 loads of Jarrahdale Jarrah aboat, to the order of McLean Bros. and Riggs, Limited, 1, Fenchurch Avenue, London, E.C.

## SOCIETY MEETINGS.

**Sheffield Society of Architects and Surveyors.**—At the annual general meeting of this Society Mr. Charles Hadfield, the president, in the chair, Mr. C. J. Innocent (hon. secretary) read the annual report of the council, which stated that the membership has continued to increase. There are at present 34 fellows, 37 associates, 14 students, 5 honorary members, and 18 lay members, making the total number of members 108, as against 103 at the end of the previous year. The council records with regret the death of Mr. James Hall, who has been a fellow of the Society from its commencement. The ordinary meetings have been exceptionally well attended throughout the session, and very able lectures have been delivered by Mr. J. D. Leader (honorary member), on "A Study in Domesday"; by Dr. Sorby (honorary member), on "The Structure and Durability of Building Stones and Bricks"; by Mr. Beresford Pite, president of the Architectural Association, on "The Study of Architectural Design"; by Mr. John Slater, on "The Buildings of the Ancients"; and by Mr. J. B. Mitchell-Withers (associate), on "A Tour in Holland." Professor Ripper, principal of the Sheffield Technical School, has made a number of tests of bricks at the request of the council of the Society, and reported fully upon them. The R.I.B.A. made a number of elaborate experiments in brickwork, to the expense of which this Society contributed; and samples of the bricks used in those experiments were sent down, and they were carefully tested by Professor Ripper, in comparison with a number of local bricks of several makers. There has been a competition for a public building in the city in which members of this Society who are in practice were invited to compete. The subject was a fire brigade and police station in West Bar, and the Corporation appointed three assessors, viz.: Mr. C. Hadfield (president of this Society), Mr. E. M. Gibbs (ex-president), and Mr. C. J. Innocent (hon. sec. and past president), who have prepared the instructions to the competitors, and who are now engaged on an examination of the designs submitted. It must be matter for congratulation that the Society has been thus publicly recognised, and the conditions prepared by the assessors have been highly spoken of by Architectural societies in other places. The question of the election of Fellows of the R.I.B.A. has been very carefully and repeatedly considered by the council, at the request of the Institute, and some of the recommendations have been incorporated in the scheme which has been adopted. It has been decided to join the R.I.B.A. and its other allied societies in an address of congratulation to her most gracious Majesty the Queen on the attainment of the sixtieth year of her reign, which will be signed by the president and hon. secretary of the Institute, and by the presidents and hon. secretaries of the allied societies. The election of officers resulted in the following elections: President, Mr. R. W. Fowler; vice-president, Mr. Joseph Smith; treasurer, Mr. F. Fowler; honorary secretary, Mr. C. J. Innocent; council, Messrs. A. Smith Denton, H. W. Lockwood, W. F. Hemsoll, T. Winder, and W. C. Fenton.

**The Architectural Association of Ireland.**—A meeting of the above association was held on Wednesday, the 21st inst., in the Grosvenor Hotel, Mr. Howard Pentland, M.A., vice-president, in the chair. Amongst those present were Messrs. J. McGloughlin, Joseph Holloway, Geo. Sheridan, H. Alberry, and R. M. Butler (secretary). Three new members were declared duly elected. The secretary read a letter from Mr. Wm. R. Gleave, stating that owing to his being about to practise in England, he was obliged to resign the position of joint secretary, which he did with much regret. Mr. Geo. Sheridan spoke in very warm terms of the services rendered by Mr. Gleave. The Chairman said he fully indorsed all that had been said by Mr. Sheridan. Mr. Alfred J. McGloughlin then delivered a lecture on "Architectural Draftsmanship," entering fully into the various methods of draftsmanship adopted by different schools of draftsmen.

**Society of Antiquaries of Scotland.**—At the monthly meeting of the Society of Antiquaries of Scotland, held in Edinburgh, Dr. Cramond, Cullen, contributed a paper, in which he gave an account of the recent discovery of two cremation interments accompanied by cinerary urns at Foulford, near Cullen. A finely-serrated arrowhead of flint and a portion of a bone pin, over 3in. in length, were found among the burnt bones. The site of the discovery is a circular mound of earth and stones, about 40ft. in diameter and 6ft. high, near Foulford Bridge. On its north side a cist was found in 1864 containing a broken urn, and towards the south side a cist with an urn resting on fine sand mixed with pebbles, while a third urn was found near the centre of the mound. The urns were all small, and were not preserved. Last month, near the same site, in excavating for the new water system, a cinerary urn, 11½in. high and 9in. wide at the mouth, was found. It was inverted over the deposit of burnt bones, which lay in a heap on a slab of mica schist, the urn and bones being further protected by a large stone placed over them. About 2ft. distant and 1ft. under the surface a smaller urn was found mouth upwards, and containing cremated bones.

**Portsmouth Master Builders' Association.**—At a recent smoking concert at the Sussex Hotel a presentation was made to the late President, Mr. J. H. Corke, consisting of a solid silver Prince's bowl and centrepiece of classical design. Mr. C. Dye, the new President, occupied the chair, and mentioned that Mr. Corke commenced business in Portsmouth about twenty years ago as a contractor, and he had carried on an extensive business in the town ever since, amongst the buildings which were monuments of his work being the Central Hotel and the Empire Palace.

A FEDERATION of the West of England and South Wales master builders is proposed, and already a draft scheme has been submitted.

DEAN FARRAR has received a cheque for £200 to defray the cost of a screen in the crypt in front of Innocents' Chapel in the Cathedral.

THE first vote of £750 towards continuing the filling certain panels in the Houses of Parliament with frescoes, is due, we believe, to the initiative of Dr. Farquharson and Sir Charles Dilke. It is not yet decided whether or no the designs of Albert Moore will be utilised (those of Sir J. E. Poynter do not belong to the Government), so that there is still a chance of the money going in a commission to a living Artist.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two.

Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

**Editorial and Publishing Offices:**  
Effingham House, Arundel St.,  
Strand, W.C.



## Correspondence.

### ST. GEORGE'S CATHEDRAL, SOUTH-WARK.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I wish to correct a remark made by the writer of the admirable treatise on Modern London Churches, in respect to St. George's Cathedral, Southwark. He says it was the prejudice and ignorance of the clergy (I presume he means in relation to Architecture) which prevented Pugin erecting a fine Cathedral on this site. Nothing of the kind was the fact. The clergy would have only been too pleased to have had Pugin's original grand design carried out, but they had to cut their coat according to the cloth, which in this case was money.

I remain, Sir,  
Yours faithfully,  
April 17th, 1897. T. WILLIAMS.

## TENDERS.

BERMONDSEY.—Accepted for additions to joinery mills, Drummond-road, S.E. Mr. H. Phelps Drew, Architect, 33, King-street, Covent Garden, W.C. £400

BRIDLINGTON QUAY.—For the erection of a warehouse and coach-house. Mr. Samuel Dyer, Architect, Bridlington Quay.—  
John Bennett ..... £253 19 11  
W. Barnes, Travis-st., Bridlington Quay\* 448 8 0  
\*Accepted.

CHISLEHURST.—For the erection of a branch store, for the Bromley Co-operative Society, Limited. Messrs. Wadmore, Wadmore, and Mallett, Architects, 35, Great St. Helen's, E.C.:

	Building.	Fittings.	
R. Otway	£214 0	£105 0	£1,019
R. H. Lowe	890 0	120 0	1,010
D. Payne	880 0	120 0	1,000
B. J. White and Son	885 0	98 0	984
T. W. Philpot	840 0	115 0	955
T. Crossley and Son	836 0	114 0	950
F. Wood	841 0	87 0	928
W. A. Grubb	830 0	85 0	915
J. Hutchings	777 10	130 10	908
T. D. Grady	779 0	114 0	893
F. P. Duthoit, Bromley*	787 0	95 0	832

HEREFORD.—For the erection of new offices, for boys and masters at the Herefordshire and District Working Boys' Home. Mr. G. H. Godsell, Architect, Hereford:—  
Bowers and Co. £265 17 Jas. Davies ..... £250 0  
W. P. Lewis and Co. 256 5 Andrews and Son\* 248 10  
Beavan and Hodges ..... 250 0  
\*Accepted.

HUNSTANTON.—For the erection of new offices, for boys and masters at the Herefordshire and District Working Boys' Home. Mr. G. H. Godsell, Architect, Hereford:—  
L. Leach ..... £253 0  
J. Nelson, Hunstanton (accepted) ..... 522 10  
[Surveyor's estimate, including contingencies and commission, £537 18s. 9d.]

HYTHE (Kent).—For the erection of a steel footbridge over the Royal Military Canal, for the Town Council. Messrs. Storey and Hulme, Engineers, 20, North John-street, Liverpool:—  
Alfred Thorne ..... £990 0 0 John Orme Brettell, Walter Jones & Sons 628 15 6 Worcester\* ..... £499 13 7  
Barry and Higham 618 0 0 \*Accepted.

ILFORD.—For the erection of steam laundry in Sunny-side-road, Ilford, for the Imperial Steam Laundry Company. Messrs. Verlyok and Dunn, Architects, 2, Adelaide-terrace, Ilford:—  
A. Springer ..... £433 18 0 R. G. Walters ..... £759 11 10  
J. J. Wheeler ..... 699 10 0

ILFORD.—For the supply, delivery, and erection of iron roof over Steam Laundry Buildings, Sunnyside-road, Ilford, for the Imperial Steam Laundry Company. Messrs. Verlyok and Dunn, Architects, 2, Adelaide-terrace, Ilford:—  
Peirson and Co. £306 0 W. Jones and Sons ..... £395 0  
P. and R. Flemming 310 0 Mat. T. Shaw ..... 534 10  
Boundary Fencing and Entrance Gateways.  
A. Springer ..... £45 0 0 R. G. Walters ..... £55 16 8  
J. J. Wheeler ..... 86 0 0

KINGSTON-ON-THAMES.—For the erection of the Royal County Theatre, for the Kingston-on-Thames Theatre Company, Limited. Mr. J. Charles Bourne, Architect, 62 and 63, Basinghall-street, E.C. Quantities by Messrs. Batstone Bros., 110, Cannon-street, E.C.:—  
Mark Patrick and Son £7,540 J. F. Collinson ..... £6,750  
Charles Oldridge and W. H. Gaze ..... 6,679  
Sons ..... 7,374 Kirk and Kirk\* ..... 6,275  
\*Accepted subject to modification.

LEDGER.—For the erection of new villa residence and outbuildings, for Mr. George Bennett, Ledger. Mr. G. H. Godsell, Architect, Hereford:—  
Reuben Taylor ..... £283 0 0 E. W. Wilks, Here-  
Jas. Davies ..... 865 0 0 ford\* ..... £215 0 0  
George Hill ..... 835 19 2 \*Accepted.

LONDON.—Accepted for the erection of five houses, Handsworth-road, Tottenham, for Mr. Jos. Lloyd. Mr. J. E. Pinder, Architect:—  
W. Hawley, Philip-lane, Tottenham ..... £1,532 10

LONDON.—Accepted for the erection of one house, Philip-lane, Tottenham, for Mr. W. Ponder. Mr. J. E. Pinder, Architect:—  
W. Hawley ..... £350

LONDON.—Accepted for the erection of house and shop, Philip-lane, for Mr. F. W. Paul:—  
W. Hawley ..... £420

LONDON.—Accepted for the erection of one house, Philip-lane, for Mr. H. Tiffen:—  
W. Hawley ..... £410

LONDON.—Accepted for the erection of one house, Pembroke-road, for Mr. J. J. Sibley. Mr. J. E. Pinder, Architect:—  
W. Hawley ..... £300

LONDON.—For the erection of Nos. 13-36, Mentone Mansions, Fulham-road, S.W., for Mr. A. Allingham. Mr. Alfred Burr, Architect:—  
Parsons ..... £14,345 Prestige and Co. ..... £12,678  
Foster and Dicksee ..... 14,321 Holliday & Greenwood 12,535  
Holloway Bros. .... 14,320 Battley, Sons, and  
Macey and Sons ..... 13,394 Holmes\* ..... 13,321  
W. Downs ..... 13,154 J. R. Ward ..... 10,152  
\*Accepted.

LONDON.—For alterations and office fittings at 41, Coleman-street, E.C. Mr. H. Phelps Drew, Architect, 33, King-street, Covent Garden, W.C.:—  
W. Knight ..... £390 Edwards and Medway ..... £415  
Collis and Sons ..... 578 W. Morton (accepted) ..... 385

LONDON.—For roads and sewers, Clapham-common Estate. Mr. W. Newton Dunn, Architect and Surveyor:—  
Thompson ..... £2,300 Neave and Son ..... £1,750  
Hudson ..... 1,789 Peill and Son ..... 1,525  
Adams ..... 1,730 Bentham and Co. .... 1,498  
Killingback ..... 1,700 Swaker ..... 1,450  
Calley ..... 1,600 Cox ..... 1,325  
Bell ..... 1,579 Wilson ..... 1,160  
King ..... 1,577 Childs and Carpenter ..... 1,110  
Laurence and Co. .... 1,576 Parry ..... 1,100  
Lanesbury and Co. .... 1,563

LONDON.—For erecting the Onslow-square, S.W., branch of the London Joint-Stock Bank. Mr. R. Creese Harrison, Architect:—  
J. Douglas ..... £7,023 Lawrence ..... £6,340  
Simmonds Bros. .... 6,570 Munday and Son ..... 6,338  
Falkner ..... 6,453 George Wade\* ..... 6,053  
\*Accepted.

LONDON.—For workshops for Messrs. Mann, Crossman, and Paulin. Mr. R. Spence, Architect:—  
Coldwells ..... £5,985 Perry and Co. .... £4,389  
W. J. Hack ..... 5,234 Dabbs ..... 4,335  
Johnson and Co. .... 4,550 Ashby and Horner ..... 4,337  
Pateman and Fother-  
ingham ..... 4,429 George Wade\* ..... 4,138  
\*Accepted.

LONDON.—For making-up and paving Bagley's-lane, for the Fulham Vestry. Mr. Charles Botterill, Surveyor, Town Hall, Waltham Green, S.W.:—

	Roadway.	York Stone.	Adamant Stone.	Victoria Stone.	Imperial Stone.
Parry, Fulham*	311	150	—	—	—
Mears	314	—	—	—	—
Winsey and Co.	320	178	124	—	—
Nowell and Co.	328	179	—	—	—
Greenham	330	—	—	—	—
Victoria Stone Co., Kings- land*	—	—	—	112	—
Imperial Stone Co.	—	—	—	—	119

LONDON.—For the external painting of Brunswick-road Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
T. H. Jackson ..... £149 0 J. T. Robey ..... £97 0  
D. Gibb and Co. .... 112 0 G. Wales ..... 91 11  
J. Kybett ..... 110 0 A. W. Derby (accepted) 87 0  
\*Accepted.

LONDON.—For the external painting of Buckingham-street Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
F. Britton ..... £171 5 Marchant and Hirst ..... £130 0  
Stevens Bros. .... 159 0 G. S. S. Williams and  
W. Hornett ..... 145 16 Son (accepted) ..... 194 0  
\*Accepted.

LONDON.—For the external painting and repairs of Darby-street Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
W. J. Hack ..... £36 0 J. Kybett ..... £31 0  
J. P. Holliday ..... 39 0 A. W. Derby\* ..... 22 0  
W. Hornett ..... 34 5 \*Accepted.

LONDON.—For the external painting of East-lane Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
W. Hornett ..... £245 0 Johnson and Co. .... £179 0 0  
H. Line ..... 236 0 G. Barker ..... 172 0 0  
H. J. Williams ..... 198 0 0 Holliday & Green-  
W. and H. Castle ..... 190 0 wood ..... 169 0 0  
B. E. Nightingale 189 0 W. Banks\* ..... 156 18 6  
\*Accepted.

LONDON.—For the external painting of Goodson-road Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
G. Barker ..... £165 0 0 Johnson and Co. .... £137 0 0  
W. and H. Castle ..... 149 0 0 S. H. Corfield ..... 135 0 0  
H. J. Williams ..... 147 0 0 W. Banks ..... 194 12 6  
Holliday & Green-  
wood ..... 137 0 0 Jones and Groves\* ..... 110 8 0  
\*Accepted.

LONDON.—For the external painting of Grafton-road Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
F. Britton ..... £200 14 McCormick and Sons £242 0  
F. T. Chinchin ..... 170 0 G. Foxley ..... 137 0  
G. Barker ..... 165 0 Stevens Bros.\* ..... 137 0  
T. Cruwys ..... 151 0 \*Accepted.

LONDON.—For the external painting of Hawley-crescent Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
McCormick and Sons £310 0 G. Foxley ..... £245 0  
S. H. Corfield ..... 275 0 Stevens Bros. .... 241 10  
W. Chappell ..... 249 10 T. Cruwys ..... 239 0  
W. Hornett ..... 248 0 Marchant and Hirst\* 198 10  
\*Accepted.

LONDON.—For the external painting of "Highway" Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
J. T. Robey ..... £188 0 J. Kybett ..... £151 0  
J. F. Holliday ..... 180 15 G. Wales ..... 142 10  
D. Gibb and Co. .... 153 0 G. Barker ..... 133 0  
A. W. Derby ..... 152 0 S. H. Corfield\* ..... 135 0  
\*Accepted.

LONDON.—For the external painting of the Latimer-road Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
G. H. Sealey ..... £282 0 G. Neal ..... £135 0  
H. C. Clifton ..... 160 0 W. Chappell ..... 118 10  
W. Brown ..... 136 0 W. R. and A. Hide ..... 115 10  
G. Foxley ..... 129 0 F. T. Chinchin ..... 112 15  
H. Somerford and Son 129 0 E. T. Folley (accepted) 107 0  
\*Accepted.

LONDON.—For the external painting of Oldridge-road Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
A. J. Acworth ..... £230 0 F. G. Minter ..... £217 0  
H. Brown ..... 265 0 J. Garrett and Son ..... 214 0  
Rice and Son ..... 260 0 E. B. Tucker ..... 198 15  
E. Flood ..... 250 0 E. P. Bull and Co. .... 195 0  
E. Triggs ..... 226 0 Hermann and Brown\* 193 0  
\*Accepted.

LONDON.—For the external painting of Priory-grove Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
C. Gurling ..... £211 16 W. Smith ..... £120 0  
T. Hooper ..... 198 0 J. F. Ford ..... 114 0  
Star and Son ..... 192 0 E. B. Tucker ..... 108 0  
H. Mallett ..... 140 0 E. Triggs ..... 92 10  
R. E. Williams & Sons 140 0 Rice and Son\* ..... 83 0  
\*Accepted.

LONDON.—For the external painting of Waller-road Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
J. and A. Oldman £115 0 W. V. Goad ..... £99 0 0  
J. and C. Bowyer ..... 112 0 Jones and Groves ..... 88 18 0  
W. Banks ..... 103 19 6 J. F. Ford ..... 86 10 0  
C. Gurling ..... 103 10 0 H. Leney (accepted) 83 17 0  
\*Accepted.

LONDON.—For the external painting of Wilton-road Schools, for the London School Board, to be completed before May 22nd, 1897. T. J. Bailey, Architect:—  
W. Lawrence ..... £204 10 McCormick and Sons £181 0  
W. Martin ..... 208 0 J. Grover and Son ..... 177 0  
T. Nicholson ..... 193 0 J. Morrison\* ..... 134 0  
W. Silk and Son ..... 187 0 \*Accepted.

LONDON.—For rebuilding offices and providing drainage at Southampton-street Schools, for the London School Board. T. J. Bailey, Architect:—  
Lathey Bros. ..... £919 W. V. Goad ..... £834  
J. Garrett and Son ..... 898 Holliday & Greenwood\* 861  
G. Parker ..... 893 W. and H. Castle ..... 780  
Johnson and Co. .... 883 \*Accepted.

LONDON.—For redrawing eight houses at Fulham. Mr. J. Randall Vining, 89, Chancery-lane, W.C., Architect and Surveyor:—  
R. A. Jordan ..... £198 10 0  
J. Dorking and Sons (accepted) ..... 175 0 0

MANSFIELD.—For the erection of an infirmary, &c., at the workhouse, for the Union Guardians. Mr. H. F. Vallance, Architect, Mansfield, Notts.:—  
Gilbert and Gabb-  
tass ..... £10,798 0 W. E. Shaw ..... £2,967 0  
H. Pickers ..... 10,205 0 J. F. Price ..... 9,683 10  
Fisher Bros. .... 10,120 0 J. Greenwood, Mansfield\* 9,314 14  
George Hodges ..... 10,017 0 \*Accepted.

MANSFIELD.—For the execution of alterations to cattle market, and additional stalls, &c., for the Corporation. Mr. R. F. Vallance, Borough Surveyor, Mansfield:—  
J. Tomlinson ..... £2,193 7 10 J. Greenwood, Mansfield\* £1,918 0 0  
J. F. Price ..... 2,150 0 0 \*Accepted.  
J. W. Fisher ..... 2,039 10 0

MANSFIELD.—For alterations to branch bank, for Messrs. Crompton, Evan, and Co., Limited. Mr. R. Frank Vallance, Architect, Mansfield:—  
C. Vallance ..... £1,980  
J. Greenwood, Mansfield (accepted) ..... 1,850

NELSON (Lancs.).—For the execution of street improvement work for the Corporation. Mr. B. Ball, C.E., Borough Engineer, Town Hall, Nelson:—  
Wm. Chew, Station-road, Fordridge £510 5 streets.  
Evan Ellis, 10, Hargreaves-street,  
Nelson ..... 1,120 8 "

T. Metcalfe, 43, Park-street, Bar-  
rowford ..... 650 4 "  
Jas. Ireland, 4, St. Mary's-street,  
Nelson ..... 140 1 street.

PAISLEY, N.B.—For the erection of a drill-hall, High-street. Mr. T. Graham Abercrombie, Architect, 13, Gilmour-street, Paisley:—  
Misoury.—Wm. M'Gee, Well-street,  
Paisley ..... £3,561 18 10

Joinery.—Matt. Lang, M'Gowan-street,  
Paisley ..... 1,419 8 1

Plumbing.—Jas. Kilpatrick and Son,  
Dyer's Wynd, Paisley ..... 383 7 11  
Shaw.—Shaw and Stewart, High-street,  
Paisley ..... 296 0 6

Plastering.—Jas. Collins and Son,  
George-street, Paisley ..... 514 16 10  
Additional contracts to be fixed later on.

PEMBROKE DOCK.—Accepted for building the Intermediate school for the Governors. Mr. David Jenkins, Architect, Llandilo:—  
Edward Evans, Pembroke Dock ..... £2,606

RAMSBOTTOM (Lancs.).—For paving, &c., Hope-street, and four other streets, for the Urban District Council. Mr. Jas. Halliwell, Surveyor, Council Offices, Ramsbottom. Quantities by the Surveyor:—  
Radcliffe & Wood-  
head ..... £361 6 1 Platt and Castle ..... £470 0 0  
C. Lomax ..... 506 5 6 T. and J. Foster, ..... 451 8 11  
N. Altham ..... 485 18 5 Ramsbottom\* ..... 424 15 17  
J. Fletcher ..... 476 19 0 \*Accepted.

ST. ALBANS.—For erecting two shops situate in Catherine-lane. Mr. Percival C. Blow, Architect, 7, London-road, St. Albans:—  
Boff Bros. .... £215 J. Bushell\* ..... £535  
E. Dunham ..... 564 \*Accepted.

SANDGATE.—For the execution of sewerage works, &c., for the Urban District Council. Mr. A. R. Bowles, C.E., Sandgate. Quantities by Mr. E. C. Pinks, 45, Parliament-street, S.W.:—  
F. Gierette and Co. .... £1,158 0 0  
J. Neaves, Sandgate (accepted) ..... 890 10 10  
W. Swaker (withdrawn) ..... 771 19 7

SNODLAND (Kent).—For sewerage, kerbing, &c., on estate, for the Kent and Essex House, Land, and General Investment Company, Limited. Mr. G. W. Cobham, Surveyor, 49, Windmill-street, Gravesend:—  
J. C. Freeman ..... £517 13 Tuff and Miskin ..... £490 0  
J. Wilford ..... 498 0 A. T. Catley, 23, Lloyd-  
square, E.C.\* ..... 356 0  
\*Accepted.

SOUTHAMPTON.—For tar paving footpaths, Church-street, Shirley, and Marlards, for the Corporation. Mr. W. G. B. Bennett, Borough Engineer, Municipal Offices, Southampton:—  
S. d.  
E. Bradshaw ..... 1 9 per yard.  
North of England Asphalt Company ..... 1 7 do.  
Asphaltic Limestone Concrete Company 1 7 do.  
John Wainwright ..... 1 4 do.

Mendip Granite and Asphalt Company,  
Shepton Mallet (accepted) ..... 1 4 do.

STOCKFIELDON-TYNE.—Accepted for cottage villa, "Burnside," for Mr. J. Weirhelt. T. Leslie Anderson, M.S.A., Architect, 4, Royal Arcade, Newcastle-upon-Tyne:—  
Humphrey Atkinson  
STOKE GABRIEL (Devon).—For the erection of house and stabling, for Mr. J. E. May. Mr. W. Taprell Allen, Architect, Kingswear. Quantities by Messrs. Northcroft, Son, and Neighbour:—  
Stephens and Bastow ..... £3,845 Webber and Sons ..... £3,261  
Rabbich ..... 3,317 Westlake ..... 3,145  
Webber and Maund ..... 3,287 Pike ..... 2,894  
Drew ..... 3,281 Brown, Cockington\* ..... 2,440  
\*Accepted, subject to reduction.

STONEHAVEN (N.B.).—For macadamising, &c., a new street, for the Commissioners. Mr. Geo. Murdoch, Borough Surveyor, Stonehaven:—  
John McPerrie ..... £210 10 0 Alexander Masson,  
James Leith, jun. 190 15 6 26, Ann-street,  
Peter Tawse ..... 173 7 0 Stonehaven\* ..... £157 9 2  
Wm. Smith, jun. 167 7 6 \*Accepted.

WALSALL.—Accepted for the erection of foreman's house, &c., Pick Gasworks, for the Corporation. Quantities by Mr. E. S. B. Birmingham:—  
Thomas Tildesley, Willenhall ..... £1,420  
[Twelve tenders received.]

WANSTEAD (Essex).—For the execution of road works, for the Urban District Council:—  
Kerbing.  
W. Wade ..... £214 3 0  
H. Burnham ..... 497 6 0  
W. Griffiths, 283, Kingsland-road, N.E.\* ..... 450 3 0

Tar Paving.  
Brunswick Rock Asphalt Paving Co. .... £1,290 2 3  
B. Shakeshaft Jones ..... 1,278 18 3  
H. Burnham ..... 1,242 0 0  
J. Smart ..... 930 13 0

Asphaltic Limestone Concrete Co., Mid-  
land Goods Station, South Tottenham\* ..... 890 7 2  
J. Ford ..... 877 18 8  
\*Accepted.



**WEST HAM.**—For the erection of sewage pumping-engine and boiler-houses, and electric-lighting buildings, Abbey Wharf, Stratford for the Town Council. Mr. Lewis Angell, Engineer, Town Hall, Stratford, E.

	Portland stone.	Artificial stone.	
J. Jackson	£50,097	£47,157	
Shillito and Son	45,530	44,530	
Munday and Son	44,839	43,561	
B. Cooke and Co.	42,240	41,116	
Chessum and Sons	40,981	39,208	
G. Sharpe	39,945	38,290	
C. Gray Hill	38,600	36,300	
Gregar & Son, Stratford (accepted)	35,747	33,747	
WINDSOR.—Accepted for making-up, &c., Bolton-road, for the Town Council:—			
T. Kelly, Windsor		£930	
[Borough Surveyor's estimate, £955.]			
WINDSOR.—For new mission hall, Old Windsor, Berks.			
Mr. J. W. Oades, Architect, Egham:—			
G. Gray	£737 0 0	C. Buckeridge	£539 0 0
Cooper and Son	649 0 0	R. Rowland	525 0 0
W. Beauchamp	545 19 0	J. Groves, jun.	443 10 0

## CONTRACTS OPEN.

### CITY OF BELFAST.

#### TO CONTRACTORS.

The Improvement Committee invite TENDERS for REPAVING Waring-street with Jarrah, Karri, or other Australian hard wood.

Drawings and specification can be seen in the Office of the City Surveyor, where forms of Tender may be obtained on payment of One Guinea, returnable if a bona-fide Tender be sent in.

Sealed Tenders, on official forms only, endorsed "Tender for Wood Paving," to be lodged in my Office on or before TEN o'clock a.m. on WEDNESDAY, MAY 5th.

Samples of wood blocks to accompany Tender.

The lowest or any Tender not necessarily accepted.

SAMUEL BLACK,

Town Clerk.

### BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.



## HOISTING APPLIANCES

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

### WESTON

AND OTHER

### Pulley Blocks

in Stock, with any length of

### CHAINS.

Chain Maker on Premises for Repairs, &c.

### LONDON HOIST

AND CHAIN CO.

32, Norton Folgate, E.C.

## TO BUILDERS, CONTRACTORS, and OTHERS.

**EAST ASHFORD UNION (KENT).**  
PROPOSED NEW ADMINISTRATIVE BLOCK, ADDITION TO INFIRMARY, NEW CHAPEL, AND ALTERATIONS TO EXISTING BUILDINGS, &c.

Persons desirous of TENDERING for the above WORKS are requested to forward me their names and addresses.

Bills of quantities will be supplied for a fee of £1 1s., which will be returned on the receipt of a bona-fide Tender.

The plans and specifications can be seen at the Workhouse, Willesborough, on and after APRIL 13th, 1897.

Sealed Tenders, on forms to be obtained of me, endorsed "Workhouse Buildings," to be sent to me on or before FRIDAY, MAY 7th, 1897.

The Guardians do not bind themselves to accept the lowest or any other Tender, and any Tender accepted will be subject to the approval of the Local Government Board.

No Tender will be accepted unless it comprises the whole of the Works.

HORACE HAMILTON, Clerk.

No. 11, Bank-street, Ashford, Kent,

April 7th, 1897.

## TO BUILDERS.

TENDERS are required for the erection of FOUR HOUSES at Felixstowe, being the first portion of a terrace in the development of the Eastward Ho Estate. Bills of quantities may be obtained on payment of a deposit of £1, which will be returned on receipt of a bona-fide Tender.

Tenders are to be delivered before TEN o'clock on TUESDAY, MAY 4th. The lowest or any Tender not necessarily accepted.

WILLIAM EADE, F.R.I.B.A., and  
E. THOS. JOHNS, Architects.

Cornhill Chambers,

Ipswich.

## FURTHER NOTICE.

**THE BOARD OF WORKS for the LEWIS-HAM DISTRICT.**  
KERBING, TAR-PAVING, METALLING, AND CHANNELLING WORK.

The Board is prepared to receive TENDERS for KERBING (with Aberdeen, Guernsey, or Norway Granite) and TAR-PAVING the FOOTPATHS, and CHANNELLING and METALLING the ROADWAY of Coombe-road, Sydenham.

The plan and specification of the work and form of contract may be seen at these Offices (Surveyor's Department), where printed forms of Tender and other particulars may be obtained.

The Tenders must be on the forms issued by the Board, enclosed in an envelope, sealed, and endorsed "Tender for Coombe-road," and must be delivered on or before FOUR o'clock on TUESDAY, the 4th MAY, at the Offices of the Board, and placed in the box there provided for the purpose.

The Board does not bind itself to accept the lowest or any Tender.

By order,

EDW. WRIGHT,

Board of Works Offices,

Catford, S.E.

April 21st, 1897.

Clerk to the Board.

## THE SMOKELESS FIRE Co. Ltd.,

Sole Proprietors of Marsh's Patents

FOR THE

### COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.

## "ECLIPSE" PATENT GLAZING.

THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.

Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

**MELLOWES & CO.** Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
Telegraphic Addresses—"ECLIPSE, SHEFFIELD," "MELLOWES, LONDON."

GUARANTEE sent with each Basin.



Recommended & Specified by Architects & Sanitary Engineers.

Perfect Sanitation, Healthy Houses

OBTAINED BY ADOPTING THE

### "TWYCLIFFE"

Patent Pedestal Syphon  
W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.

Practically noiseless in action.

Simple in construction, reliable in action.

No complicated mechanism to get out of order.

Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

**TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.**

## ECONOMY IN BUILDING.



**B. WARD & CO.,**

15, Gt. George St., London, S.W.

And at CARDIFF, etc.

**PATENT STABLE PAVING.  
PAVING.**

**FIREPROOF STAIRCASES.**

**ARTIFICIAL STONEWORKS.**

**FIREPROOF FLOORS.**

**WOOD BLOCK AND MOSAIC PAVING.**

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others.



**KENSINGTON and CHELSEA SCHOOL DISTRICT.****TO BUILDERS AND OTHERS.**

The Managers are prepared to receive TENDERS for the ENLARGEMENT of the SCHOOL ROOMS at their School at Banstead, according to drawings and specification, which may be seen at the offices of the Architect, Mr. CECIL SHARP, 50, Fenchurch-street, between the hours of TEN a.m. and FIVE p.m., where also bills of quantities and forms of Tender may be obtained, upon which only Tenders will be received.

Tenders, sealed, and endorsed "Tenders for Enlargement of School Room," must be delivered at the Manager's Offices, Marloes-road, Kensington, W., not later than TEN a.m. on FRIDAY, MAY 7th, 1897.

The Managers do not bind themselves to accept the lowest or any Tender.

By order,  
JNO. H. RUTHERGLEN,  
Clerk to the Managers.

Manager's Offices,  
Marloes-road, Kensington, W.  
April 15th, 1897.

**AUCTION SALES.****HARWOOD FARM BUILDING ESTATE, WATFORD, HERTS.**

Within half a mile of the High-street, and one mile of the Watford Junction Stations, London and N.W. Railway.

Important Sale of Freehold Building Land in a rapidly improving and increasing neighbourhood, suitable for the erection of a most lucrative class of Small Residences, Artisans' Dwellings, and Shops, for which there is great demand.

**MESSRS. HUMBERT, SON, and FLINT** are instructed by Messrs. BENSKIN, Limited, to SELL by AUCTION, at the Red Lion Hotel, Colney Butts, Watford, on WEDNESDAY, APRIL 28th, 1897, at Five o'clock precisely, about 420 PLOTS of FREEHOLD BUILDING LAND, most admirably situated, with frontages to good roads, and with depths varying from 100ft. to 140ft. The estate occupies an elevated position, has been most carefully laid out, and has immediate access to the centre of the town. The subsoil is gravel on chalk. The land will be sold free of Tithe and Land Tax.

Conveyances will, if desired, be prepared by the Vendors' Solicitors upon a moderate fixed scale of charges, and arrangements can be made for nine-tenths of the purchase-money to remain on easy terms, thus

affording opportunity for the smallest capitalist to acquire his own Freehold.

Particulars, plans, and conditions of sale may be had of Messrs. CROSSMAN and PRICHARD, Solicitors, 16, Theobald's-road, Gray's Inn, W.C.; of Messrs. SEDGWICK, TURNER, and ODDIE, Solicitors, Watford; and of Messrs. HUMBERT, SON, and FLINT, Watford, Herts, and 11, Serle-street, Lincoln's Inn, W.C.

**APPOINTMENTS VACANT.**

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**THE LONDON (TELEPHONE {Holborn, No. 1011.}) DRAWING & TRACING OFFICE,**

98, Gray's Inn Road, Holborn, W.C.

(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed - The City Bank, Ltd.  
Office hours - Nine to Six, Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS, PERSPECTIVES, SURVEYS, COMPETITION DRAWINGS,**

Black Line PHOTO-COPIES and Blueprints.

Quantities, Specifications LITHOGRAPHED.

**MODELS, DIAGRAMS, &c.**

Estimates by return of post on receipt of full particulars to the MANAGER

**CITY OF BRISTOL.****SURVEYOR'S ASSISTANT.**

The Sanitary Committee are desirous of receiving APPLICATIONS from persons qualified to carry out the duties of a SURVEYOR'S ASSISTANT, under the directions of the City Engineer.

A copy of the conditions of service may be obtained on application to the undersigned.

Preference will be given to applications from those persons who have had previous experience in Municipal Works and obtained the Certificate of Competency

**FLOORING BLOCKS.**

Per 100 Blocks out of sizes.	YELLOW.		PITCH PINE
	At Wharf.	ex Ship within one month.	At Wharf.
17½ x 3 x 3	13 3	11 2	16
17½ x 3 x 2	8 9	7 11	11 8
17½ x 3 x 1½	6 9	6 0	9 1

**PRIME DRY OAK & PITCH PINE FLOORING.**

With Special Joint to conceal Nails—

1½ x 4½ Oak, 50/- Pitch Pine, 24/6 per square.  
1 x 4½ " 42/6 " 21/- "

Above prices include desiccating.

**VIGERS BROTHERS, TIMBER MERCHANTS.**

Head Office—67, KING WILLIAM STREET, E.C.  
Mills—LOTS ROAD, CHELSEA.

Telephone No. 691 Avenue.

<p><b>GEORGE WRANGELL</b></p>	<p>DECORATIVE METAL WORK GAS &amp; ELECTRIC LIGHT FITTINGS</p> <p>Reg No 273662 Section No 21</p> <p>GLASS INSIDE</p>	<p>WARDRY WORKS SALFORD MANCHESTER LONDON 22 SURREY STREET STRAND W.C.</p>	<p><b>METAL OIL CASEMENTS &amp; SASHES</b></p>
-------------------------------	---	--	--

**ILLUMINATION BUCKETS IN ALL COLOURS.**

Commemorating the 60th year of Her Majesty's Reign.

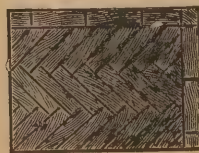
SEND YOUR ORDERS EARLY

To **J. YOUNG & CO., Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.**  
Telephone No 4712 (Hop).

**WIRE DEVICES,**

With Patent Wire Clips, to hold Bucket Lamps, in Crowns, Monograms, Letters, Feathers, and Window Blinds.

WRITE FOR DRAWINGS AND PRICES.

**WOOD-BLOCK PAVING.**

(MR. WHITE'S SYSTEM.)

For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

**THOS. GREGORY & CO.,**

WOOD PAVING AND STEAM JOINERY WORKS,

Clapham Junction, S.W.

**LADDERS, BARROWS, STEPS, TRESTLES, SCAFFOLDING, For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

Reading Cases may be had on application to the Manager. Price 1s. 9d. each.

**FOR PLUMBING, SANITARY AND DRAINAGE GOODS. Builders' Ironmongery, &c.**

Telephone No. 77 (Hop)

DO  
YOU  
WANT  
TO BUY  
RIGHT?

**GEORGE HYDE & CO**

**173 & 175, KENNINGTON CROSS, LONDON, S.E.**

DO  
YOU WANT  
SPEEDY  
DELIVERY



granted by the Incorporated Association of Municipal and County Engineers.

Candidates' ages must not be less than 24 or more than 36.

The salary will be £156 per annum, rising to £208 per annum, and the Appointment will be held during the pleasure of the Sanitary Committee.

Canvassing any member of the Corporation will disqualify a candidate.

Applications must be sent to this office not later than the 30th inst. in the candidate's own handwriting, accompanied by copies of not more than four testimonials of recent date, addressed to the undersigned, and endorsed "Surveyor's Assistant."

By order of the Committee,  
T. H. YABBIOM, Assoc. M. Inst. C.E.,  
City Engineer.

No. 51, Prince-street, Bristol,  
April 10th, 1897.

**DRAUGHTSMAN WANTED.** Must have had experience in the manufacture of TERRACOTTA. State age, salary, and references.—Box, 438, BUILDERS' JOURNAL Office.

**VESTRY of ST. PANCAS.**

REQUIRED, a CLERK in the office of the Borough Engineer, competent to prepare with strict accuracy the accounts of the prime cost of work executed, and experienced in the special duties required. Candidates must have been accustomed to similar work in a builder's, surveyor's, or other similar office. Salary, £100 per annum, increasing £10 annually to a maximum of £150 per annum. Applications to be made upon forms to be obtained of the undersigned with all further particulars, and to be sent in duly filled up not later than TWELVE noon, on SATURDAY, MAY 1st, 1897.

Personal canvassing will disqualify.

By order,  
Vestry Hall, C. H. F. BARRETT,  
Pancras-road, N.W., Vestry Clerk.  
April 14th, 1897.

**DRAUGHTSMAN WANTED,** thoroughly experienced in preparing plans of shop fittings and fronts in perspective and to scale. Must be a good colourist and designer. Apply, stating qualifications, salary required, and references, to F. E. and G. MAUND, 336, Old-street, Shoreditch, London.

**AN Experienced Architect DESIRES** to ASSIST OTHERS in the PREPARATION of DRAWINGS at his own office. Apply, by letter, to "Architect," care of E. J. Wilkes, 25, Market-place, Oxford Circus, W.

**BEXHILL URBAN DISTRICT COUNCIL.**  
APPOINTMENT OF SURVEYOR.  
APPLICATIONS are invited for the Office of SURVEYOR to the above Council.

The person appointed will be required to reside in the District, and provide himself with means of locomotion, and to devote his whole time to the duties of the office, a copy of which duties can be obtained from the undersigned.

The successful candidate will be required to enter upon the duties of his office on or about the 1st day of JUNE next, and to give an approved security in the sum of £100.

The salary will be £200 a year, and the appointment will be made subject to termination by three calendar months' notice in writing on either side.

Applications, in the candidate's own handwriting, stating age, qualifications, previous occupation, and accompanied by not more than three testimonials of recent date, must be received at the Office of the undersigned, addressed to him and indorsed "Surveyor," not later than SATURDAY, the 1st of MAY.

Canvassing, either directly or indirectly, will disqualify a candidate.

By order,  
FRED. A. LANGHAM,  
Clerk.  
Bexhill Urban District Council Offices,  
Bexhill, April 8th, 1897.

**COUNTY BOROUGH of SOUTH SHIELDS.**

**WANTED** at once, for two or three months, an ASSISTANT, who must be an experienced surveyor and leveller, to make a survey and plan of ballast hills, near the Marine Parks, together with sections, cross sections, and quantities of excavations, and filling in to be done in connection with the same.

Salary £3 3s. per week.

Applications, stating age and experience, together with copies of three testimonials of recent date, to be sent to Mr. MATTHEW HALL, Borough Engineer.

**ARCHITECTURAL DRAUGHTSMAN**

**WANTED.** Must be good at perspectives, a good tracer and colourist, with knowledge of quantities, specifications, and prime cost. For country horticultural builder's office.—Address, ALPHA, care of Dixon's Advt. Offices, 16, Great Marlborough-street, W.

**ARCHITECT'S MANAGING ASSISTANT**

**WANTED.** Must be clever designer and good detail hand.—Reply, stating age, experience, salary, and references, by letter, to WHITELEIGH and WHITTAKER, 16, Albert-square, Manchester.

### APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**YOUNG ARCHITECT, A.R.I.B.A.,**

DESIRES to ASSIST others

in the

PREPARATION of DRAWINGS

at his own office.

G. SCORER, 28, Newman-street, W.

**M'NEILL'S FELTS** (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)  
**M'NEILL'S SLAG WOOL** (Silicate Cotton), for Fireproofing and Soundproofing.  
AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. M'NEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

<p>HIGHLY GLAZED SANITARY STONE- WARE PIPES, TRAPS, GULLIES.</p>	<p><b>TERRA- COTTA WORKS</b></p> <p><b>J. EDWARDS</b></p> <p><b>RUABON.</b></p>	<p>STABLE BRICKS and CHANNELS, CATTLE BOOZIES and MANGERS.</p>
--	---	--

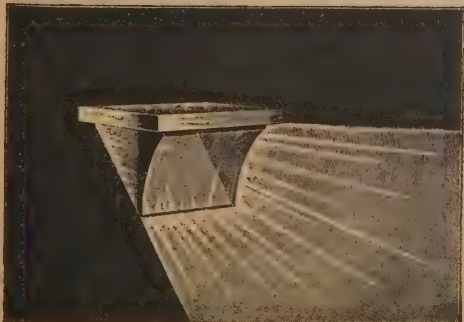
## WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL FOR TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



### "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation falling on anything which happens to be below.

### WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

### WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS



**B**UILDER and DECORATOR'S Manager (35) seeks RE-ENGAGEMENT. Excellent references. Well up in all branches. Practical man. Can measure and value in all trades. Salary moderate.—ALPHA, 12, Birkbeck-road, Acton, W.

**G**ENERAL FOREMAN seeks RE-ENGAGEMENT. Town or country. Eighteen years' London experience. Thoroughly practical in all its branches. Carpenter, &c. Steady and energetic. Just finished large job in London. Good references.—Address, L. G., 25, Union-road, Leytonstone, E.

**S**URVEYOR (24) desires ENGAGEMENT in Engineer's office. Experience in surveys (land and town), levels, and sewerage works. References and testimonials.—B. A. J., care of Mr. Walker, Poulton-le-Fylde.

**A**RCHITECT (Young, experienced) is open to ASSIST or completely PREPARE Designs, Working Drawings, Specifications, Dilapidations, &c., for the Profession or others.—A. M., Mr. Gill, The Facade, Stroud Green-road, N.

**A**RCHITECT and SURVEYOR'S ASSISTANT desires ENGAGEMENT. Surveying, levelling, measuring old work, superintending, details, general and working drawings. Neat draughtsman. Five years' experience, references, &c.—J. E. S., 13, Sandown-road, Leicester.

**G**LAZED BRICKS.—Thoroughly experienced Man wants SITUATION as MANAGER of Glazed Brick Department. First-class. White and various colours.—A. WITTY, Gateland Cottage, Shadwell, Leeds.

**S**ANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

Price 3s. 6d.

**G**LOSSARY OF TECHNICAL TERMS used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I. Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

**C**IVIL SERVICE TECHNICAL EXAMS.—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**R.**I.B.A. EXAMS. PREPARATION personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Library Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

# HAMILTON & CO.'S PAINTING BRUSHES,

GRAINING

TOOLS, &c.

TRADE

SEMPER IDEM

MARK.

For Prices apply to Lead and Glass, Varnish, and Oil and Colour Merchants, Ironmongers, &c.

Manufactory: 96, CLERKENWELL ROAD, LONDON, E.C.

**ROBT. ADAMS, 67, Newington Causeway, London, S.E.**

These marvellous Double and Single Action, Silent, Adjustable, and Self Compensating

## SPRING HINGES

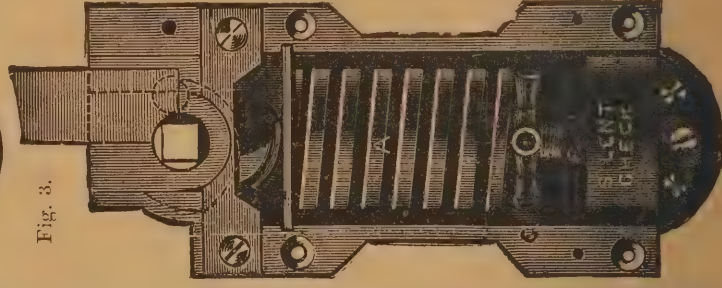
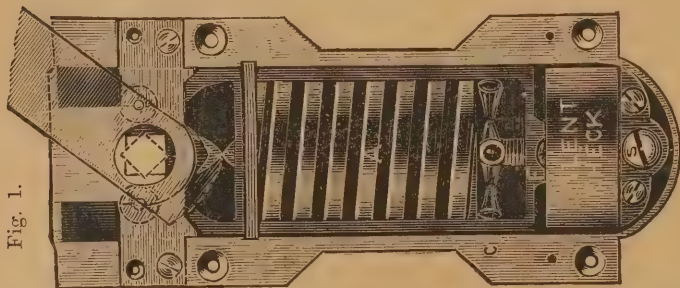
Guaranteed to last longer and work better than any hitherto made.

CAN BE FITTED TO ANY DOOR.

Fig. 1 (Silent). A Double-Action Spring Hinge which opens to and closes from the angle of 135°.

Fig. 3 is the new Single Action Spring. It opens to and closes from the angle of 180°, i.e., "wide back."

THE FIRST SPRINGS EVER PRODUCED WITH THESE GREAT ADVANTAGES.



**WOOD BLOCK FLOORING.**  
**MASTIC** for laying above supplied in any quantity.  
W. BRIGGS, Chemical Works, DUNDEE,  
SOLE MAKER OF  
"Tenax" Building Rock Composition  
For Wall Cavities.

**PILKINGTON'S**

WORKS: **TILES.**  
CLIFTON JUNCTION,  
NEAR MANCHESTER.  
MANUFACTURERS OF HIGH CLASS TILES.  
For Floors, Halls, Hearths, Grates and Furniture.  
EVERY VARIETY OF TILE WORK FOR  
CHURCHES, PUBLIC BUILDINGS AND  
PRIVATE RESIDENCES.

London Show Rooms:  
Lyric Chambers, 45, Whitcomb Street W.C.  
Manchester Show Rooms  
37, Cross Street

A few copies of Vol. IV. may still be had on application to the Manager, price 5s. each.

## GODWIN'S TILES

For PAVEMENTS  
WALLS HEARTHES &c

AS USED BY THE  
Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGGERINTON, WORTHINGTON,**  
Patronised by Royalty. | Established 1848. | Near HEREFORD.

20,000 yards  
**FLOOR TILES**  
in Stock.  
Quick Supply!  
Best Quality!  
Low Price!



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.  
**CAMERAS AND SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.





## INDEX OF ILLUSTRATIONS AND CONTENTS.

ILLUSTRATIONS.	PAGE	CONTENTS.	PAGE	CONTENTS.	PAGE
Supplement: The Pugin Studentship: Howden Church, The East End; Selby Abbey, South Side. Drawn by C. de Gruchy.		Varnishing Day at the Academy...	165	Royal Institute of British Architects: The Elections	175
The Jerusalem Chamber, Westminster Abbey	165	Art of Plastering	165	London: Its Growth and History	176
In Istria and Dalmatia—Porta Marina, Arbe—Church Tower, Arbe—West Front of Cathedral, Zara—Interior of Cathedral, Zara—Porta di Terra Firma, Zara	167, 168	Building at Birmingham	166	The Last of Addington Park	176
Suggestion for the West Central Improvement Scheme	170	In Istria and Dalmatia with a Camera. Part II. By W. Law Bros.	167	Chelsea Hospital	177
Old Tomb in Churchyard, Thames Ditton, Measured and Drawn by T. F. Hawkes	171	The Origin and Development of Renaissance Architecture in Italy. By C. B. Hutchinson, A.R.I.B.A.	168	Professional Items	178
		Suggestion for the West Central Improvement Scheme. By H. V. Lanchester	170	Trade and Craft	179
		Bricks and Mortar	170-173	Society Meetings	179
		Plymouth Corporation Works: A Sanitary Scheme	174	Correspondence	180
		A London Widening Scheme	174		
		Keystones	174, 175	SURVEYING AND SANITARY SUPPLEMENT:	
		A New Bridge across Niagara	175	The Practical Designing of Iron and Steel Roofing. By Alexander Drew	xliv
				The Disposal of Sewage. By W. Harpur	xlvi
				Surveying and Sanitary Notes	xlvi

## "THE BUILDERS' JOURNAL" ADVERTISERS.

Names and Addresses with the page on which their Announcements Appear.

PAGE	PAGE	PAGE	PAGE
Adams & Co. ... vi	De Ridder, R. P., Liverpool ... i	Hyde & Co., G., London ... viii	Safety Tread Syndicate, Ltd. ... xi
Adams, Robert, London ... x	Doulton & Co., Lambeth ... i, ii	Itter, A. W., Peterborough ... i	St. Pancras Ironwork Co., London ... xi
Adams, T., & Sons, Ltd., Birmingham ... xi	Dowson Taylor & Co. Ltd. ... i	Jones & Attwood, Stourbridge ... i	Self-Lock Roofing Tile Co., Ltd. ... xi
All ion Clay Co., Ltd., London ... vii	Easton, Anderson & Gooldeen, Ltd. ... iv	Jones and Willis, London ... i	Skidmore, Thos., & Son ... xi
Alday, J. L., Birmingham ... vii	Eastwood & Co., London ... xi	Kaye, Joseph, & Sons, Ltd., London ... i	Sly Brothers, Oxford ... xi
Anaglypta, Darwen ... vi	Edwards, J. C., Ruabon ... ix	King, John, Liverpool ... i	Smokeless Fire Co., Ltd., London ... vii
Asphall's Enamel Ltd. ... vi	Ellis, Partridge & Co., Leicester ... i	Lewis, J., London ... v	Stanley Bros., Ltd., Nuneaton ... xi
Ball, H. A. ... i	Elsley, Thomas, London ... i	London Hoist and Chain Co. ... vii	Stiff & Sons, London ... iii
Barnett, Edward, Walsall ... i	Emley & Sons, Newcastle-on-Tyne ... i	London Drawing and Tracing Office ... x	Strode & Co., London ... i
Barrows & Co., Ltd., Banbury ... i	Etridge, J. J., Junr., London ... i	Lux Patent Venetian Blind Limited ... ix	Szerelmey & Co., London ... i
Bath Stone Firms, Ltd., Bath ... i	Ewart & Sons, London ... i	McNeill, F., & Co., London ... i	Talbot Co., Leeds ... i
Batchelar, J., & Co., London ... viii	Farmiloe, G., & Sons, London ... i	Maw & Co., Ltd., Jackfield ... ix	Thornton-Pickard Mfg. Co. ... x
Batsford, B. T., High Holborn ... i	Farrar, E., & Co., London ... i	Measures Bros., Ltd., London ... vi	Twyford, Ltd., Hanley ... vii
Bayliss, Jones & Bayliss ... i	Gibbs Bros., Loughborough ... xi	Medway, M. T., & Co. ... xi	Vigers, Bros., London ... viii
Bell, R., & Co., London ... i	Glover, F. A., & Co., London ... i	Mellows & Co., Sheffield ... vii	Ward, B., & Co., London ... vii
Blackman Ventilating Co., Ltd. ... xi	Godwin, W., & Son, Withington ... x	Minton, Hollins & Co. ... vii	Warings, Ltd., London ... i
Blundell, Spence & Co., Hull ... i	Gooding, W., London ... xi	N. A. P. Window Co., London ... iii	Waygood, R., & Co., Ltd., London ... i
Boote, Ltd., T. & R., Burslem ... i	Granite Silicon Plaster Co. ... i	Oates & Green, Ltd., Halifax ... vi	Webb & Co., London ... i
Brady, G., Manchester ... i	Gregory, Thomas, & Co., London ... viii	Parker, Robert, & Co., Liverpool ... i	Wilkinson, W. B., & Co., Ltd. ... i
Briggs, W., Dundee ... x	Grundy, John, Ltd., London ... i	Patterson, J. & H., Manchester ... i	Williams, G. A. & Son ... iii
Burmantofts, Leeds ... i	Hamilton & Co., London ... x	Perkins, A. M. & Sons, Ltd., London ... i	Wilson & Co., London ... ix
Candy & Co., Ltd., London ... i	Hartley and Sugden, Ltd., Halifax ... xi	Pilkington Tile and Pottery Co. ... x	Wragge, Geo., Manchester ... viii
Charteris & Longley, London ... i	Hentschel, C., & Co., London ... i	Roberts, Adlard & Co. ... i	Wright, G., & Co., Rotherham ... i
Couzens, G. and F., Cardiff ... i	Homan & Rodgers, London ... i, vi	Robson & Co., Sunderland ... i	Young & Marten, Stratford ... i, ii
Dennis, Henry, Ruabon ... i	Hope, Henry, Birmingham ... xi	Rogers, S. E., London ... xi	Young & Co., J., London ... viii

ADCOCK, Mr. W. J., Builder, Dover.

"I have proved your invention easy of application. Both my joiners and apprentices could fix the apparatus without difficulty after having inspected a model."

CRICKMAY &amp; SONS, Messrs., F.R.I.B.A., London, S.W.

"The Patent Windows supplied for Sir Edward Walters' house at Salisbury gave us every satisfaction. We shall continue to use them."

JONES, Mr. PETER, Sloane Sq., London.

"I am glad to be able to bear testimony to the great utility and general usefulness of the N.A.P. Sliding Windows. I am very pleased with them, and should be sorry to be without them."

LUCAS &amp; AIRD, Messrs., Contractors, London.

"Cheap, simple, and effective. We are using some 1200 sets of your fittings on these exceptionally tall buildings."

MORGAN, ISTD &amp; MORGAN, Messrs., Contractors, Southampton.

"A very clever arrangement, and one which will certainly come into daily use."

PERRY &amp; READ, Messrs., F.R.I.B.A., London.

"It is with pleasure that we are able to inform you of our entire satisfaction with the 'N.A.P. Windows,' we shall continue to specify them."

Write for Full Particulars to the N.A.P. Window Co., Ltd., 159, Victoria Street, Westminster, S.W.



## STIFF &amp; SONS, LAMBETH, S.E.

MANUFACTURERS OF

BEST LONDON STONEWARE DRAIN PIPES AND FITTINGS, CHANNEL PIPES, KITCHEN AND HOSPITAL SINKS.

LIGHT'S, WEAVER'S, CREGEEN'S, KENSINGTON, AND OTHER TRAPS.

WATER CLOSET PANS AND TRAPS, URINALS, AIR BRICKS DAMP-PROOF COURSE, ARCHITECTURAL TERRA-COTTA, VASES, &amp;c.

For Illustrated Price Lists apply to

JAS. STIFF &amp; SONS, LONDON POTTERY, LAMBETH, S.E.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
April 30	Newquay—New Headland Hotel ... ..	Highway and Sewerage Committee ...	S. Trevel, Architect, Truro.
" 30	Leicester—Concrete and Stone Bridge ... ..	...	E. G. Mawby, Borough Surveyor, Leicester.
" 30	High Spen—Construction of Twelve Cottages ... ..	...	Miners' Arms, High Spen, Lintz Green.
" 30	Beeston, Notts—Erection of Council Offices ... ..	Beeston Urban District Council... ..	Hedley J. Price, 24, Low Pavement, Nottingham.
" 30	Buckie, Scotland—New House, High-street ... ..	...	James Perry, Architect, Buckie.
" 30	Bury, Sussex—Repairing Church Spire ... ..	...	Lacy Ridge, 11, Verulam-buildings, Gray's-inn, W.C.
" 30	Elgin—New Barn, &c., Gledhill ... ..	...	A. and W. Reid and Willet, Architects, Elgin.
" 30	Elgin—New Buildings, Waterscott ... ..	...	A. and W. Reid and Willet, Architects, Elgin.
" 30	Gateshead—Erection of Shops, &c. ... ..	Alex. Cameron ... ..	Mr. Armour's Office, West-street, Gateshead.
" 30	Portsmouth—New Drill Hall ... ..	2nd Hants V.A. ... ..	Rake and Cogswell, Prudential-buildings, Portsmouth.
" 30	Portsmouth—Stabling, &c., for 140 Horses ... ..	...	Garlick and Sykes, 33, Winckley-square, Preston.
May 1	Bangor, Ireland—Church Tower, &c. ... ..	...	Mr. Stephens, Donegall-square, Bangor.
" 1	Grangemouth, Scotland—Dwelling-houses, New-street... ..	Grangemouth Co-operative Buildings and Investment Society, Limited.	G. Dear Page, Old Glebe-chambers, Falkirk.
" 1	Kendal—Erection of Mills and Offices ... ..	Messrs. E. W. Thompson and Co. ...	Robert Walker, Architect, Windermere.
" 1	Morley, Yorks.—Eight Scullery Houses ... ..	...	T. A. Buttery, Queen-street, Morley.
" 1	Bradford—Erection of Two Villas ... ..	...	T. C. Hope, Old Bank-chambers, Bradford.
" 3	Cairo—Prison and Police Barracks ... ..	Egyptian Government ... ..	Service Administrative Offices, Cairo.
" 3	Runcorn—School Buildings ... ..	Runcorn School Board ... ..	F. and G. Holme, Westminster-chambers, Crosshall-street, Liverpool.
" 3	Cardiff—Extension of School ... ..	Cardiff School Board ... ..	S. Rooney, Cefn Mabley-chambers, Quay-street, Cardiff.
" 3	Darlington—Fittings, &c., for New College ... ..	...	F. T. Steavenson, Houndgate, Darlington.
" 3	Sleaford, Lincs.—New House ... ..	Trustees, Methodist Chapel ... ..	Vestry of Chapel.
" 4	London, S.E.—Shelter in Gymnasium ... ..	London County Council ... ..	Architect's Department, Spring-gardens, S.W.
" 4	Barber's Bridge, near Gloucester—Cottage ... ..	Great Western Railway Company ...	Engineer at Gloucester Station.
" 4	Skewen, Wales—Erection of Chapel ... ..	Calvinistic Methodists ... ..	Rees Llewelyn, Boich-grove, Llansamlet Higher.
" 4	Swindon—Additions to 14, Fleet-street ... ..	Farnham Budgett ... ..	Messrs. William Drew and Sons, 22, Victoria-st., Swindon.
" 4	Tilchurst, Berks.—Erection of Cottage ... ..	Great Western Railway Company ...	Office of the Engineer at Reading Station.
" 4	Wylie, Wilts.—Five Cottages ... ..	Great Western Railway Company ...	Office of the Engineer at Bristol Station.
" 4	Illingworth, Yorks.—House ... ..	...	Medley Hall, 29, Northgate, Halifax.
" 4	Felixstowe—4 Houses, Eastward Ho Estate ... ..	...	Eade and Johns, Cornhill-chambers, Ipswich.
" 4	Scarborough—Enlarging Post Office ... ..	Commissioners of H.M. Works ... ..	12, Whitehall-place, S.W.
" 5	Lancaster—Alterations to Slaughterhouse, &c. ... ..	Properties Committee ... ..	Borough Surveyor's Office, Market-square, Lancaster.
" 5	London, N.W.—Re-decorating, &c., Vestry Hall ... ..	Vestry of St. Pancras ... ..	Borough Engineer, Vestry Hall, Pancras-road, N.W.
" 5	Sutton St. Edmunds, Lincs.—School, &c. ... ..	Sutton St. Edmunds School Board ...	R. H. H. Hand, Architect, Spalding.
" 6	Clayton West, Huddersfield—Villa ... ..	...	John Kirk and Sons, Architects, Huddersfield.
" 7	East Ashford, Kent—Alterations to Infirmary Chapel, &c. ... ..	Guardians ... ..	Workhouse, Willesboro'.
" 7	Banstead—Enlargement of Schoolrooms ... ..	Chelsea and Kensington School District ...	Cecil Sharp, 59, Fenchurch-street, E.C.
" 8	Elgin—New Houses ... ..	James Scott ... ..	James Jamieson, 2, Commerce-street, Elgin.
" 8	Lancaster—Erection of School ... ..	Lancaster School Board ... ..	Clerk of the Lancaster School Board.
" 10	London, N.W.—Asylum ... ..	Central London Sick Asylum Board ...	Giles, Gough, and Trollope, 28, Craven-street, Strand.
" 10	London, W.—Temporary Iron Structure ... ..	Asylums Committee of the L.C.C. ...	Clerk of the Committee, 21, Whitehall-place, S.W.
" 11	Hartlepool—Converting Coastguard Dwellings, &c. ... ..	Works Department ... ..	R.N.R. Battery, West Hartlepool.
" 11	Harting, S.E.—Conveniences ... ..	London County Council ... ..	Architect's Department, County Hall, Spring-gardens, S.W.
" 15	Harting—Enlargement of Schools ... ..	Harting School Committee ... ..	C. Taylor, South Harting.
" 18	Buenos Ayres—New Central Railway Station ... ..	...	Roumanian Ministry of Agriculture, Bucharest.
" 18	Rotherhithe—Erecting Laundry, Repairing, &c. ... ..	Guardians ... ..	State Government, Buenos Ayres.
" 20	Hull—Additions to Workhouse, Beverley-road ... ..	Sculcoates Union ... ..	Newman and Newman, 31, Tooley-street, S.E.
" "	Rochdale—Large Stable, Norden, near Rochdale ... ..	Norden Coach Company Limited ...	T. B. Atkinson, Architect, 11, Trinity House-lane, Hull.
" "	Pontypool—House and Shop, Crane-street ... ..	Woodley and Co. ... ..	J. W. Sunderland, Architect, Church View, Norden.
" "	Salisbury—Three Pairs Villas, Wyndham-road ... ..	J. Polliott ... ..	N. M. Brown, Architect, Somerton-road, Newport, Mon.
" "	Kidderminster—Six Cottages, Leswell-street ... ..	...	J. Harding and Son, Architects, Salisbury.
" "	Heeley, Yorks.—Church and Schools ... ..	...	C. A. Downton, Architect, Coventry-street, Kidderminster.
" "	Walsay—Leather Factory ... ..	...	E. Fitt, 138, Alexandra-road, Heeley.
" "	Tregony—Restoration of Church ... ..	...	F. W. Cross, C.E., The Bridge, Walsall.
" "	Burnley—Five Houses, Arkwright-street ... ..	...	Rev. J. F. Reeves, Tregony, Grampound Road.
" "	Burnley—Nine Cottages, Wheatley-lane ... ..	...	A. Robinson, Architect, Padiham-road, Burnley.
" "	Clevedon—Club Buildings ... ..	...	H. Proctor Ashfield, Wheatley-lane, Burnley.
" "	Wain Lwyd, near Ebbw Vale—Two Cottages ... ..	...	Baker and Langworthy, Solicitors, Clevedon.
" "	...	...	A. Watkins, 15, Spencer-street, Ebbw Vale.
<b>ENGINEERING—</b>			
April 30	Yeovil—Covered Service Reservoir ... ..	Corporation ... ..	Borough Surveyor, Yeovil.
" 30	Leicester—Construction of Stone & Concrete Bridge, &c. ... ..	Highways and Sewerage Committee ...	E. Geo. Mawby, Town Hall, Leicester.
" 30	London—Drawing Piles, &c. ... ..	East India Docks ... ..	East India Docks, London.
" 30	Nantwich—Bridge, River Weaver ... ..	Rural District Council ... ..	J. R. Whittingham, London-road, Stapeley.
" 30	Tenbury—Water Supply and Drainage Works ... ..	Guardians ... ..	W. S. Davis, Clerk, Tenbury.
" 30	Falkirk—Waterworks ... ..	Falkirk and Larbert Water Trustees ...	William W. Neilson, Engineer, Falkirk.
May 1	New Ross—Gasholder ... ..	New Ross Gas Company ... ..	D. Hunt, Gasworks, New Ross.
" 1	Sheffield—Cast-iron Water Tank ... ..	United Gas Light Company ... ..	Fletcher W. Stevenson, Gasworks, Sheffield.
" 1	Sheffield—Enlarging Water Tower ... ..	United Gas Light Company ... ..	Fletcher W. Stevenson, Gasworks, Sheffield.
" 1	Golspie—Waterworks ... ..	Sutherland County Council ... ..	J. A. Hosie, Surveyor, Golspie.
" 1	Golspie—Drainage Works ... ..	Sutherland County Council ... ..	J. A. Hosie, Surveyor, Golspie.
" 1	Ballymena, Ireland—Cooking Boilers, &c. ... ..	Guardians ... ..	Clerk's Office, Workhouse, Ballymena.
" 1	Windsor—Heating, Workhouse ... ..	Guardians ... ..	Surveyor's Office, 17, Park-street, Windsor.
" 3	Leigh, Lancs.—Machinery ... ..	Leigh & Atherton Joint Sewerage Board ...	E. Pritchard, Engineer, Birmingham.
" 4	Gloucester—Reconstructing Bridge ... ..	Great Western Railway Company ...	Office of the Engineer at Gloucester Station.
" 4	North Shields—Gasholder Lift ... ..	Tynemouth Gas Company ... ..	W. Hardie, jun., Gasworks, North Shields.
" 8	Omagh, Ireland—Cooking and Laundry Appliances ... ..	Guardians ... ..	William Cathcart, Clerk, Workhouse.
" 10	London—Iron Structures at Asylum ... ..	London County Council ... ..	The Clerk, 21, Whitehall-place, S.W.
" 24	Portrane, Co. Dublin—Heating, Ventilating, &c. ... ..	Commissioners for the Control of Lunatic Asylums ...	G. C. Ashlin, 7, Dawson-street, Dublin.

## EASTON, ANDERSON &amp; GOOLDEN, LIMITED,

BROAD SANCTUARY CHAMBERS,

BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."

Telephone—"545, WESTMINSTER."

**ELECTRIC & HYDRAULIC LIFTS & CRANES,**  
**PUMPS, RAMS,**  
**WATER SUPPLIES, ENGINES AND BOILERS,**  
**ELECTRIC LIGHT AND POWER.**



MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.



COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED
<b>PAINTING—</b>			
April 30	Goring—Painting Bridge, Toll-house, &c. ...	Streatley & Goring Bridge Commissioners	Francis E. Hedger, Clerk, Wallingford.
May 1	Bedale—Painting the Outside of Workhouse ...	Guardians	Edwd. D. Swarbrick, Clerk, Bedale.
" 3	London, W.—Painting, &c., Houseless Poor Wards ...	Guardians of St. Marylebone	Superintendent of the Wards, East-street, Marylebone.
" 4	London, E.—Painting, &c. ...	Whitechapel Guardians	The Steward, Infirmary, Vallance-road, E.
No date.	Longton, Staffs.—1. Painting Market Hall ...	Town Council ...	J. W. Wardle, Court House, Longton.
" "	" 2. Painting Public Baths ...		
" "	" 3. Painting Cemetery Chapels, Lodge, Gates, &c. ...		
" "	" 4. Painting Offices, Seats, &c. ...		
" "	Aldershot—Painting, &c., Buildings ...	War Department	Royal Engineers' Office, North Woolwich.
" "	York—Painting, &c. ...	War Department	Royal Engineers' Office, Fishergate, York.
<b>ROADS—</b>			
April 30	Ashford, Kent—Granite (1235 cubic yards) ...	Urban District Council	William Terrill, North-street, Ashford, Kent.
" 30	Easingwold, Yorks.—Whinstone and Slag ...	Rural District Council	F. J. H. Robinson, Clerk, Easingwold.
" 30	Wantage—Materials ...	Wantage Rural District Council	District Surveyor, East Isley.
May 1	King's Lynn—Road Materials ...	Corporation	E. J. Silcock, Borough Surveyor, King's Lynn.
" 1	Horncastle, Lincs.—Repaving, &c., Market-place ...	Urban District Council	S. Overton, 2, Manor House street, Horncastle.
" 1	Motherwell, Scotland—Causeway (1900 yards) ...	Commissioners	Burgh Engineer's Office, Town Hall, Motherwell.
" 1	Ramsgate—Cartage, 1 Year, to June 30th, 1898 ...	Ramsgate Harbour Committee	William A. Valon, Engineer, Ramsgate.
" 3	Stockport—Road Work ...	Guardians	H. H. Turner, Hazel-grove, Stockport.
" 3	Edmonton—Asphalt Footways, Kerbing, &c. ...	Urban District Council	G. Eedes Eachus, Town Hall, Lower Edmonton.
" 4	New Ferry, Cheshire—Street Works ...	Urban District Council	J. Young, 78, Stanley-terrace, New Ferry.
" 4	Croydon—Road Materials ...	Corporation	Borough Road Surveyor, Town Hall, Croydon.
" 4	London, S.E.—Curbing, Tar Paving, &c. ...	Lewisham Board of Works	Surveyor's Office, Catford, S.E.
" 5	Belfast—Wood Paving ...	Improvement Committee	Office of the City Surveyor, Belfast.
" 5	London, S.W.—Making-up and Paving Road ...	Fulham Vestry	C. Botterill, Town Hall, Walham Green, S.W.
<b>SANITARY—</b>			
April 30	Sunbury-on-Thames—Sewerage Works ...	Urban District Council	J. Alstie, 17, Victoria-street, Westminster.
May 1	Sevenoaks—Sewers (about 3250ft.) ...	Urban District Council	Jabez Mann, Surveyor to the Council, Sevenoaks.
" 3	Kettering—Drainage Works ...	Kettering Urban District Council	Thos. Reader Smith, Market Hill, Kettering.
" 4	Cannock, Staffs.—Construction of Sewers ...	Urban District Council	John Peake, Council Offices, Cannock.
" 4	London, E.C.—Sewers, &c. ...	Shoreditch Vestry	J. Rush Dixon, Town Hall, Old-street, E.C.
" 4	Wolverton—Sewerage Works ...	Rural District Council of Stratford and Wolverton	A. Irvine, Clarence-road, Stony Stratford.
" 5	Norton, near Sheffield—Removal of Refuse ...	Rural District Council	E. A. Sampson, 17, York-street, Sheffield.
" 8	Dollar, Scotland—Sewer, &c. ...	Essendon Parish Council	J. Aird, Glebe-cottages, Hatfield.
" 10	Hornsey—Stoneware Pipe Sewers, &c. ...	Urban District Council	J. E. Lovegrove, Southwood-lane, Highgate, N.
" 11	London—Public Conveniences ...	London County Council	Architect's Department, Spring-gardens, S.W.
July 31	Oporto, Portugal—Sanitary Improvement Works ...	Corporation	Municipal Town Hall, Oporto.
No date.	London, W.—Pipe Sewers, Upper Richmond-road ...	H. Shepherd Cross	F. H. Harvey, 183, Lavender-hill, S.W.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
April 30	Halifax—Designs for Police Station and Court House ...	£50, £25	Corporation.
" 30	London—Church Extension ...	£10	Mr. Marrow, 2, Finsbury-square, London.
May 1	Crompton, Lanes.—Designs for Public Baths ...	£30, £20, £10	Crompton Urban District Council.
" 15	Tonbridge, Kent—Technical Institute and Free Library ...	£31 10s., £21, £10 10s.	Urban District Council.
June 16	Morecambe—Designs for Hotel ...	£100, £50, £23, £15	Messrs. Baxter and Abbott, Back-crescent, Morecambe.

CONTRACTS OPEN.

HORNSEY URBAN DISTRICT COUNCIL.

TO ROAD AND SEWER CONTRACTORS.  
The Hornsey Urban District Council are prepared to receive TENDERS:

1. For the CONSTRUCTION of about 3000ft. of new 9in. STONEWARE PIPE SEWERS, with Man-holes, Gullies, &c., and about 1300ft. of new 6in. STONEWARE PIPE CONVECTIONS, in and near to Nightingale-lane, Hornsey; and
2. For SEWERING, LEVELLING, PAVING, METALLING, CHANNELLING, and MAKING-UP St. Ann's-road (2nd Section), Hornsey.

Plans and specifications may be seen, and forms of Tender and all information obtained, on application to Mr. E. J. LOVEGROVE, Engineer to the Council, at the offices mentioned below, on any morning between the hours of TEN and TWELVE o'clock, on a sum of Two Pounds in each case being deposited with the Clerk to the Council, which sum will be retained by the Council and deemed to be forfeited if a bona-fide Tender is not made by the Depositor.

If a Tender is made which is not accepted, the sum deposited will be returned, and if a Tender is accepted such sum will be retained by the Council until the contract has been executed by the Depositor, and will be forfeited in the event of his, or his sureties, failing or neglecting to execute such contract, or the bond accompanying the same, within seven days after he or they

respectively shall have been requested to execute the same.

No Tender will be considered except on the prescribed form.

Sealed and endorsed Tenders are to be deposited in the Tender-box in my department not later than FOUR o'clock on MONDAY, MAY 10th.

The Council reserve to themselves the right to decline all, or any, or any portion of the Tenders so sent in.

By order of the Council,

F. D. ASKEY,

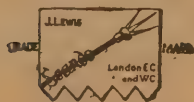
Clerk to the District Council.

Offices, Southwood-lane, Highgate, N.

April 21st, 1897.

(Continued on page vii.)

TELEGRAMS:  
"WEATHERVANE, LONDON."



J. LEWIS, 5 & 6, Great Winchester Street, LONDON, E.C.

LIGHTNING CONDUCTORS.

ELECTRICAL EXHIBITION CRYSTAL PALACE AWARD, 1892.

'LEWIS LINK,' The only EFFICIENT COUPLING for Conductors. PATENT No. 16,641.

SEE SECTION Fig. 2.

VILLAS,  
MANSIONS,  
SCHOOLS,  
CHURCHES,  
FACILITIES,  
CHIMNEY  
SHAFTS, &c.



MEASURES BROTHERS, LTD. LONDON.

SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

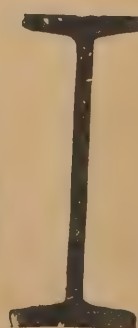
Have now in their Town Stock 6,500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.

Prompt Delivery from Stock. Steel Joists especially adapted for Pit Props and Colliery Work.



Telephone No. 4586.



From 3in. to 20in. deep.



# FOR SCHOOLS Etc., SANITARY APPLIANCES, SEE ADAMS & Co.'s CATALOGUE.

LONDON—5 & 7, Old Queen Street, Westminster; LEEDS—Park Lane Sanitary W.rks; MANCHESTER—Albert Square; YORK—Engineering Works;  
BIRMINGHAM—28-30, Church Street; GLASGOW—107, St. Vincent Street; DUBLIN—24, Nassau Street.

## ASPINALL'S ENAMEL

Unequalled for all Decorative Purposes.

SPECIAL ENAMEL FOR  
DECORATORS' USE.

## ASPINALL'S WAPICTI

The Sanitary Washable Distemper.

SANITARY, ECONOMICAL, ARTISTIC.  
Made in any Shade.

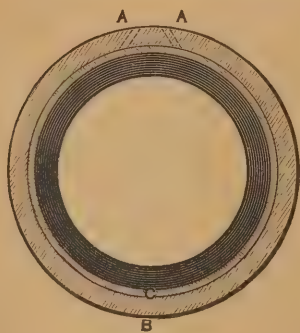
ASPINALL'S ENAMEL Ltd., New Cross, LONDON, S.E.

Sole Agents for Scotland: W. L. AIM & CO., 10, Bothwell Lane, Glasgow.

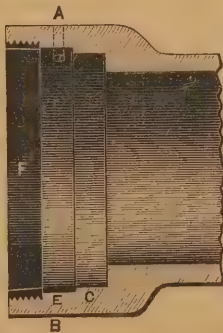
Sole Agents for the North of Ireland: JOHN FRACKLETON & SONS, 42, Church Lane, Belfast.

Sole Agents for Mid. and South Ireland: THOS. DOCKRELL, SONS & CO. LTD., Dublin.

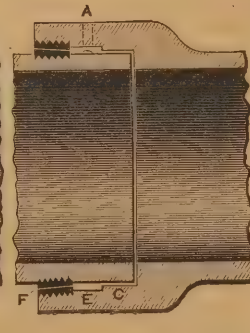
## GREEN'S PATENT TRUINVERT PIPE.



AA—Holes for pouring in cement or composition.  
—Strengthened and Lengthened Socket.



CC—Inner Socket and Rest.  
EE—Chamber for cement or composition.  
FF—Stanford Joint in new position.



This pipe secures TRUE ALIGNMENT OF INVERT, INCREASED STRENGTH IN THE SOCKET, THREE GAS AND WATERTIGHT CONNECTIONS AT EVERY JOINT, and while allowing for a slight settlement when first laid, forms an ABSOLUTELY RIGID JOINT directly the cement sets.

### POINTS.

- 1.—GAS AND WATER-TIGHT JOINTS EASILY MADE UNDER WATER.
- 2.—TRUE ALIGNMENT OF INVERT.
- 3.—SOCKET THE STRONGEST PART OF THE PIPE.
- 4.—NO SPECIAL JUNCTIONS REQUIRED.

OATES & GREEN, Ltd., Halifax.

## HOMAN & RODGERS,

ORIGINAL PATENTEES OF ALL GIRDERS

ENGINEERS.

FORMED OF JOISTS AND PLATES

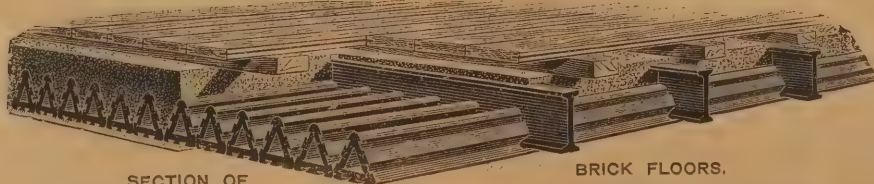
CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS,  
USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES

PIERS,



SECTION OF

BRICK FLOORS.

GRANITIC

PAVING STEPS,

ASPHALTE.

LONDON { OFFICES: 17, GRACECHURCH STREET, E.C.  
{ WORKS: NINE ELMS LANE, S.W.  
Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue.

MANCHESTER { OFFICES: 10, MARSDEN STREET.  
{ WORKS: WEST GORTON.  
Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



# Surveying and Sanitary SUPPLEMENT.

APRIL 28TH, 1897.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.\*

BY ALEXANDER DREW.

STILL assuming that whatever loads are applied to the roof truss they always occur at the joints, and thus do not give rise to cross bending, it will be readily seen that the two forms of members, struts and ties, must be treated on different lines, to determine their scantlings. A tie (or a member under tension) is much the simpler to deal with, for the cross-section required is in nearly every case directly proportionate to the stress it has to resist, and is independent of the length of the member. In the case of round ties, the ends are formed into jaws or eyes, so proportioned that the strength throughout the full length of the bar is practically the same. In such a case it is only necessary to settle on the maximum stress allowable per square inch, and to divide the total stress by this value, to get at the sectional area required. It is sometimes the case, especially in small spans, that these ties are formed of flat iron bars; this point will be taken up later on.

Struts, or members under compression, do not act in the same way as ties, and require very different treatment in calculating the section necessary to suit any given condition. If the strut (or pillar) be very short, and a steadily increasing load is applied, it will eventually yield by crushing; but should the length be great in proportion to the diameter, it will yield first by bending. Thus, imagine a straight piece of wood of reasonable length set upright on some stand, the upper end passing through a guide, so that it can move freely up or down only; this will represent a strut or pillar; if a light weight be now placed on the top end, and a small side pressure applied about the middle of the length, this pillar will bend slightly, but on the side pressure being removed it will again resume its original straight form. If the load be increased and the same experiment tried, it will probably be found that the bending now takes place much readier, and the tendency to return to its original condition is not so marked. On gradually increasing the load, a point will be eventually reached where this pillar may be said to be in a state of uncertain balance, so that a slight side pressure will cause it to bend as before, but it will not now resume its straight condition on the side pressure being released; any load above this value will cause failure by the pillar collapsing altogether, and this failure will be almost entirely due to the stress caused by the bending. The tendency which the pillar at first showed to resume its original straight

position was due to the fact that when any bending took place, the material on the inner side of the curve was compressed, while that at the outer side was extended or stretched beyond its original condition, and the elasticity of the material, which tended always to return it to its original state, caused this straightening immediately the bending force was removed. Whenever the stress due to the load becomes equal to the elastic resistance of the material, recovery does not take place, and this was the condition of matters when the state of balance just noted occurred. The stresses due to bending increase very rapidly as the pillar departs from the straight line, and it is to this cause almost entirely, and but very slightly to the direct stress on the material from the supported load, that failure is actually due.

But the actual strength of a pillar depends, to a considerable extent, on the manner in which the ends are set or fixed. Should these be practically free to turn, the curve taken by the pillar on yielding would be more or less a regular arc of a circle, as represented in outline at A, Table II. Should the ends, however, be rigidly fixed, the curve will now assume somewhat of the formation shown at B, where the centre curve is connected with the ends by short reverse curves; the greater stiffness due to the fixing of the ends necessarily implies greater strength of pillar. An intermediate condition to these is shown at C, where one end is assumed as fixed, while the other is free or rounded. Time will not permit of any investigation as to the proportionate strengths for these forms; Table II., to be presently described, gives the strengths for the two conditions A and B, that is to say, for "round-ended" and for "fixed-ended" struts or pillars; and the intermediate condition, C, may be assumed as occupying a mid-position between these two extremes.

The strength of long struts or pillars is largely dependent on the shape or cross-section of the member; it is really closely proportionate to a certain mathematical function of the section, called the Radius of Gyration. This value is in most cases rather difficult and troublesome to calculate, and for practical purposes it may be got rid of by making use of some simpler value, and correcting this by means of a series of calculated co-efficients. The Table of Strength of Struts (II.) here given shows such a means of simplifying these calculations (based on a somewhat similar table given in Rivington's "Building Construction," Part IV.), and by it can be got the safe stress per square inch which may be allowed to come on any pillar or strut, for varying lengths, cross-section, and material. The vertical heights measured to the particular curved line gives the safe stress, while the horizontal distances take into account the length and cross-section of the member; that is to say, the numbers along the foot of the diagram represent the value of the length of the member divided by its least radius of gyration. If the member be of irregular shape and free to bend in any direction, it will, of

course, yield in its weakest direction, or in the direction in which the calculated radius of gyration is least: hence the use of this term, *least radius of gyration*. The notes on the table generally describe the same, so that it should only be necessary to give a few hints here, and take one or two examples, to make quite clear how such is to be used. The small table gives the calculated values for (n) for various sections, and is used in determining the approximate value of  $\frac{1}{r}$ ; should the particular section used not be exactly any of these given, an intermediate value may be readily got at, sufficiently near for practical purposes. The curves of strengths for the three materials, mild steel, wrought iron, and cast iron, and for the two conditions of round ends and fixed ends, are drawn and marked. If, then, it is desired to determine the strength of a 3in. x 3in. x  $\frac{3}{4}$  x 6ft. long T iron strut, the calculations are as follows:—

Assuming that it is free to bend in its weakest direction, the highest value of (n) must be taken, or 4.9.

Thus the formula is:  $n \frac{1}{b} = 4.9 \frac{72}{3} = 117.6$ .

Taking the nearest value to this (120) on the line of figures at bottom of diagram, the eye is run upwards till it meets the full line marked wrought iron, when it is then carried along the horizontal line which intersects the same at this point, and the value of the safe stress is read off; in this case, for round ends, the desired stress is 1.54 tons. Should the strut be a fixed-ended one, the eye would have been carried upwards till it met the curved-dotted line marked wrought iron, and the value level with this point, or 2.80 tons, would then have been read off. In the same way, if the strut was of mild steel, the corresponding values would have been 1.82 and 3.45 tons respectively. With these safe stresses determined it is only necessary to multiply them by the area of the strut in square inches to get at the total safe load. This same operation could be gone through for any length, or section, or for any of the three materials noted in the diagram, the result in each case being the safe stress per square inch.

Many cases may occur in practice where considerable care must be exercised in determining the correct value to employ for (n); this value, of course, depends on the direction in which a non-symmetrical strut yields. For example, the rafter in a roof truss may yield in a vertical direction between any pair of joints; but it is also liable to yield in a horizontal direction between the points of connection with the purlins; the difference in length between these two set of points, and the different value of the radius of gyration under these two conditions (or if the table of values of (n) be employed, this value is, of course, considered as a substitute for the radius of gyration) must both be considered to determine the weakest direction, and consequently the direction in which the safe strength must be calculated. In the same

\* A lecture delivered before the members of the Edinburgh Architectural Association, and exclusively published in the Builders' Journal.

On the 17th, 20th, and 23rd lines respectively, of last paragraph on page xvi. the reference letters should be E O instead of G O, G O instead of E O, and I O instead of X O.



STRENGTH OF COLUMNS OR STRUTS.

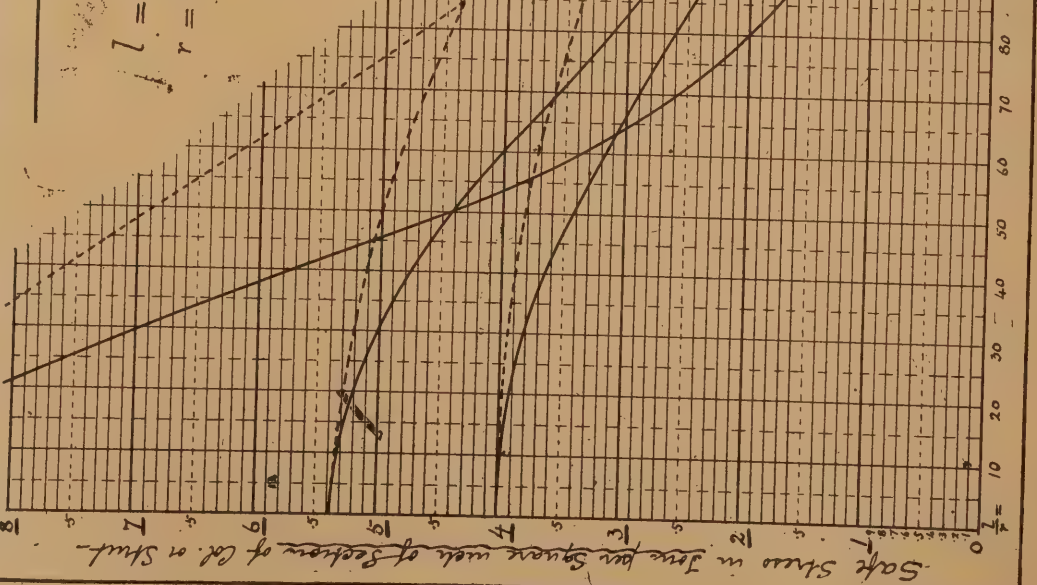
Table II.



Section	n	Section	n	Section	n	Section	n
	3.5		4.0		4.0		4.0
	2.9		3.4		3.4		3.4
	2.7		3.1		3.1		3.1
	2.6		3.0		3.0		3.0
	3.1		3.2		3.2		3.2

Note: - These bars are assumed as yielding in a direction vertical to that in which they are sketched in the table; in those cases marked \* they would require to be re-shaped in their weakest direction to ensure this taking place - For further notes see explanation in text.

$l$  = Length in inches  
 $r$  = least Radius of Gyration for section of Column or Strut.  
 $b$  = breadth } See Table  
 $n$  = multiplier }  
 $\frac{l}{r}$  = Value at base of Diagram  
 Rough value of  $\frac{l}{r}$   
 $= n \frac{l}{b}$



Note: - This diagram is drawn for a factor of safety of 4.



way a strut may be so fixed at its ends that the liability to bend in one direction is greater than in another, or, as it is usually termed, it is restrained in one direction; and, of course, the same considerations must be applied in this case. It is for this reason that the two values of (n) marked \* are given; and, as noted, these must be used when the bar is free to yield only in what would ordinarily be called its strongest direction.

It is scarcely necessary to add that the diagram given may be used for any section of column or strut whatever, provided the value of the radius of gyration be known; and it may be well to note here that the rough method given of determining the value of  $\frac{1}{r}$  should only be used when the correct value of the radius of gyration is not available, or when only an approximate answer is sufficient.

It should be noted that the safe crushing stress, or the safe stress which should be allowed to come on very short struts or pillars has in this table been taken at about 9 tons for cast iron, about 5½ tons for steel, and 4 tons for wrought iron; should any other value for this safe stress be determined on (that is to say, should some other factor of safety be made use of), the corresponding strengths can be readily got by proportion from this table.

A careful study of the curves of strength given indicates several points worthy of note, but these can be little more than mentioned here. As previously pointed out, a very short strut yields by crushing, and therefore its strength is directly proportionate to the area of its cross section only; this is brought out by the two curves for the Wrought Iron and Mild Steel struts meeting at the levels representing the 4-ton and 5½-ton stresses. Again, it may be noted that the two lines for Wrought Iron and Mild Steel are furthest apart about the middle of the diagram, indicating that the difference in strength between a round end and a fixed end pillar is greatest where the proportion of length to Least Radius of Gyration is roughly 150; while again these lines begin approaching one another as this value is exceeded. This is quite to be expected, since it is evident that in the case of very long struts the fixing of the ends is by no means so efficient in stiffening the member as is the case with shorter struts. Again, it will be noticed that the Steel and Iron lines seem to rapidly approach one another as they are extended towards the right, showing that the difference in material has less and less effect on the strength of the strut as its length is increased. A little consideration will show that this also is a natural result, for, if the failure of long struts be largely due to the stresses induced by bending—and this yielding occurs whenever the elastic strength has been exceeded—the fact that this elastic strength of Steel and Wrought Iron differ but little from one another necessarily implies that the strengths of struts of these two materials will approach nearer and nearer to one another as the proportion of length to width is increased.

In such a table as that just described it is comparatively easy to determine the necessary length for any particular strut or column under the length, load to be carried, shape of the cross section, and the manner in which it is fixed at the ends has been determined.

We are now in a position to take up some simple type of roof truss, and consider how the stresses and sections will vary with definite variations in the proportion. Table III. has been made up in the following manner: the simple type illustrated has been chosen, four variations in rise or slope of rafter have been taken, and the outline for each drawn. The rise is one-third, one-fourth, one-fifth, and one-sixth that of the span, and it has been assumed that the covering in each is of the same nature, and that the same horizontal wind-pressure has been acting. The total dead load values noted are nearly proportionate to the different lengths of the rafters in each case, the pitch or distance apart of the trusses being, of course, assumed as the same (10ft.) throughout. The variation in the live load values given are due to the change in the slope, and the consequent alteration in the equivalent normal pressure (see Fig. 1). Two

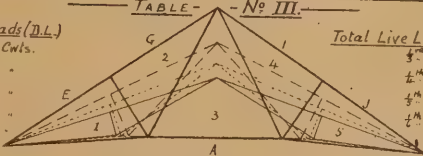
sets of diagrams were drawn (exactly as in Figs. 16 and 17) for each of the rises before noted, but the dead load and live load in each case are taken as equal to unity; the lengths of the several stress lines thus gave the multipliers noted in the first table (a). The corresponding total dead and total live loads were then in turn multiplied by their corresponding multipliers, and thus the dead and live load stresses noted in the table (b) were got at. The third table (c) gives the total stresses on each member, these being the dead and live load stresses in the previous table added together. The next table (d) introduces a little complication, and is intended to bring out the proportionate weights of the four forms of truss. For the ties A 1, A 3, and 2 3 the total stress noted in the previous table for each of these members is divided by twenty to reduce it to tons, and by five (the assumed maximum safe tensile stress), and multiplied by the length of the member in inches, the result being the theoretical number of cubic inches in the particular member; this is called the theoretical bulk. The struts, however, must be treated in the manner explained while describing the use of the table of the strengths of struts, so as to determine the safe unit stress (or safe stress per square inch of section) to which they may be subjected. This value being found it is made use of in the same way as the previous 5 was for the ties, the total stress being divided by this value and multiplied by the total length of the number in inches to get at the theoretical bulk. Throughout this table the rafters have been assumed as 4in. by 4in. ties, the thickness being proportionate to the stress they have to sustain, while the struts are in their turn assumed as 3in. by 3in.; all members being wrought iron. It is also worthy of note here, that in calculating the safe stress for the rafters the half length must be taken, or the distance between the centre joint and the shoe; and as the rafter is in one length throughout and is fixed both at apex and at shoe, it has been treated as a "round and fixed end" strut—the full length, of course, must be used in getting the bulk; the struts have throughout been treated as "round ended." The totals got in this table will thus represent the proportionate weights of the several trusses, and no attempt is made to carry matters further at this point; for, though it is only necessary to multiply this theoretical bulk (which is in cubic inches) by the weight per cubic inch to get at the theoretical weight, little advantage would be gained. No allowance has been made for the extra lengths of the bars beyond the points

of intersection of the members shown on the skeleton outline, nor has any notice been taken of the material required to form the several ends or junction plates; the theoretical weight might require to be multiplied by 2 or 3 to make allowance for all this.

If it be allowed as sufficiently near for present purposes, that the cost of these trusses will also be proportionate to their weights, it is only necessary to assume an approximate value for any one to get at the proportionate approximate values of the others. This is detailed in the next and last table (e).

(To be continued.)

CONSIDERABLE improvements have been carried out in Blairdaff Free Church. The interior of the building has been wholly gutted out and re-floored. New seats, in pitch-pine and varnished, have been erected, and a heating apparatus, with hot-water circulation, has taken the place of the former stove. The contractors for the works were: Mr. Buehan, builder, Monymusk; and Messrs. Laing, Inverurie.

TABLE - No. III.									
Total Dead Loads (D.L.)					Total Live Loads (L.L.)				
$\frac{1}{3}$ rise = 120 Cwts.					$\frac{1}{3}$ rise = 58 Cwts.				
$\frac{1}{4}$ rise = 112 "					$\frac{1}{4}$ rise = 45 "				
$\frac{1}{5}$ rise = 109 "					$\frac{1}{5}$ rise = 38 "				
$\frac{1}{6}$ rise = 106 "					$\frac{1}{6}$ rise = 34 "				
									
SKELETON OUTLINE.									
Multipliers (Table A.)									
Member	$\frac{1}{3}$ rise		$\frac{1}{4}$ rise		$\frac{1}{5}$ rise		$\frac{1}{6}$ rise		
	D.L.	L.L.	D.L.	L.L.	D.L.	L.L.	D.L.	L.L.	
E 1	.73	.66	.95	1.03	1.21	1.39	1.49	1.80	
1 2	.21	.50	.22	.50	.23	.50	.24	.50	
A 1	.61	.77	.85	1.12	1.12	1.46	1.42	1.86	
A 3	.40	.27	.54	.45	.69	.61	.85	.78	
2 3	.23	.51	.33	.68	.45	.87	.59	1.11	
Dead and Live Load Stresses (Table B.)									
Member	$\frac{1}{3}$ rise		$\frac{1}{4}$ rise		$\frac{1}{5}$ rise		$\frac{1}{6}$ rise		
	D.L.	L.L.	D.L.	L.L.	D.L.	L.L.	D.L.	L.L.	
E 1	87.6	38.3	106.4	46.3	131.9	52.8	157.9	61.2	
1 2	25.2	29.0	24.6	22.5	25.1	19.0	25.4	17.0	
A 1	73.2	44.7	95.2	50.4	122.1	55.5	150.5	63.2	
A 3	48.0	15.7	60.5	20.2	75.2	29.2	90.1	26.5	
2 3	27.6	29.6	36.9	30.6	49.0	33.1	62.5	37.7	
Total Combined Stresses (Table C.)									
	E. 1	1 2	A 1	A 3	2. 3.				
$\frac{1}{3}$ rise	125.9 Cwts.	54.2 Cwts.	117.9 Cwts.	63.7 Cwts.	57.2 Cwts.				
$\frac{1}{4}$ rise	152.7 "	47.1 "	145.6 "	80.7 "	67.5 "				
$\frac{1}{5}$ rise	184.7 "	44.1 "	177.6 "	98.4 "	82.1 "				
$\frac{1}{6}$ rise	219.1 "	42.4 "	213.7 "	116.6 "	100.2 "				
Proportionate Total Bulk (Table D.)									
Member	$\frac{1}{3}$ rise		$\frac{1}{4}$ rise		$\frac{1}{5}$ rise		$\frac{1}{6}$ rise		
	length ratio = bulk	length ratio = bulk	length ratio = bulk	length ratio = bulk	length ratio = bulk	length ratio = bulk	length ratio = bulk		
E 1.	$260 \times \frac{125.9}{20 \times 2.4} = 682$	$242 \times \frac{54.2}{20 \times 2.6} = 711$	$232 \times \frac{117.9}{20 \times 2.7} = 794$	$228 \times \frac{219.1}{20 \times 2.7} = 925$					
1 2	$75 \times \frac{152.7}{20 \times 2.5} = 81$	$50 \times \frac{47.1}{20 \times 2.5} = 36$	$37 \times \frac{145.6}{20 \times 2.5} = 23$	$28 \times \frac{80.7}{20 \times 2.5} = 16$					
A 1.	$148 \times \frac{184.7}{20 \times 2.5} = 174$	$128 \times \frac{44.1}{20 \times 2.5} = 186$	$120 \times \frac{177.6}{20 \times 2.5} = 213$	$115 \times \frac{98.4}{20 \times 2.5} = 246$					
A 3	$134 \times \frac{63.7}{20 \times 2.5} = 85$	$172 \times \frac{80.7}{20 \times 2.5} = 139$	$188 \times \frac{75.2}{20 \times 2.5} = 185$	$198 \times \frac{116.6}{20 \times 2.5} = 231$					
2. 3.	$150 \times \frac{57.2}{20 \times 2.5} = 86$	$132 \times \frac{47.5}{20 \times 2.5} = 89$	$125 \times \frac{82.1}{20 \times 2.5} = 101$	$117 \times \frac{100.2}{20 \times 2.5} = 117$					
Prop'd bulk, in Cub. in. net = 1108		1161	1316	1535					
Total Cost per 10ft. bay of Roofing (Table E.)									
	$\frac{1}{3}$ rise	$\frac{1}{4}$ rise	$\frac{1}{5}$ rise	$\frac{1}{6}$ rise					
Total area of roof covering per bay, minus 10 ft. apart.	48.2 sq. yds.	45.2 sq. yds.	43.2 sq. yds.	42.2 sq. yds.					
Cost of Slates & Boarding 7½ per bay, @ 7½ per sq. yd.	£ 16.19.6	£ 15.15.0	£ 15.1.0	£ 14.15.9					
Cost of Cor. Sheds & Partials per bay, @ 5½ per sq. yd.	12.2.6	11.5.0	10.15.0	10.11.3					
Cost for each Wind van Line complete.	4.6.0	4.10.0	5.2.0	5.19.0					
Cost per 10ft. bay, Slated Roof	£ 21.5.6	£ 20.5.0	£ 20.3.0	£ 20.14.9					
" " " " Sheathed "	16.8.6	15.15.0	15.17.0	16.10.3					



## THE DISPOSAL OF SEWAGE.

By W. HARPUR.

IN continuing the series of lectures on sanitation, given at the University College, Cardiff, the lecturer, Mr. W. Harpur, the Borough Engineer of Cardiff, spoke on "Sewerage and Sewage Disposal." In the course of his remarks, he said that in Great Britain there was but little attempt at sanitation until the passing of the Public Health Acts of 1847 and 1848, which gave a stimulus to sanitary works, and the amendments which had since been passed to those Acts had done much to improve the sanitary condition of our towns. But there was even yet great room for amendment and improvement in our sanitary laws before a state of perfection could be looked for. He maintained that a proper system of sewers for a town or populated district should provide for (a) the drainage of the surface, (b) the drainage of the sub-soil, and (c) the removal of excrementitious and refuse matter; and in

## SEWERING OF TOWN OR VILLAGE

four points should be observed—(1) the drains should be designed of sufficient size to effectually accomplish the work required of them; (2) they should, if possible, be laid at such gradients as to be self-cleansing; (3) they should be so constructed as to be easily examined at any time; and (4) they should be efficiently ventilated. Having enlarged at some length upon these points, Mr. Harpur illustrated by means of several sheets of drawings some old and bad forms of sewers and some modern-shaped sewers, and, passing on, spoke of the importance of sewer ventilation, and exhibited models of ventilating cowls. As to the Keeling-Holman patent sewer-gas destructor, he considered that these ventilators might be effective in their work, but their universal application to the entire sewerage system of any large town would, he feared, entail too large an expenditure to warrant their adoption. Their adoption in Cardiff, he roughly estimated, would cost about £11,000 per annum (estimating the first cost at £16,000), and this expenditure he considered would not be warranted just for subduing an occasional bad smell here and there in some of the streets. Personally, he favoured street surface ventilators, and sewers well flushed and ventilated should not prove a nuisance. Dealing with sewage disposal, the lecturer unhesitatingly condemned the earth, the cesspool, and the midden systems, and said that of the numerous methods advocated and in operation, the three best known were (1) precipitation and filtration, (2) discharge into the sea, and (3) the application of the sewage to the land. He considered that chemical treatment generally was a costly, troublesome, and at the best an unreliable and inefficient method of disposing of sewage, and he would never advocate the adoption of precipitation where either of the other two methods were available. Discharge into the sea was, to towns on the seaboard,

## AN EASY AND EFFECTIVE METHOD,

but, nevertheless, one which required to be carefully carried out. Opponents of such a practice often seemed to forget two important facts, the vastness of the ocean, and the insignificance of the sewage in comparison with its volume; and that seawater cannot be used for diatic or domestic purposes. Turning sewage water into the sea was like turning sewer gas into the air. We have only to place the point of discharge in such a position as not to be objectionable, and the elements would accomplish the work of purification more perfectly than any invention of man. Having described the various forms of applying sewage to land, the lecturer directed attention to the septic tank system of sewage treatment, which was the result of a series of experiments carried out by Mr. Donald Cameron, the city engineer of Exeter, and the object of the system was to purify sewage by natural means, and avoid the cost entailed by artificial treatment. By the use of these septic tanks the

micro-organisms were used for accomplishing the same, and, indeed, a much further object than the use of chemicals could, for it aimed at consuming, by means of micro-organisms, all decaying animal and vegetable matters, including their own products. So far, the experiments conducted with this system appeared to be highly satisfactory, but whether its application would prove as efficient in all cases remained to be seen, and it would be particularly interesting to know what the result might be where refuse from manufactories, such as might be injurious to the life of micro-organisms, was admitted into the sewers.

## Surveying and Sanitary Notes.

THE question of the drainage of St. Budeaux has been receiving the attention of the Plympton Rural District Council for a period of something like eight years. The extensive building operations that have been carried on in the district for the past twelve months have made the situation one of extreme danger. A more disgraceful state of things than that revealed to our representative, who made a tour of the parish, it would be difficult to find in any other part of England. Indeed, the observation was made by one who is affected, and who has had a lengthy and varied experience in other countries, that the sanitation of St. Budeaux could only be compared to that which exists in countries like Arabia or Persia. In close vicinity to the railway station is an area of land partly covered by attractive-looking, newly-erected houses, and in their rear rows of other dwellings of smart appearance are being built without loss of time. At a moderate computation it may be said that there are already in residence in the block about a thousand people. The general system adopted is that of laying a drain through each of the back lanes, with connections to every house that abuts thereon, and emptying the sewage into cesspits. These cesspits are of varying size and character, but we believe that, with only one exception, has any been provided with the ventilating pipe to carry off the fumes. The seriousness of this will be recognised when it is pointed out that the pits are scattered about at different points within the building area, and are not only unprovided with overflow pipes, but are cleaned out only at very long intervals. In one case there is a drain which does not extend quite the full length of the terrace, but ends about fifty yards from its termination. The position of the pit is marked by a heap of stones, which has been placed over a covered grating to prevent the sewage becoming visible.

THE Whitehaven Rural District Council having applied to the Local Government Board for sanction to borrow £1300 for works of sewerage and sewage disposal for the parish of Distington, the Local Government Board Inspector, Mr. W. O. E. Meade-King, M.Inst. C.E., has held an inquiry.

An inquiry was held at the Town Hall, Ipswich, as to the Corporation's application to the Local Government Board for sanction to borrow the sums of £7000 and £5870 for works of sewerage and wood-paving. The Town Clerk said the district to be sewered was an important suburb of Ipswich, and the Medical Officer of Health had several times called attention to the need for a sewerage scheme for the California district, which was now very largely drained by dead-wells. The soil was of a porous nature, and this would be another step towards doing away with the earth closets. The scheme had been under consideration for two years, and all the members of the committee had had great experience in the matter of sewerage. The scheme was believed to be the best possible scheme to meet the requirements of the district. The objection to be offered was as to

the point of discharge, but they had never been troubled with flooding below the Gas Works. The discharge of storm water would be considerably in favour of the new scheme.

A LOCAL Government Board inquiry has been held at the Town Hall, Leicester, by Col. A. G. Darnford, R.E., in reference to an application by the Town Council for sanction to borrow £1448 for the purchase of land for street improvements in St. Nicholas Street, West Bridge Street, and Granby Street. The Town Clerk said the sum the Corporation wished to borrow was made up of £1018 for St. Nicholas Street, £330 for West Bridge Street, and £100 for Granby Street. With regard to St. Nicholas Street, it was at present extremely narrow, the width varying from 20ft. to 25ft. It would form the chief road to the new station of the M.S. and L. Railway Company, and as the company was making a new street 50ft. wide, which would lead into St. Nicholas Street, the Corporation was anxious to make that thoroughfare of the same width. The West Bridge improvement consisted in the purchase from the M.S. and L. Company of two pieces of land, which at present projected. The company had widened the street at that part, and the Corporation had agreed to buy this surplus land at £3 15s. per yard. In Granby Street a hotel was being converted into shops, and the Corporation was anxious that they should not be built up to the front of the street, so, by paying £100, it came to an arrangement whereby the frontage would be set back to the line of the adjoining premises.

A SUPPLEMENTARY water supply will shortly be turned on at Melrose. This supplementary supply, together with the supply from the Eildon Hills, the works for which the Commissioners acquired from the Melrose Water Company, will secure to the burgh an abundant supply of pure spring water. The water from the different springs is conveyed in fire-clay pipes with water-tight joints to regulating chambers. There are three of these chambers on Allanshaws, connected by 5in. diameter cast-iron pipes with lead joints, and they are so arranged and fitted with ball valves that the supply of water from the lower springs is sufficient for the requirements of Melrose, the water overflows from the upper one at the north end of Allanshaws into the Ewlyn Burn. The water from the lower regulating chamber is conveyed to a service reservoir south of Melrose in a cast-iron main, consisting of 5in., 6in., and 7in. diameter cast-iron pipes. The line of the main practically follows the course of the Ewlyn Water till it reaches a point short distance to the south of Woopla Bridge. Owing to the height of the source above Melrose, it was found necessary to break the pressure, and this is done by a break pressure chamber situated on the summit of the public road about a quarter of a mile to the south of Glendearg farmhouse. This service reservoir, the water level of which is below the level of the natural surface of the ground, is constructed of concrete, having a semi-circular roof, and the whole covered with soil, so that the change in temperature in the atmosphere cannot affect the water in any way. It is 100ft. long by 24ft. wide, and has a depth of 10ft. of water, giving a capacity when full of 150,000 gallons. Owing to the height of the service reservoir, the pressure in the main at Darnick would be too great for house fittings, and in order to reduce the pressure to a proper working head the water passes through a pressure-reducing valve enclosed in a chamber, before entering the distributing pipes. In addition to the distributing pipes in Darnick and the west end of Melrose, several of the original distributing pipes throughout the burgh have been renewed and extended, and otherwise put into thorough repair. A number of stop-valves and fire-plugs have also been introduced on the original pipes, so that the water system throughout the burgh is now most complete. The total cost of the scheme will be about £10,000. The engineers are Messrs. Belfrage and Carfrae, Edinburgh.





THE Victorian  
"Jubilee Art." Loan Exhibition  
now open at the

Guildhall consists of "works of the British School by painters who have flourished during Her Majesty's reign." The description is from the catalogue; otherwise one would hardly speak of Frederick Walker, Cecil Lawson, and the struggling rank and file of the pre-Raphaelites as "flourishing" painters at any time; and it is doubtful whether H. H. La Thangue, George Clausen, and J. Aumonier would care to be labelled "British School." But the strength of the Exhibition is in the richness and variety of the sources from which it is drawn, and the rare justice it does to certain phases of mid-century Art which have outwardly come to nothing, but yet have contributed something vital and permanent to that which superseded them. The purely experimental pre-Raphaelitism, for instance, identified with the early work of Rossetti, Millais, and Holman Hunt, did not perish with their transition to other modes, but was developed with admirable results by a group of men almost unknown to the present generation—Arthur Hughes, W. S. Burton, Frederick Sandys, Frederick Shields, Henry Wallis, W. S. Windus, Charles Collins, R. B. Martineau, and the one landscapist of the School, Mark Anthony—of whom only the first three are represented here. It is regrettable that none of the greatest works of Sandys, such as the "Medea" or "Morgan-le-Fay," could be included in this collection, though the "Harald Harfage" is characteristic and powerful; but one must rejoice to see again the beautiful "April Love" with which Arthur Hughes promised such superb and alas! unaccomplished things. W. S. Burton's "Cavalier and Puritan," too, is one of the finest of that group of historico-romantic genre-pictures in which Holman Hunt and Millais led the way. The last-named Artists are represented by the well-known "Huguenot," "Chill October," "Ferdinand Lured by Ariel," "The Blind Girl," "Two Gentlemen of Verona," and "May Morning on Magdalen Tower." Of Rossetti we have "The Beloved, or the Bride"—poor in conception, but belonging to his very best period in technique; the somewhat decadent "Fiammetta," and the best of the several versions of "Mary Magdalene." "The Last of England" is the sole and splendid example of Madox Brown. Among the older and more conventional painters we find Constable, David Cox, Sidney Cooper, Landseer, Linnell, Maclise, Mulready, Webster, Wilkie, and others. There are two or three Turners, a small but precious overflow from the Watts exhibitions, and some excellent examples of Alma Tadema, Burne-Jones, Orchardson, Colin Hunter, Albert and Henry Moore, John Brett, B. W. Leader, and Lord Leighton; also Frank Dicksee's "Romeo and Juliet" (too late for the catalogue), and one of the very few fine portraits that Hubert Herkomer has given us. The newer portraiture finds expression in John Sargent's "Mrs. Hugh Hammersley," and the younger landscapists in Alfred Parsons, E. A. Waterlow, Alfred East, and Adrian Stokes. Frank Bramley's "Hopeless Dawn" and a fishing scene by Stanhope Forbes are fairly representative of the Newlyn School. Altogether the collection

yields a very interesting study of English Art during the past sixty years, and that such an Exhibition does not lack popularity is evidenced by the unusually large number of visitors who have flocked to the Guildhall. The Summer Exhibition at the New Gallery, Regent Street, sustains an unusually high average of excellence, without affording many memorable "pictures of the year." Of these, the chief will perhaps be "The Vampire," by Philip Burne-Jones—not so much through its intrinsic merit as through the grimly powerful ballad written for it by Rudyard Kipling in the catalogue. The "Lullaby" of Charles E. Stewart, blending cold twilight with the rich glow of a fire in the manner which we are too apt to identify with the Newlynites, has a grace and freshness quite its own; and W. Llewellyn has broken fresh ground in "An Old Garden"—a somewhat

The Architectural  
Association's  
Jubilee.

WE are accustomed somewhat to regard the Architectural Association as a new thing, as a latter-day development. Its atmosphere is so much that of the irresponsibility of youth, its assumptions of importance and attitudes of wisdom and gravity so much a mere overlaying of a lively juvenility, that is ever cropping out to manifest itself, and the pose of Guardian Angel which the Institute is wont to strike in regard to it, and the ready acceptance of the Association of that relationship, all tend to keep us from remembering what a very real and living impulse the Architectural Association is to the dignity of the profession. Now, however, there is to be no more doubting the reality and importance of the Association. There has lately been published, and come under our notice, the



ROTHERHITHE TOWN HALL. PORCH AND DOORS TO MAIN ENTRANCE.  
MESSRS. MURRAY AND FOSTER, ARCHITECTS.

thin and misty vision of eighteenth-century gowns in the grass, but admirable in composition and feeling, and interesting as a departure from his usual portrait-painting. J. W. Waterhouse is in his happiest mood; his "Marianna in the South" is, indeed, the gem of the Exhibition, and for sincerity of spirit and purity of colour equals anything we have yet had from the same hand. The painter has returned to his favourite model—the frail, lank-haired sitter for "Ophelia" and "La Belle Dame sans Merci"—but her type exactly suits his method, even the looking-glass effect does not seem in the least degree hackneyed or forced. Neither Sir E. Burne-Jones nor Walter Crane is seen to advantage. The portraits are not remarkable, save the few by John Sargent and J. J. Shannon, which, of course, must not be missed; and G. Spence-Watson has a wonderfully fine character-study of "Une Femme du Peuple." A somewhat unfortunate accident occurred on the day of the private view, when a piece of statuary placed in the hall was knocked down and badly damaged.

"Jubilee Number of Architectural Association Notes," the monthly organ of the society, and the meaning and import of this publication, all salmon-tinted and gilded, is that the Architectural Association has with this session completed the fiftieth year of its organisation. The origin of the Architectural Association, however, was made upon a different basis to that upon which it now stands. In its beginning, in the autumn of 1846, it called itself an "Architectural School of Design," the chief motive of which was design and mutual criticism. The Society met every evening (except Saturday) for study from 7 to 10, and every member was required to produce an original design every six months. Mr. Phénè Spiers, in writing his recollections of these early days (1856), when he himself was a student at King's College, London, says that, as a rule, the designs were rendered in sketch perspective only, and he quotes a former chairman, as saying of a certain design that it was "more than a sketch, as it was a small plan with a very pretty coloured perspective!" Architects of standing directed the evening



studies of the members, but it was not till some years later that plan, section, and elevation supplanted the primitive designs in "very pretty coloured perspectives." In 1857 Mr. Ruskin gave the address at the conversazione, which, at that time, only differed from the ordinary general meetings in that it was better and called a larger attendance. It was in 1856 that the Institute made proposals for the Association to sink its individuality and to enrol its members as students of the Institute. This was declined, although at the time the Association was in financial difficulties and the number of its members was falling off. The following, quoted from the regulations drawn in 1847, speaks eloquently for the primitiveness and precariousness of the Association in those early days: "The annual subscription is ten shillings payable quarterly." It is really, however, within the last five years that the step has been taken, by the organising of proper classes, studios, and lectures, that has established the Association, unequivocally, as one of the most important professional institutions. Five years ago the Architectural Association was only different from the Architectural Association of twenty-five years ago in its size and its influence; its scope and its intention stood unchanged. There was a confusion in the various classes of design and a laxity on all sides. The very size of the Society precluded that social and personal spirit of mutual improvement, mutual admiration, which, in its earlier days, formed its real impulse. The classes, as now arranged, have also done away to a great and beneficial extent with the "Class Secretary." This species was very numerous in the old days, every class having two or three to arrange and organise as need arose, and the majority of these had no other view but to become official by persistency of officiousness; they lived for the ultimate chair of the presidency or some other secondary post. Mr. Aston Webb, in prognosticating the future of the Association, as we read him within these gilded salmon-coloured covers, gives a wise admonition when he reminds the Association that it would be fatal to all its prosperity and its ultimate possibilities to attempt to compete in its classes and lectures with those which, by its example, are now springing up all around. The vital spark of the Association lies in its social aspect as apart from its educational, and its past success has been in this, that it has acted independently on its own convictions, under various exigencies, and has kept clear of any avowed policy or hard and fast scheme, or formulation of its intentions and limits. We cannot offer the Association better advice than this, to which we add our congratulations on its fiftieth birthday, and our best wishes for its future.

DUNBAR Parish Church has just been reopened after undergoing extensive renovation, at a cost of £4500.

A NEW public school for the Garngad district has just been opened by the School Board for Glasgow. Exclusive of the cost of site, the amount expended upon the school has been about £13,000. Places are provided in the school for 1200 pupils.

THE foundation stone of Glasgow Bridge, laid in 1833, and now being rebuilt, was discovered by the workmen some days ago. In appearance the stone is as fresh and clean looking as if it were but newly laid. Messrs. Gibb, Aberdeen, were contractors for the erection of the bridge.

A NEW organ has been erected in the Parish Church of Thornton, near Bradford, the birthplace of Charlotte, Emily, and other members of the Brontë family, to perpetuate the memory of the gifted sisters. It is a beautiful instrument, and has cost about £1000, the builders being Messrs. Harrison and Harrison, of Durham.

#### AN OLD CITY TAVERN.

FEW of those who hurry daily along Cornhill turn down the little alley by St. Michael's Church. St. Michael's Alley it is called now, but in old times it was known as Long Alley. Many who used to frequent the barred-up Cock Tavern will feel a pang of regret now that that ancient tavern is shortly to disappear. The curious wayfarer, however, has long known St. Michael's Alley as the place where the first coffee house in London was started—here where the now doomed Cock stands—the first of the famous series whose names are household words in the history of the eighteenth century; names which at once remind us of those of their famous *habitues*. Garraway's, in Change Alley, recalls Swift; Will's, and Button's, and Tom's immediately suggest Addison and Steele, Pepys and Pope,



ROTHERHITHE TOWN HALL.

CARYATIDE. MAIN ENTRANCE DOORWAY.

Colley Cibber and Davenant. It is probable enough that Pope frequented the coffee houses in Change Alley and St. Michael's Alley, for his parents lived hard by in Lombard Street, where he himself was born. Be this as it may, the Cock, which now stands near the Church of St. Michael, and opposite to the very churchyard where Rosee's rival pitched his tent, must have received within its doors many a generation of tavern frequenters. It was, presumably, the direct successor of the original coffee house, which was, of course,

#### DESTROYED IN THE GREAT FIRE

only a few years after Pasqua Rosee first brewed the berry for his eager customers. St. Michael's Alley was in those days called the "Longe Ale." At its entrance was a gate, and near it were two crosses. The churchwardens of the year 1460 recorded having paid

twopence for two crosses "standyng atte aley gate." In 1551 the then churchwardens invested twenty pence in "two newe lanternes, one for the Aley and one for the cloister." Of the antiquity of the Church, beneath the shadow of which were eventually to be established the famous early coffee-houses, there is ample record. Ten years before the Conquest Alnod the priest is on record as having presented the Church of the "Blessed Michael in Cornhulle, London," to the Abbey of Evesham; and to that great Abbey it continued to belong until, in the time of Henry VII., it was transferred to the Drapers' Company, its present possessors. The steeple was rebuilt in 1421, and repaired in 1551 and 1574. Stow, in his "Survey of London" (ed. 1603) has the following story about St. Michael's steeple:—"And here a note of this Steeple as I have oft heard my Father report. Upon S. James' night certaine Men in the Lofte next under the Belles ringing of a Peale, a Tempest of Lightning and Thunder did arise, an ugle shapen sight appeared to them coming in at the South Window and lighted on the North for feare whereof they all fell downe and lay as dead for the time letting the Belles ring and cease of their owne accord. When the Ringers came to themselves they found certaine stones of the North window to bee rayssed and scat (scratched) as if they had been so much butter printed with a Lyons clawe; the same Stones were fastened there againe and so remayne till this day. I have seene them oft and have put a feather or small stick into the holes where the Clawes had entered three or foure inches deepe." What became of those stones scored so deep with the devil's claws? Are they in the tower still? Or did Sir Christopher's builders, with the lofty scorn of their more enlightened age, toss them aside as superstitious rubbish? There, beneath the lofty tower, still lingers for a few weeks more—or, perhaps, days only—one of the last of the

#### OLD-FASHIONED TAVERNS OF THE CITY.

Its plain, symmetrical front and the woodwork of the lower story tell of its eighteenth century origin, or of the closing quarter of the preceding century, and the fittings of the interior are, or were, of the same period, straight-backed wooden settles, panelled doors and cupboards, shelves of generous width supported by ornate brackets and capable of sustaining much crockery, soup bowls, punch bowls, and the like, and an octagonal clock with the curling volutes to support it in strict keeping with all the rococo ornamentation of the place. The staircase, as usual in the domestic Architecture of the period, is of admirable design and solid workmanship. The newel posts are massive, and the balusters are of a simple but effective pattern, too rarely seen in our houses to-day. The staircase of the Cock is the model of what a staircase in a confined space should be. It is too good to be used for lighting fires. But "Ichabod" is written upon the walls. Great commercial establishments have been rising up all around for many a year, threatening to swallow up all eligible sites that came in their way. The fate of the Cock was a foregone conclusion. Down it must come, and another link which binds us to the old tavern life of our forefathers will be snapped.

A SERIOUS explosion has occurred at the Phoenix Bessemer Steel Works at Rotherham. The large blowing-pipe, which works the steel converters, burst, doing much damage.

THE Staffordshire General Infirmary at Stafford, which has undergone complete reconstruction at a cost of about £20,000, has just been re-opened. The infirmary itself dates from the year 1766, but the building which has just been practically rebuilt was about seventy years old.

THE Archbishop of York has handed over, as a memorial of the late Archbishop Thomson, a handsome old Jacobean pulpit of carved oak, which had long formed part of the appointments of the Primate's chapel at Bishopthorpe. It has been erected in the parish Church of Rotherfield, Sussex.



## Rotherhithe Town Hall.

**T**HIS is the latest of a series of Town Halls in London districts such as Battersea or Kensington, which will, we think, compare favourably with any building of its class.

Owing to the nature of the site the Public Hall has been placed on the ground floor with its entrance at the back, thus giving ample entrances and exits. This was the only design in the competition which gave this arrangement, all the others putting the Hall on the first floor with the entrance staircase, &c., at the front, as was done at Bermondsey. This position, however, was rendered impracticable by the limit of cost and the requirements of the County Council.

The placing of the Hall as it is necessitated great care and compactness in planning the offices, as the size of the site was none too large. The offices have, therefore, been kept as small as possible, and no room wasted. The drawback to this arrangement is that the large Hall looks, perhaps, a little short inside; and the staircase in the office block leading up to the Vestry Hall appears too cramped, and hardly of sufficient dignity for the vestibule and hall to which it leads.

A peculiarity of the Public Hall is that it is arranged for stage performances, and fulfils all the requirements for the Lord Chamberlain's licence. We believe this feature is unique, at any rate, in Town Halls in London. Its ground floor position is similar to Battersea, and seems to be the best arrangement on the whole for this class of building.

The aim throughout seems to have been to combine compact and straightforward planning with sound construction, and as regards the external appearance, to express the internal arrangement as naturally as possible, so as to obtain a characteristic effect, and to rely on good proportion and well-studied detail.

The exigencies of the case have necessitated some unusual treatments. The gable and chimney of the public-house next door butting into the roof, rendered a ridged roof necessary, instead of a hipped one, which would have been more in character with the front. This tends to make the front look like a strip of a larger building, and involves an awkward junction at the angle between the balustrade of the front and the spring of the return gable.

The usual treatment here would have been to run the balustrade round the side. An attempt has been made to keep the gable in harmony with the more severe style of the front and

at any rate it wastes no room, and adds considerably to the general effect. It is also made some use of as a staircase to the public gallery and caretaker's apartments.



ROTHERHITHE TOWN HALL. MESSRS. MURRAY AND FOSTER, ARCHITECTS.  
VIEW FROM LOWER ROAD.

the building generally. The result can be judged in our illustration.

It is doubtful whether a tower is wanted in a building of this description, but in this case

The foundation stone is of red Peterhead granite, and inscribed as follows:

THIS FOUNDATION STONE  
WAS LAID ON TUESDAY, THE 17TH DAY OF  
SEPTEMBER, A.D. 1895,  
BY EMILY BLANCHE CARR-GOMM,  
THE WIFE OF FRANCIS CULLING CARR-GOMM, ESQ.,  
AND LADY OF THE MANOR OF ROTHERHITHE.

The stone is placed on the left of the entrance in Lower Road, and on the opposite side is another stone, also of red Peterhead granite, bearing the names of the then existing members of the vestry, and the names of the Architects and builder.

We append a full description of the arrangement of the various departments and the materials used in the construction:

The building has a frontage of 52ft. 6in. to Lower Road, a return frontage of 161ft. to Neptune Street, and a frontage of 54ft. to Moodkee Street. The elevations are of Portland stone, and red bricks supplied by Mr. Thomas Lawrence, and the roofs are covered with green Westmoreland slates, the fleche to the roof of Council Chamber being covered with lead and surmounted with a wrought iron weather vane. The sculpture of the two caryatides to the porch in Lower Road is by Mr. Henry Poole, the animals over the porch and those round the top of the building are by Mr. Charles Beacon; the figures and ship to the pediment of the Lower Road front are by Mr. F. Lynn Jenkins; the two pediments in Neptune Street and the remainder of the carving are by Mr. George Hawkings. The main entrance to the Council Chamber and Offices is in Lower Road, with oak doors made in Mr. Howell J. Williams' workshops; they open into a lobby lined with Devonshire marble, and lead through oak swing-doors to a central octagonal Vestibule measuring 22ft. across, from the sides of which the various



VIEW FROM MOODKEE STREET



offices are entered. A private door communicates with the staircase in the Tower, which leads up to the Public Gallery to the Council Chamber, and to the caretaker's apartments.

On the south side of this vestibule is situated the principal staircase, the steps being of

into Neptune Street, and one at the opposite side opening into the yard on the south side, and from thence into Moodkee Street. The basement contains store room, strong room, and heating chamber. On the first floor, at the top of the principal staircase,

ceiling has a large ornamental fibrous plaster cove and a flat ceiling light, glazed with lead lights. On the north side of the vestibule is a small waiting room, which has another entrance from the staircase in the tower, and a door leading into the Coroner's Court. The caretaker's apartments are on the second floor, with access by the staircase in the tower.

The heating is by hot water on the low-pressure system by means of a Gurney boiler.

The ventilators have been supplied by Messrs. Kite and Co.; the speaking tubes by the Homacoustic Tube Company; and the chimney pieces by Messrs. Shuffery and Co.

#### "A TOUR IN HOLLAND."\*

By J. B. MITCHELL WITHERS.

ONE of the advantages of Holland for a short trip is the ease with which one can get there; and get about when there, places of interest lying close together, and the means of conveyance between them being good. I think, as many points apply to each place visited, it will be most convenient first to give a short description of the route taken, then to give a general description of the main features of the towns, and the domestic Architecture, which is the principal feature of this country, and its chief peculiarities and characteristics, and notes on public buildings and special objects in different towns. Leaving Sheffield, we (my friend and I) took the night boat for the Hook of Holland, and went on in the steamer to Rotterdam, where we stayed one day, afterwards taking the train to Delft, and spending the morning there, intending to see the manufacturing of the tiles for which it is celebrated, as well as look round the town. We could not, however, see these manufactured unless we waited until the afternoon, and therefore we proceeded by the steam tram to The Hague, thus getting a good view of the country lying between. While at The Hague we visited Scheveningen, also by steam tram. From The Hague we went forward to Leyden, and Haarlem to Amsterdam. After spending some time in Amsterdam we returned by railway to The Hague, and thence to Harwich.



GROUND FLOOR VESTIBULE.

artificial stone, and the strings, dado, handrail, and balustrade of Devonshire marble, supplied by Mr. H. T. Jenkins. The staircase window is glazed with stained glass in lead lights. The floor of the vestibule is of marble mosaic laid by Messrs. B. Ward and Company, who have also provided the fire-resisting floors and the artificial stone staircases. The Vestry Clerk's offices are on the left of the main entrance, and contain waiting lobby, general office, strong room, and private office. The Surveyor's offices, including waiting lobby, general and private offices, are on the right of the main entrance; the overseer's office, with strong room, is across the vestibule and next Neptune Street; a committee room adjoins the same and also faces Neptune Street. On the south side, opposite the last, are the offices of the medical officer and sanitary inspectors. From the octagonal vestibule, and opposite the main entrance from Lower Road, a corridor leads direct to the platform of the public hall, after passing through double iron doors in the party wall which divides the office block from the public hall.

The entrances to the Public Hall are from Moodkee Street, through a spacious vestibule, on the north side of which a ticket office is placed, and on the south side a door leads to the gentlemen's and ladies' cloak rooms. The platform is arranged for ordinary public hall purposes, and is also constructed in accordance with the requirements of the London County Council, so that it can be used for dramatic performances. It is fitted with an asbestos fireproof curtain, supplied by the United Asbestos Company, with a scene painted thereon by Mr. Bruce Smith. There is a small retiring or dressing-room on each side of the platform, with small flies over, and a gridiron over the whole platform, high up near the roof. There is an exit from each side of the platform—one directly into Neptune Street, and one into the yard on the south side, and from thence into Moodkee Street. The dimensions of the Public Hall are 63ft. long, 53ft. wide, and 36ft. high, with seating accommodation on the floor for 574 persons, and a gallery runs round the two sides and the end with oak benches to accommodate 307 persons.

There are two swing entrance doors to the Public Gallery with access thereto by two artificial stone staircases, entered directly from Moodkee Street; there are two swing entrance doors to the ground floor of the public hall, and three emergency exit doors in addition, two at the side opening directly

is a vestibule paved with marble mosaic, giving access on the west side through two doorways to the Council Chamber, which extends throughout the whole front to Lower Road. This room is 50ft. long, 30ft. wide, and 23ft. high. The ceiling is decorated with ornamental fibrous plaster from the Plastic Decoration Company, who have also supplied the fibrous plaster to the ceilings of the Public Hall and Coroner's Court. The Council Chamber is lighted by three large semicircular headed windows facing Lower Road, and on the opposite side are the two entrance doors.



FIRST FLOOR VESTIBULE.

Above these doors, and extending over the vestibule, is the Public Gallery with access by the staircase in the tower, entered from Neptune Street.

On the east side of the vestibule is the entrance to a spacious cloak room and the Coroner's Court, the latter having oak joinery with an oak dado 3ft. high, and there is a small retiring room for the coroner. The

I cannot begin my description better than by taking the canals, often with streets on both sides, with trees planted along them which in most towns in Holland form striking and picturesque features, and in which one finds new interest at every turn, the reflection on the

\* A lecture delivered to the members of the Sheffield Society of Architects and Surveyors.



water, the colour of the barges and boats forming most effective foregrounds to the old brick and plaster houses on the farther side, the pictures met with on every side being, perhaps, completed by a Church towering gracefully at the farthest point of the canal on a bridge nearer at hand. Holland is charming to an Architect from

#### AN ARTISTIC POINT OF VIEW

rather than a purely Architectural one, for, while its principal buildings have not generally the design nor details or the fine lines that exist in buildings in this country, and also in France and some other foreign countries, still they are suited to their surroundings, and usually common sense, the older ones being quaintly picturesque. In the domestic buildings the doors are often of really good design, and vary very much, the upper panels often being filled with graceful grills of wrought iron; the windows, whether divided into small squares or not, are generally painted white, which harmonises well with their surroundings. Fine gables are not plentiful, many houses being finished with a cornice and parapet in a French style, others with gables with nothing specially worthy of note about them. Many of these, however, I feel sure, were intended, or were perhaps actually surmounted on their flat space by either a lion or some other object by which the house could be identified. This would improve them considerably, and give a reason for the flat termination. As a proof of this you will find them so finished in many old pictures, and occasionally a spike now remains, as if it had been a dowel to secure the object. Here and there, however, there are gables which are most picturesque in outline, and others which are gracefully decorated by masses of ornament carved in stone.

Mooke Street



ROTHERHITHE TOWN HALL.

Each house has, I believe, its own walls, party walls not being used, and the entrance door is usually reached by a few steps, the basement in some cases being used for business purposes.

Occasionally a building occurs with wrought iron straps, which add to its picturesqueness, especially if it looks strong in other ways, as though intended for a warehouse; and here I

white space round it serves the same purpose that a margin does for an engraving or print, the joint between the tiles helping to frame the picture, and bind it to its fellows. How much



ROTHERHITHE TOWN HALL. INTERIOR OF COUNCIL CHAMBER.

must not omit to mention the beam and pulley projecting from many buildings, a few being of iron, to swing, the majority of wood, fixed with the upper side formed like a little roof to protect them from the weather. These pulleys were not only used for lifting goods into the warehouses, but were used in private houses for hoisting peat to be stored in the topmost story behind the steep gables. These steep-pitched roofs are tiled, and a few have fine brick chimneys. Most of the chimneys have a cover over them, the smoke issuing from holes in the upper part of the sides. Many of the houses have painted plaster fronts, and these always look clean and fresh, except in the very poorest part of the towns; whether this is chiefly due to the climate, or whether the occupiers have them painted every year, as I was informed, I cannot say, but they must have considerable care taken to keep them in such good condition. I was much interested in seeing a house front undergoing a thorough cleaning down. The painters had special irons which they placed at the level of the eaves of the building, and from these were hung pulley blocks with ropes, having irons attached, carrying planks suspended from them. These planks served as a scaffold for the men to work from, and which they raised or lowered at pleasure. With this apparatus the men seemed to get their work done very quickly, it only taking two men two days to clean down, paint, and repaint a large house front. Among the chief objects of interest used in internal decoration in Holland are the

#### OLD TILES,

with their quaint designs, which seem to grow more interesting the more one sees of them. These tiles were mostly made in Delft, from the alluvial clay found there. Many were brought over to England at the end of the seventeenth and early in the eighteenth century, and a manufactory exists at the present time at Delft; but the modern tiles are not equal to the old ones. Before seeing the tiles *in situ* I had never realised why so many tiles have a small dot of painting in the centre only, and preferred those with larger pictures on them; but when a wall or a fireplace is seen covered with tiles, those with the small centres being used as filling, and those more largely covered with painting being used for borders or divisions, the effect produced is far more pleasing than if more painting were introduced, and, as in some cases a story is continued from tile to tile in the pictures, the

more interesting this filling is than when plain white tiles were used you will readily understand, and, while the broad mass of white reflects the light, the small portion, coloured by contrast and breaking up the surface, renders the slight variety and defects in the tiles an additional attraction rather than otherwise. Most of the tiles are either blue or purple, on a whitish ground, though some have yellow, orange, or green introduced into them. Occasionally one sees a set of tiles composing one picture; but these, while, very interesting in themselves, and much sought after, are not so characteristic as the tiles complete in themselves. Mantelpieces and other pieces of woodwork in the rooms are often highly artistic and most interesting. In speaking of Dutch woodwork, I saw at a Church in Lincolnshire some years ago a screen with what appeared to me to be a strong Dutch feeling in its panelling, and, as I had never seen anything like it before, I examined it carefully to see how it was marked, and found, owing to some bits not being quite finished, that it was first pierced and sawn out in a similar way to fretwork, so as to give the outline where desired of faces or other forms, and then elaborately carved. The vicar was of opinion that its panelling had been brought from Holland, but I think it more likely that a Dutch workman had executed it on the spot, owing to portions not being quite finished. The old fireplaces have their backs lined with tiles, and fine iron dogs to carry the fuel. The wrought ironwork one sees is usually good. Perhaps the first thing that strikes the visitor to Holland is the flat, low river-banks, with rows of trees at right angles or parallel to them, varied by windmills. These reoccur repeatedly in the Dutch pictures, and if one had not seen them they would appear stiff and unnatural. It is after these rows of trees that the Boompjes at Rotterdam are called. These are the principal quays. The chief objects of interest at Rotterdam are the Boompjes, the Groote and other Markets, the Groote Kirk, and Boyman's Museum, and its chief street, Hoogstraat. Besides these there are many old houses. There are good public gardens and a Zoo.

(To be continued.)

THE new chief offices of the Rational Sick and Burial Association, built in Bridge Street, Deansgate, Manchester, have just been opened. The building, with its site, has cost about £24,000.



## THE ROYAL ACADEMY.

## FIRST NOTICE.

**E**VEN at its best, the Annual Exhibition of drawings in the Architectural Room at the Royal Academy gives but a partial and ineffective rendering of the aims and aspirations current in the Architectural world. Here and there, perhaps, a worthy design is shown with sufficient force and vigour to grip the attention, but many are represented by drawings that, in making a vain attempt to capture the public, only succeed in alienating the Craftsman.

This year's Academy is, more than most, given over to the little; to consider it as an Exhibition really representative of the Architecture of the year would be to assume an almost entire inactivity in the erection of buildings of public importance, by far the larger number of the exhibits consisting of more or less successful designs for small houses and other buildings, tolerable or otherwise, more in proportion to the skill of the draughtsman than to that of the designer of the work represented.

Among the few examples of this year's exhibits that illustrate works of some magnitude, we may draw attention to the large Church of St. George, Stockport, in which Messrs. Austin and Paley maintain the best traditions of the Gothic school, while their design does not lack a certain individuality of conception; the building is adequately represented in the four drawings exhibited (1790, 1885, 1891, and 1892). Mr. Caröe's design for the important Technical School and Museum, Liverpool, is shown by a perspective view (1818), and a detail (1831), the latter noticeable for the freedom with which the ornament is drawn; of his successful design for the same building, Mr. Mountford only shows a small interior of the principal lecture hall.

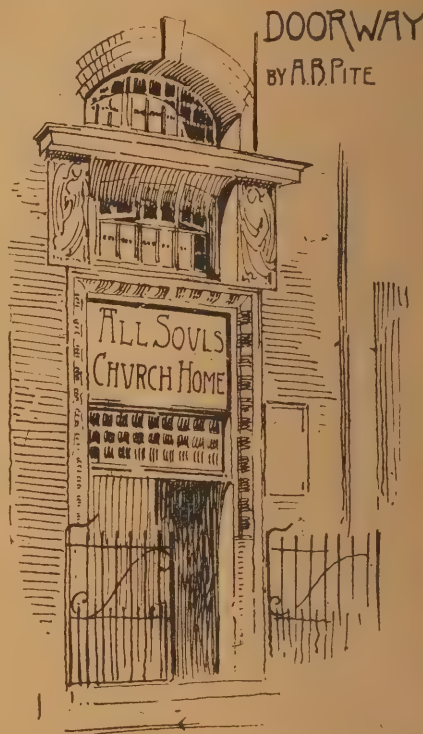
A large black and white drawing (1841), unfortunately mechanical in its execution, shows a large block of buildings at Liverpool, by Messrs. R. Norman Shaw and J. F. Doyle, which, we venture to think, will hardly add to the high reputation of the first named. Neither is Mr. Ernest George well represented this

year, the one drawing he exhibits (1839) being characterless and uninteresting; while the fascinations of the art of painting in oils have apparently limited Mr. Waterhouse to a single contribution to this room, viz., a perspective view of the new Surveyors' Institute, coloured in his usual manner. Mr. Pearson's unobtrusive pencil drawing (1924) for the Bristol road screen is in his later style, in which softness of outline and intricacy of detail have rather taken the place of the virile expressiveness of former days.

After this preliminary glance round we will proceed to go through the designs *seriatim*, mentioning those that seem to demand more than cursory attention. We find among the earlier numbers a Yorkshire Church (1741), by Mr. Fellowes Prynn, that would probably look well in execution, though scarcely, we should imagine, as satisfactorily as his exceptionally successful Church at Dulwich. Messrs. Brewill and Baily send a good drawing of a pleasant little street corner in the Hedgehog Inn, Nottingham (1742). Mr. Caröe's design for a bishop's throne (1750) is late flamboyant in character, freely treated with considerable elaboration, while the general lines are severe and the proportions not unsatisfactory. Drawing No. 1751 has apparently got adrift from the water-colour room; it is not notable for its Architectural qualities, and for this reason its present position is to be deprecated. No. 1752, a Church at Putney, is an attractive drawing of a design decidedly happy in general proportion and detail, in which a very successful effort has been made to harmonise a wide, low-pitched roof with a spire of considerable height. Adjoining this a large space is occupied by three drawings of the decoration in the Abbey Church, St. Savin, by H. C. Corlette, well worthy of their position. They are studies of some very interesting work, obviously rendered with absolute sincerity both as to form and colour. Mr. Aston Webb's School-house (1759) is rather an unexpected departure—we have not seen this Architect in such a "Georgian" frame of mind before.

The new theatre for Mr. Beerbohm Tree, illustrated in No. 1760, is a design fortunately without parallel in this year's Academy. This pretentious pile of appalling rubbish presents

not a single redeeming feature, and makes the adjacent drawing of the Royal Music Hall seem almost respectable by force of contrast. London is indeed to be commiserated on her acquisitions in this direction. It is humiliating to consider how few are the buildings of this class to which we can point with any degree of pride. The reason for this is difficult to



imagine. Why should not buildings of this semi-public character demand a high degree of Artistic skill?

A recent Church by Mr. James Brooks (1766) hardly receives justice in the drawing, the nave has the quiet breadth of treatment that we should expect from this hand, but the proportions of the squat towers flanking the end are surely open to question; more attractive are the very able Church Designs (1767 and 1787) by Mr. Charles A. Nicholson. Of the first we give a rough note, but both are most happily and artistically handled in full-toned water-colours; indeed, these and the numerous other drawings from Mr. Nicholson's brush are among the most refreshing features of this year's Exhibition. The only criticism to which this design might be considered open is in regard to the position of the buttresses on the east wall; they hardly seem to convey the impression of structural necessity, though they may actually be legitimate enough.

The design for a hillside Church (1772), by C. L. Brierley, is a good study for a small building in harmony with its surroundings; while interesting in grouping and proportion its simplicity and austerity mark it as an outlier at the extremity of civilization. Mr. Briggs' design for a riverside cottage, with its balconies, etc., will probably be of interest to the general public, as a treatment suited to the requirements of the case. Mr. Caröe's Church at Nottingham (1781) is externally somewhat lacking in breadth, the west end, in particular, being restless and "bitty"; the interior, however, gives an impression of more harmony, and the details are of a simple and refined character. A small coloured drawing of the Passmore Edwards Settlement building (1784), by Messrs. Smith and Brewer, shows a square block, in which good proportion in mass and in detail, lends interest to a comparatively simple building. The country house (1789), by Messrs. Silcock and Reay, seems well grouped and placed, but leaves much to be desired in respect to detail, a criticism that may apply with still more force to Mr. Larnier Sugden's house at Rugby; while, on the other hand, Mr. Voysey's design for a house on a Surrey hillside strikes us at





once as one of his most successful efforts, the composition broad and restful, and the plan well adapted to the sharply-sloping site. The drawing is a spirited and crisp water-colour, with the light plaster work laid on in white. Mr. Belcher's design for screen and organ, Kineton Church, Warwickshire (1800), is Jacobean in character, the organ being somewhat more freely treated than the screen; it is well illustrated in a very effective water colour by J. J. Joass, who has also, we may note, drawn Mr. A. B. Pite's work. No. 1801 is a sparkling drawing in black and white of the Romanesque porch of St. Gilles, by C. E. Mallows.

In No. 1808 we have a very good drawing, in cool tones, of a rood-screen decorated in colour; the design shows a solid rood-loft painted white, with a small amount of ornament diapered over it. This forms a background to the figures of the central group, while the cove under is in blue, and the solid panels below an open screen are of a pale red tint, all the colours being so softened as to produce an harmonious result. Even more successful as a drawing is No. 1819, in which the greater play of light and shade through the various planes is taken full advantage of. Mr. A. B. Pite has three drawings of some of his work in the West End (1826, 1827, and 1828), in two of

#### AUSTRALIAN WOOD FOR PAVING.

AN important change is rapidly spreading over the roadways of London and other large towns—the change from soft to hard wood paving. For many years there has been a difference of opinion as to the comparative merits of granite pitchers, so-called macadam, asphalt, and wood paving. The latter was originally the fad of a dentist; and the first essays were all failures. Tradesmen, however, supported the pavement because it was noiseless; and the engineers and surveyors of the Metropolitan parishes have done their best to make it answer for practical purposes. All the earlier wood pavements were laid with Baltic deals and cement joints, these being the materials most readily dealt with. It was in 1839 that the first wood paving worthy of record was laid in the Old Bailey. Many thousands of square yards were subsequently put down, and over thirty patents taken out for modes of performing that operation, until, in 1884, the wood pavings had increased to the extent of fifty-two miles. Since that date the advance has been continuous. But the shrinkage, decay, rapidity of wear, and the insanitary conditions due to the absorption of water and of

#### ORGANIC FOULNESS

by the soft wood have led to troubles and

the road is stated at 699 tons, and 3014 vehicles. The annual

#### WEAR OF THE WOOD

has been under 0.2 inch. This same parish of Lambeth has subsequently used seven millions of blocks. St. Pancras, St. Giles, Southwark, St. George the Martyr, St. Martin's in the Fields, Streatham, Wandsworth, Fulham, and other large London parishes have more or less adopted it for their heavy traffic, with the result that there are now in the metropolis over twenty miles of Jarrahdale Jarrah alone. The same wood is in use in Paris, Berlin, Glasgow, Manchester, Nottingham, and other cities and towns. In the Government Handbook of Western Australia these forest products are put foremost as a source of great wealth to the Colony, and the most valuable woods are stated to be the Jarrah, the Karri, and the Tuart. Jarrah timber is obtainable through more than five degrees of latitude, and the present forest holdings are within easy access to shipping ports. The leading timber stations of the Colony are the "Jarrahdale," with a forest holding of 250,000 acres, connected with the port of Fremantle by a railway; the Karridale Timber Mills, near Cape Leuwin, with 150,000 acres, and satisfying a large demand; the Canning Jarrah Mills, with a railway from Guildford to Fremantle and 100,000 acres of holding; the Torbay Mills, near Albany; the



which the severity of Architectural line and the heavily loaded figures suggest the influence of Michael Angelo, while the other strikes a more modern note, and, though not lacking in dignity, is more in harmony with the simple character of the building to which it forms the entrance. The rough sketch we give of this can but indicate the general scheme. The water-colours exhibited are handled with remarkable vigour.

Mr. Stevenson's block of houses (1825) will probably do the Architect more credit in the actual building; the drawing shown is rather hard and chilly. The college design by Mr. Hare is of a quiet dignity, although somewhat monotonous, but the otherwise very able black and white drawing that illustrates it, possibly contributes somewhat to this impression. No. 1834 can only be noticed as an amazingly feeble drawing of the interesting Shipton House, Shropshire. It is difficult to conceive by what means such work can find its way to the walls of the Academy. And it is such extraordinary errors in judgment that makes one wonder who is the Hanging Committee.

The exigencies of space compel us to postpone our consideration of the important work by Mr. C. W. Whall, Mr. H. Wilson, and others till next week, when we trust to complete this notice of the Architectural room, and to make a hurried excursion round the remainder of the Exhibition.

difficulties which have all been endured for the sake of diminution of noise in the arterial street traffic. In 1887 came the Indian and Colonial Exhibition at South Kensington, and there, in the West Australian Courts, were shown magnificent samples of the eucalyptus hard woods from the great Darling Range, which covers a tract of over 30,000 square miles, the most notable being the Karri and the Jarrah, more particularly the *Eucalyptus marginata*. This wood was then already known for its excellent qualities in shipbuilding and harbour works. It was first used in repairing his Majesty's ship Success, in 1829. It was also esteemed in railway work, as one of the most marked qualities was freedom from wet or dry rot. It was on the occasion of the Exhibition referred to that it was introduced into the English market for wood paving. The advantages of a hard, almost non-absorbent fibrous material for this purpose were singularly striking, and in the following year a section of the Walworth Road was laid. In 1889 the Jarrah, now known in the trade as "Jarrahdale" Jarrah, was put down in the Westminster Bridge Road, noted for its incessant and exceedingly heavy traffic. That paving is still in good condition, although the traffic over it towards Westminster is reckoned at 1002 tons per yard of width of roadway from 6.0 a.m. to 6 p.m. during which time 3574 vehicles pass. The traffic on the other side of

Quindalup Mills, near Geographe Bay; and the Bunbury Mills. The forests from which timber is now exported from Western Australia are all together at its south-western extremity, doubtless through the climate being subject to moist currents of air from both south and north. The best Jarrah wood is found in the hill ranges, and not nearer than 15 or 20 miles from the coast. The areas occupied by the principal species of West Australian eucalyptus are white gum (*E. redunca*), 10,000 square miles; Jarrah (*E. marginata*), 14,000; Karri (*E. diversicolor*), 2300; Tuart (*E. gomphocephala*), 500; red gum (*E. calophylla*), 800; and York gum (*E. loxophleba*), 2400 square miles.

#### THE WHITE GUM

grows in profusion east of the Darling Range, but this wood does not seem to be as yet an article of export. The Tuart timber is extremely hard, twisted and gnarled; it is the strongest wood known. West Australia has been the first to furnish Europe with hard woods for paving, and still holds its own in the markets of England, France, and America. The hard woods of other countries have failed, so far, to get a footing, although the natural desire of public bodies to try cheaper materials is inducing purchasers of small parcels. The Scientific and Practical Research Department of the Imperial Institute some time ago invited inspection of a number of Queens-



land woods—crows ash, iron bark, spotted gum, blood wood, blue gum, black butt, and tallow wood; but nothing much has come of the effort. The French have tried to introduce the cultivation of eucalyptus into Algeria and some other of their colonies. Hard woods from Africa, from New Caledonia, Syria, Borneo, and other forest territories have been brought out from time to time, but have as erratically disappeared. Of the care taken with the "Jarrahdale" timber a forcible account has been given by M. Pêche, for many years the Engineer-in-Chief of the Municipality of Paris. The most beautiful trees are found on the most elevated places. The trunks, absolutely straight, attain a height of thirty to fifty metres, with a diameter of five metres. The first branches do not appear under ten or fifteen metres, and plain timbers of twelve to fifteen metres long and 2ft. square can be obtained. The trees are cut out of the rainy season, and when the sap has descended and formed a last ring. Four or five weeks

#### BEFORE FELLING

the tree is surrounded with a cutting to prevent the movement of the sap. The evaporation then continues by the leaves, and thus is eliminated a litre and a half of water per cubic foot. When the leaves are withered the tree is felled and transported to the saw-mills. There the planks are piled in the sheds and covered with sawdust until they are sufficiently dry. The Karri is a still more colossal tree, and sometimes reaches 130 metres in height. Trunks have been measured to ninety metres before branches begin. The use of these two hard woods constantly increases in London; but its extended introduction has to face the strongest opposition from the old Baltic trade interests.

#### THE OLD BAILEY.

THE Finance Committee of the Corporation has recently considered the question of finance in connection with the proposed rebuilding of the Sessions House in the Old Bailey. It states in its report that it had obtained from the surveyor an approximate estimate of the probable cost of carrying out the sketch plans for the new Courts, and it had instructed the officers to report as to the several sources from which the requisite funds might be obtained. The cost of the proposed rebuilding and complete equipment of the Sessions House, with its various Courts and offices, was estimated at £120,000. It was also proposed to utilise the female wing at Newgate, the freehold of the Corporation, of an estimated value of £21,750. The land on which the existing Sessions House and Courts stand, with the adjacent yard, is estimated to be of the value of about £50,000, and is also the freehold of the Corporation. The utilisation of the suitors' fund of the City of London Court, now amounting to £70,585, was a suggestion which received due attention; but, although, no doubt, under certain conditions the Corporation, if it were deemed advisable, could thus utilise the fund, the committee did not in all the circumstances advise the adoption of such a course in this instance. In its judgment the present state of its finances would not justify the sinking by the Corporation of such a sum as £70,585, or anything like that sum, in connection with an undertaking which must necessarily be

#### ABSOLUTELY UNREMUNERATIVE.

Further than that, it did not consider that the present state of its finances would justify the Corporation in parting with the female wing of Newgate for that purpose unless some adequate pecuniary benefit could be made to accrue to the Corporation thereby. It must not be forgotten that in 1902 the grain duty, now producing on an average £18,000 per annum, would come to an end, when the open spaces belonging to the Corporation would have to be wholly maintained out of the City's cash in the absence of Parliamentary assistance, and the Corporation would be left to discharge the outstanding loan raised upon the credit of the grain duty, now amounting to £194,000. The trial of prisoners at the

Central Criminal Court was not restricted to persons committed from the City and County of London, but included prisoners from Middlesex, Essex, and Surrey, and it might not be unreasonable to approach those various counties, and suggest the desirability of a contribution being made by each towards the cost of the proposed rebuilding, such contributions to be based upon the proportions in which the respective counties are liable to contribute towards the salaries of the officers of the Court—viz., London (including the City), 35-40ths; Middlesex, 2-40ths; Essex, 2-40ths; and Surrey, 1-40th. It could not be urged against the Corporation that in making such a suggestion it was not acting reasonably in the matter, inasmuch as it must be carefully borne in mind that the whole of the new buildings would stand on freehold property of the Corporation, from which no income would be derived, and that the Corporation, in addition to paying out of the City's cash the salaries of the Recorder and Common Serjeant, would also continue to bear the other expenses in connection with the maintenance of the Courts and buildings, including supervision and repair. The Central Criminal Court holds almost continuous sittings, far more than any other Court of Assize, and prisoners are always sent for trial there from the counties enumerated in far greater proportions than those committed from the City itself. In cases of offences on the high seas and other places within the jurisdiction of the Admiralty of England, the prisoners must be tried at the Central Criminal Court. For these reasons the Finance Committee recommends that the whole cost of the proposed rebuilding of the Sessions House and Courts, including the additional land required for the purpose, and the premises to be used during rebuilding, be defrayed by means of a county rate restricted to the City area. The report will be considered at a future meeting of the Corporation.

#### TILES.

BY W. NORMAN BROWN.

TILES, and the Art of tiling, may be said to be the connecting link between the fine and the useful Arts, the combination being both artistic and useful. The glazed tiles which are employed for decorative purposes are of four kinds, viz.: Art, enamelled, embossed majolica, and encaustic tiles. The first-named are hand-painted, and are used in the decorating of grate backs, pilasters, and in cabinet work; the second description are also used in this work, as well as for flower stands, wall linings, and in Architectural decorations; the third sort are employed in much the same manner; and encaustic, plain, and mosaic tiles are utilised for pavements and such like uses. Inlaid encaustic tiles of an extra thickness are employed for hearths, and self-coloured glazed tiles of white celadon, turquoise, olive, and buff, in squares and in geometrical designs, are used for wall linings. The encaustic tiles now commonly made of an earthenware intermediate between the common tiles and porcelain, are very largely used in the paving of churches, halls, baths, conservatories, and similar places. They differ from those of ancient days in the way in which they are finished, as the Artists of those days employed the stylus and wax, whence the name was derived from the Greek *en*, and *kaustikos*, burning. The exact method of burning in the design has not been acquired by the modern tilemaker, who employs oil in lieu of the wax of the ancients. The manufacture of the celebrated Minton decorative tiles is carried out thusly: The clay is first put through a variety of washings and purifications, and then passed through fine lawn sieves in a liquid state. It is then boiled until it is in a plastic condition. The pattern is cast in plaster, and placed in a metal frame of the required size. A piece of the clay is then rolled out like pie-crust, and pressed upon the plaster pattern to receive the correct outline of the design. The metal frame containing the plaster mould is divided hori-

zontally and the surface put in, the frame put together again, and filled up with coarser clay of the required thickness. The tile is then put under a screw-press to receive the proper degree of solidity. The durability of these tiles is such, both in regard of the strength of the material and the intensity of the colour, that nothing short of absolute annihilation affects them. The oldest specimen of glazed tiles in England was discovered in a ruined Friory Church in Norfolk, a portion of which is to be seen in the British Museum. These tiles are ornamented with escutcheons of arms, and on each is the name of Thomas. In ancient Pompeii scarcely a house seems to have been devoid of its mosaic pavement, and in old Greece inlaid pavements of various coloured marbles were employed for the sumptuous decorations of the time of Alexander of Macedon. They were in fretwork and geometrical patterns, but the most famous is the one mentioned by Pliny as the masterpiece of one Sosos of Pergamos, called the "Unswept Hall." It is inlaid so as to represent the crumbs and fragments which would be found on a floor after a banquet, with the doves which had flocked in to partake of the feast. Another masterpiece of the tiler's art was the floor of the great ship *Hieron II.*, which was of small cubes of stone of every colour, representing the history of the siege of Troy; a work which occupied 300 workmen a year. Mention is made of a tiled court in sacred history as early as 521 B.C. It is described as a pavement of red, and blue, and white and black marble. This was the garden court of the Palace of Ahasuerus, and the art of enamelling in glazed colours was well known to the artisans of that locality at that time. Blue was a favourite colour, combined with black marble. The Dutch tiles are famous the world over. Washington Irving, in "The Alhambra," gives the history and origin of these tiles, which have figured so largely in the useful Arts. He says they were brought into Spain by the Moors, and were used by them in the building of their Spanish palaces. From this country they were introduced into the Spanish Netherlands by the Dutch soldiers, and from there into Holland. The polished surfaces of the tiles commended them to the Dutch housekeepers, who have always been famous for cleanliness. They took such hold upon the people that manufactories were set up, and the numbers turned out rendered the cost within the limits of householders in general. The polished surface of tiles and the durable nature of the material still commend their use strongly for the maintenance of extreme cleanliness. From a sanitary point of view, tiled floors for apartments commend themselves. From an Artistic point of view, tiles present the most captivating forms of beauty. The highest Artistic talent is employed in the conception and execution of the designs with which they are decorated. Even giving the colours to tiles is an operation requiring great skill and care. It requires three days, and the tiles are then dried from two to three weeks, and then fired, where they are exposed to an intense heat for sixty hours.

THE Hampstead Vestry has decided to ask the Local Government Board for leave to borrow £2000 for the erection of the Belsize Branch Public Library.

At the National Liberal Club the present system of lighting is to be thoroughly overhauled, and the sum of £2000 is to be expended in obtaining additional electrical power.

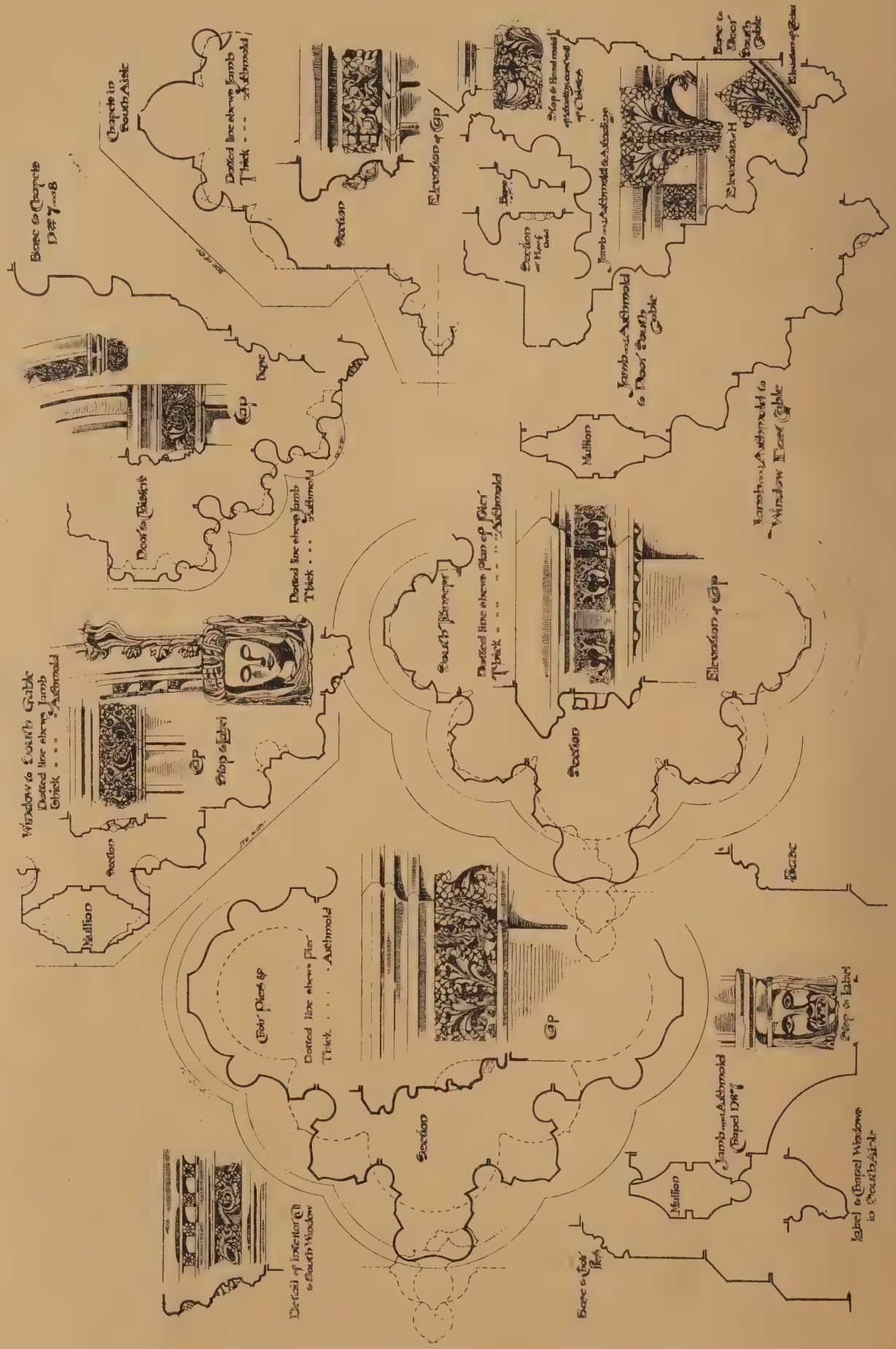
THE Bridgwater Trustees have decided to construct a tunnel, a quarter of a mile long, from Sandhole Pits to the Wardley Colliery shaft, near Wardley Hall, for ventilating purposes. Their intention is to do away with the furnace which has hitherto been used at Sandhole.

THE Local Government Board having sanctioned the purchase of a site at Nine Elms on which to erect additional baths and washhouses for Battersea, the vestry has approved the estimate of £25,000 for the erection of the necessary buildings, and resolved to invite designs for the same, with a premium of £100 for that first selected.

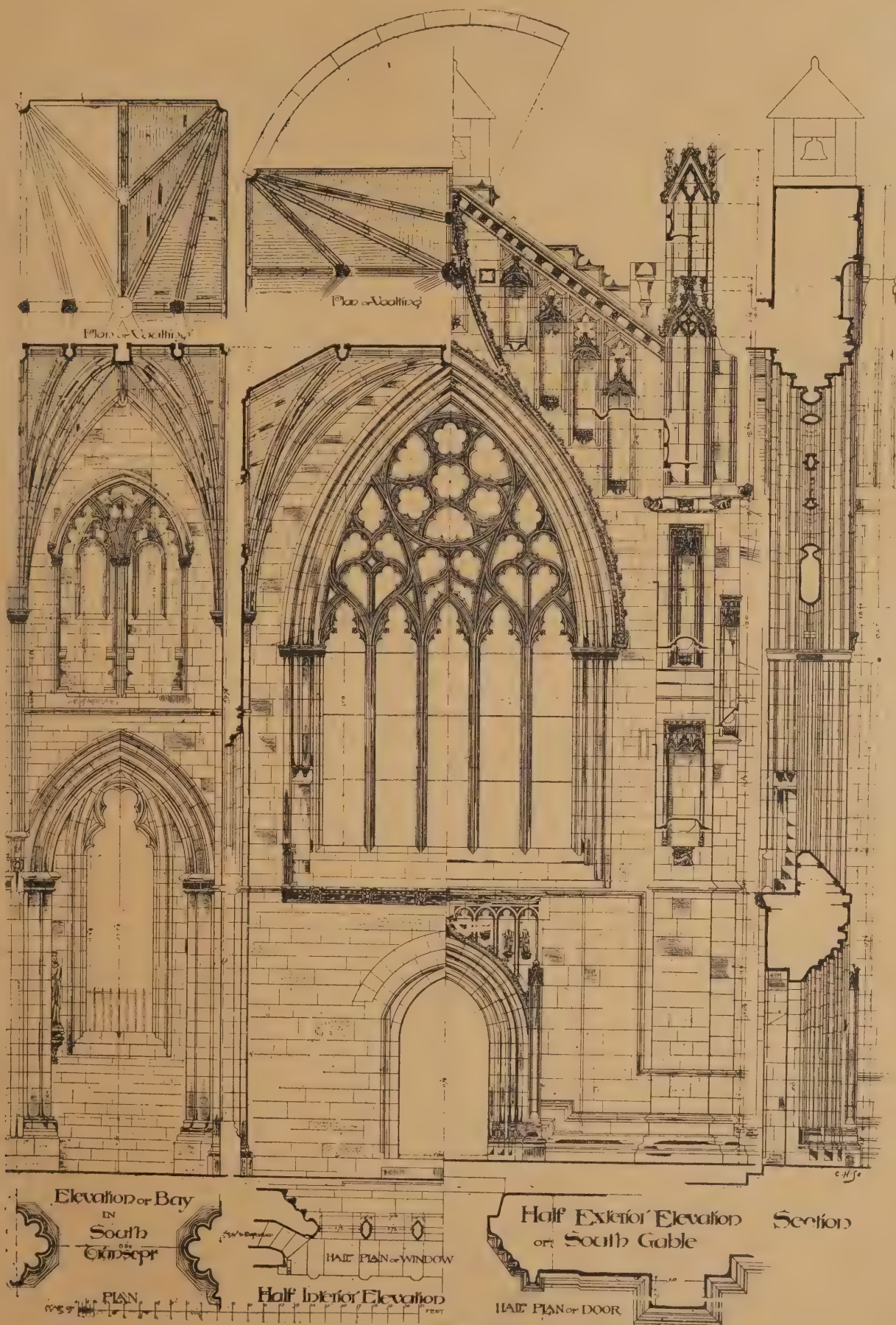


LIBRARY  
OF THE  
UNIVERSITY OF ALABAMA











LIBRARY  
OF THE  
UNIVERSITY OF TORONTO



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

May 5th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A PETITION has been deposited at the House of Commons for leave to bring in a bill during the present session authorising the extension of the Victoria Embankment as far as Lambeth Bridge, and various extensive improvements in the parishes of St. Margaret and St. John, Westminster. The proposed improvements will involve the clearance of an area twenty-seven acres in extent, and the cost of the acquisition and clearance of the site is estimated at upwards of £1,000,000 sterling. The proposals include the formation of a wide approach or avenue from Horseferry Road to the Victoria Tower, forming a connection with the approaches to the new Lambeth Bridge; the widening of a street so as to make a connection between Great Smith Street and Horseferry Road, and a street opening out the Church of St. John, Westminster; the formation of a square of the size of Hanover Square, in front of the Church-house buildings, Great Smith Street; and the removal of the whole of the insanitary area and slums of Westminster, and the construction upon the site of large buildings more or less of a public character.

AN early start is to be made with the preliminary work associated with the construction of the new theatre in the Charing Cross Road for Mr. Charles Wyndham. It is estimated to hold an audience of 1500 people, and will be a little smaller than the Garrick. The floor will have about twelve rows of stalls in front of the pit, above which will be the dress circle, family circle, and amphitheatre in three separate tiers. The plans provide for a spacious stage, and comfortable accommodation for the company. The interior decorations and upholstery have not yet been decided upon, though the intention is to have all internal appointments as sumptuous as good taste will allow. The building will occupy a frontage of 80ft. to Charing Cross Road, with a depth of about 100ft., and will be situated between the Garrick Theatre and Cranbourne Street, on the block around which St. Martin's Court passes on three sides. The court will be widened on both sides of the theatre, the north side being chiefly reserved for extra exits and the amphitheatre entrance, the south side affording entry to the stalls and family circle. The façade will be of solid stone, and partly of classic Greek Architecture. The front angles will be curved off and support two towers. The north angle will give entrance to a spacious crush room, and the south direct to the dress circle. Mr. Sprague, of Arundel Street, is the Architect.

A CURIOSITY, in the way of a sealed room, has been discovered in Gainsborough. The existence of this room has been unsuspected, and it was only found during recent extensive alterations. It is about eight or nine feet square, and when the workmen dropped into it from the roof, was found to have no other door nor window, but the floor was strewn with oak panelling, which had evidently been torn from the walls many years ago. One end of the room is roughly bricked up to the ceiling, and the supposition is that the room was per-

haps twice its present length, with the existing stone fireplace in the centre of the north wall, having a door at one side and a window on the west, looking out upon the river. To build cottages, half the room space was taken away, and the consequence was, the sealed aperture. Mr. Forrest, the owner of the property, has had the oak panelling, some of which was found in other parts of the building, replaced, so far as possible, and the result is an excellent reproduction of the old style of panelled room, such as is found in perfection at Haddon Hall, and other historic edifices.

PROFESSOR HERKOMER, in whom love of Art and practical ways are felicitously combined, and who has conceived the possibility of Wales developing into a centre of Art, says:—"I am going to give Wales something I once intended to keep for myself at Bushey. I had intended to establish a great Art and Handicraft School there, but that idea I have abandoned, and intend to give the whole thing to Wales. I hope to live to see the day when artistic works labelled 'Made in Wales' will find a ready sale and appreciation throughout the kingdom." Be that day hastened, for it is a reproach to the Welsh that they have not in sufficient evidence Arts or handicrafts to enable them to put in the hands of admiring tourists of other races than theirs things of beauty which would be a joy of recollection for ever.

A TEMPLE of Rameses III., king of the twentieth dynasty, has been discovered at Luxor. It contains a statue of that monarch, which, however, had been shattered, presumably at the commencement of the Christian era; but the pieces have been put together and restored. An avenue of sphinxes has also been unearthed, as well as an immense courtyard containing a granite stele covered with inscriptions dating from 900 B.C.

HER MAJESTY'S THEATRE, which has been rising during the past year at the corner of Charles Street and the Haymarket, is now completed and opened. Its site is almost identical with that of the old Opera-house, also called "Her Majesty's," where the London public crowded to hear Handel's operas, and which was only finally demolished in 1893. London is not rich in theatres of any Architectural pretensions. Many have only a small frontage on the street, giving little promise of the decorative magnificence within. The new theatre, designed by Mr. C. J. Phipps, certainly does much to supply this deficiency. It is built of Portland stone and red granite, in the style of the French Renaissance—a style perhaps more suitable for the home of modern drama than the severe classicism of the famous houses of a past generation. An ornamental façade, with a loggia distinguished by four Corinthian columns, and surmounted by a cupola, overlooks the Haymarket, while an imposing frontage of 160ft. runs along Charles Street. Structurally, one of its most noticeable features is that there are only two tiers of seats above the floor instead of three. So far as can be judged at present the arrangement seems admirably adapted to give the audience the best possible view. There is hardly a place in the house from which the entire stage is not visible. The disposition of seats intended to hold between 1600 and 1700 people is on popular lines. The style of decoration is described as "Louis XIV.-XV.," and is carried out with taste. The prevailing colours are red and gold, the proscenium, columns, and pilasters being worked in marble with ormolu mountings. The proscenium curtain and the whole of the carpets were supplied by S. J. Waring & Sons, Ltd., who also carried out the whole of the upholstery in the stalls, boxes, and dress circle. There is an elaborate system of warming and ventilation with fans worked by electric motors. The theatre is fitted with reproductions of the Fontainebleau candle brackets, electric light being substituted for candlewicks. The dressing-rooms have exceptional advantages in the way of light and air.

The decision of the Government to purchase Hertford House as a gallery for the Wallace

Collection is not, we believe, in consonance with the feelings of the authorities at the National Gallery; but it received very strong support in quarters which had influence in the decision. Several cogent reasons may be adduced in its favour. First, the collection can be opened to the public very shortly, instead of being delayed for the interminable time which the building of a new gallery would entail; second, the site is an admirable one, so far as the safety of the collection is concerned, the building being isolated on every side; thirdly, the purchase has probably not been an expensive one, as the neighbourhood is not fashionable; lastly, it supplies a district of London, and that an Artistic one, with a museum, which it does not at present possess.

THE Salon is held for the last time this year in the Champs-Élysées. The Palais de l'Industrie, built for the first International Exhibition of 1856, and used ever since for the annual academy exhibitions, is to be pulled down to make room for the 1900 Exhibition buildings. Already the workmen are beginning to pull down a wing of the Palais de l'Industrie. The consequence is that the central hall is now at one end of the Salon, which spreads over disused portions of the building. The geography of the place is consequently unfamiliar, and the good pictures turn up in the most unexpected rooms. Some of the portraits are of first-rate excellence.

THE Chilean Government has erected several lighthouses on the coast, the most important of which is on the Evangelistas Rocks, twenty-four miles from Cape Pillar, the western entrance to the Straits of Magellan. Mr. G. H. Sleight has held the position of lighthouse constructor to the Chilean Government for a number of years. The Evangelistas light was first exhibited on September 17th, 1896, and had been about two years and a half in course of construction. All the materials had to be transported a distance of eleven miles by a steamer specially purchased by the Chilean Government for this purpose. The erection was a work of great danger and difficulty. After the completion of the work, Mr. Sleight will continue the work of erecting other lighthouses on the Chilean coast, as contemplated by the Government, as the erection of the light house on the Evangelistas Rocks is a great boon to those navigating the Straits of Magellan.

As previously stated, an Art show of very definite importance is to be one of the chief features of the forthcoming Victorian Era Exhibition at Earl's Court. The large building known as the Queen's Hall has been adapted for the exhibition of a collection of pictures, water-colour drawings, and examples of sculpture, which is extensive enough to represent with some adequacy the Art production of the whole of the Queen's reign. More than 1500 works are being hung in the gallery, and among them will be found a great number of notable things. Several very fine drawings by David Cox, a great picture by Turner which has hitherto not been exhibited, Wilkie's portrait of the Queen in her Coronation robes, a characteristic canvas by Sir John Millais, to quote at random, are among the works by which deceased Artists will be represented, and a great deal that is excellent by living men will be either lent by the owners of the works or contributed by the Artists themselves.

WITH reference to the reported railway concessions in China, the natives are seriously considering the idea of making all their own plant for the Hankow-Pekin line at the Hankow ironworks, on which they have spent fully a million sterling, probably more, with no results so far. It is doubtful, however, if a tenth of what will be wanted can be turned out at Hankow, and certainly the material can be bought much cheaper abroad. China is just now full of representatives of syndicates, all anxious to lend money, furnish supplies, and of anything they can in exchange for a contract; but so far there is good reason to say that nothing has been done in this respect. The probability is that no big contracts will



be given away at one stroke, but tenders may be invited for rails, sleepers, locomotives, &c., each separately, and those which suit the Chinese best will be accepted independently.

THERE is this spring, says the *Globe*, even more than the usual amount of lamentation over the way in which the Hanging Committee of the Royal Academy has carried out its work; and certainly, if the list of Artists whose most important works have been "crowded out" is to be taken as a guide, there would seem to be ample cause for a very large amount of outcry. Rarely have so many men of note had their pictures returned to them; and not only the veterans, whose waning powers might justify a hint of retirement, have been slaughtered, but even the younger workers, in the full enjoyment of their capacities, have found themselves set aside. The fact is that the annual exhibitions at the Academy have become such unwieldy affairs that there is no chance of justice being done, either in the selection or the hanging, to the men whose work is original enough to be interesting, and at the same time sufficiently unusual to impose upon the hangers a certain degree of perplexity. Something will have to be done to meet this difficulty, and the sooner it is done the better for the Academy itself, and for the great body of outside Artists. It is not enough to limit the number of works which outsiders may send in. What is needed as well is that a definite reduction in the amount of pictures hung in the galleries should be made. The implied discredit of being "crowded out" would lose all its force if it were generally known that only a comparatively small selection of very exceptional works would be placed at Burlington House; and if the demands upon the wall space there were diminished, the hangers would be able to avoid excluding pictures simply because size or shape made the fitting of a particular frame into the puzzle a matter of difficulty. With more room at their disposal they could place to advantage many a piece of painting which has now to go back to the Artist, simply because in the present close juxtaposition it quarrels with what is hung around about it.

THE Local Government Board has sanctioned a loan of £27,500, for forty years, to the Hornsey District Council for the purpose of erecting 108 dwellings for the working classes and the purchase of  $4\frac{1}{2}$  acres of freehold land for the site. Six-roomed houses are to be built, for which 7s. 6d. a week will be charged, and the dimensions of the rooms will be as great as many of the £40 a year houses in the district, while the gardens will have an average depth of 45ft., equal to most of the Council's allotments. Some of the residences will contain one room less, the difference being marked by a diminution of 1s. a week in the rent, which is inclusive of everything save the cost of light and heat.

A FEW interesting objects of Art came under the hammer the other day at Messrs. Christie, Manson, and Wood's, among which were the following:—A pair of bronze figures of a lion and lioness, by Barye, signed—28 guineas; a pair of Worcester-pattern vases, with exotic birds in frames on a blue scale ground, 8in. high—33 guineas; an ivory cup, carved in high relief, by Grel, of Munich, 12 $\frac{1}{2}$ in. high—23 guineas; an equestrian bronze of an Arab horseman, 25in. high—24 guineas; a clock by Mathieu le Jeune, in case of Louis XVI. design, shaped as a lyre, 25in. high—32 guineas; an oblong wrought-iron casket, of the time of Louis XV., from Hamilton Palace—19 guineas; an oblong plaque, of pear-wood, boldly carved in the highest relief with a basket of flowers in the centre, in the style of Grinling Gibbons, 4ft. by 6ft.—45 guineas; a white marble mantelpiece, designed by Adams, decorated in the centre by an oblong relief of Diana and hounds, fluted columns at the side, the whole slightly inlaid with veined green marble, 74in. wide by 62in. high—80 guineas (this mantelpiece is from Corney Park, St. Alban's); an old Brussels tapestry panel, representing Cyrus and numerous other figures, signed "E. D. E. P." 9ft. by 14ft. 10in.—55 guineas; another

panel *en suite*—46 guineas; a panel of old Brussels tapestry representing a garden scene with Apollo and other figures, and three other panels *en suite*—235 guineas; and a stuffed figure of a brown bear, with the inscription on the stand, "Killed, Feb., 1857, by the Emperor Alexander 2nd., and given to the Duke D'Osuna"—15 guineas.

THE tunnels of the new electric railway from Waterloo to the City have now been practically completed, and the terminus as well as the booking-hall under Waterloo Station have been erected. The electrical engineers are now engaged upon their part of the undertaking. This great engineering work was commenced in June, 1894, when from a pier erected near Blackfriars Bridge the engineers started to drive two shields, one in the direction of Waterloo, and the other in a northern direction. In the following year two other shields were put into operation, each weighing between 16 and 17 tons, and piercing through the ground at the rate of 8ft. a day. The depth at which the excavation was carried out is about 24ft. below the bed of the river, and it is estimated that in consequence of this excavation over 200,000 tons of earth were taken away. The earth thus obtained has fulfilled a very useful purpose. It was carried down to Dagenham Dock, and thence taken to fill up some of the low sections of land in that part of Essex. The work in connection with these tunnels was delayed in the month of April, 1895, owing to a dispute between the engineers of the District Railway and the engineers of the new railway as to whether the new work at a particular point near the District Railway should not be done in compressed air. When that difficulty disappeared the work was carried on with great vigour and speed. The advantages of this new line cannot be exaggerated as far as a large number of the population of this City are concerned. It is stated that over 300,000 persons pass daily between the Bank and Waterloo Station, many of whom are often inconvenienced by the present slow mode of transit between the two points. This new line will obviate such inconveniences in the future by affording better and speedier facilities for compassing short journeys within the radius through which it crosses. The other great railway undertaking, "The Central London Railway," is also making great progress. At the present time the rate at which the tunnels are being constructed is 16ft. per day, but in spite of this rapid rate it will take two more years to complete the tunnel.

FOR a great number of years the growth of St. Albans has suffered seriously from the scarcity of building land suitable for the erection of good residences. The Earl of Verulam, who owns land on almost every part of the city, to meet this want has consented to open up 500 acres of land of high elevation, and with a southern aspect extending from the St. Albans Midland Railway Station to London Colney. The Bath and West of England Show last year was held on a portion of this site, and the Prince of Wales, when visiting the show, expressed his delight with the lovely views obtained of the Cathedral and surrounding country. In order to facilitate building, the freehold sites can be purchased right out or taken on lease for 99 years, or purchased on building society principles, the payments being extended over a term of years.

WHO broke the piece of statuary at the New Gallery? In the midst of the private view there was a sudden crash in the hall. Everybody looked at everybody else; but the gentleman or lady whose arm had accidentally toppled the bust over from its pedestal immediately melted in the throng, and was evidently far too modest to come forward and claim fame as an iconoclast. But as the gallery does not bear the loss, perhaps the culprit may yet send in as conscience-money the modest sum at which the broken bust was valued in the catalogue.

THE first portions of the famous wrought-iron gates which have been removed from Chiswick House were re-erected in front of

Devonshire House, in Piccadilly, last week. These gates, it may not be generally remembered, were originally the property of Lord Heathfield, and stood at the entrance of his house at Turnham Green. This property was broken up in the year 1837, and the then Duke of Devonshire secured the gates for Chiswick House. They took the place of a much older gate, which was re-erected in the fine old grounds at the bottom of Duke's Avenue, and which bears the following inscriptions:—"Builded by Inigo Jones, at Chelsea, M.D.C.XXI." and "Given by Sir Hans Sloane, Baronet, to the Earl of Burlington, M.D.C.C.XXXVII."

THE Vicar of Beverley writes:—"You were good enough to publish the report of a meeting held at the Guildhall, Beverley, on January 26th last, at which the project for filling with statues the many vacant niches in the west front and towers of Beverley Minster was floated, and an influential committee appointed to carry it out. The enterprise has been most warmly taken up, and nearly forty figures have been promised of kings, bishops, abbots, warriors, and saints, prominence being given to those who have been connected with Beverley and its ancient Minster. All classes in the town have shown interest in the work, which has been stimulated by observing the great ability of the sculptor, Mr. R. Smith, who has already completed six of the figures. The women of Beverley are contributing the statue of the Queen, the work being intended as the local memorial of the sixtieth year of Her Majesty's reign; and the pasture masters and freemen those of Archbishops Wickwane and Neville, the donors of the two principal public pastures, which after the great Churches form the most striking feature of the picturesque old borough. But there must be hundreds in this great county and elsewhere, one would think, who are proud of the beautiful Minster of the East Riding, and who would be willing to aid in making it yet more beautiful. Without their help this restoration cannot be carried out in its completeness. We are anxious at once to receive promises of fourteen figures which are needed to complete the row between the two lowest ranges of tower windows, costing £12 each. Then will follow the twenty-three figures in the west portal, and nineteen in the north porch. I should be very happy to forward on application a full outline of the scheme, with lists of subjects (eminent persons not later than 1400, the approximate date of the building of the west front, and fine steel engraving of which heads the circular)."

THE museum of historical relics which is being arranged in the private apartments at Windsor Castle by Mr. Leonard Collmann, the inspector of the Palace, is to be ready for the Commemoration. It will be inspected by the Queen on her return from Balmoral, and will be not the least interesting of the features that will mark the Jubilee, of which it will become a permanent memorial. While embracing the whole life-history of the Castle, the museum will naturally comprise, in the main, objects illustrative of the present reign. These include documents, seals, medals, weapons, relics having personal associations, and a large number of antiquities which, while not being objects of Art, and therefore unsuited for display in the decorative cabinets of the drawing-rooms and the corridor, are of genuine importance to the Archaeologist and the student of the personal history of the English Court.

IT is now quite certain that the London County Council will be the only opponent to the proposed deep-level railway from Earl's Court to the Mansion House which will be considered by Mr. Woodall's Select Committee of the House of Commons on the 14th inst. The petition upon which the Council will oppose the scheme takes the form of a general opposition to the clauses of the Bill, but not to the preamble. With reference to the clauses, the Council ask Parliament to prohibit the District Railway Company from using steam at any time on the proposed railway unless the



railway is designed in some other way than that now proposed. No adequate provision is, they state, made to minimise the annoyance which will be caused by the carting of soil and material through the streets, and they submit that provisions should be inserted prohibiting its removal except during certain prescribed hours when least obstruction will be caused. As owners of the gardens on the Thames Embankment, they object to the powers sought to construct a station under the existing Charing Cross Station, and to interfering with any part of the gardens for that purpose.

It is a long time since the Old Water Colour Society has been able to get together an exhibition of such all-round excellence as distinguishes the one which is now to be seen at the gallery in Pall Mall East. Despite the absence of such valuable contributors as Sir Edward Burne-Jones, Mr. Abbey, and Mr. Alma-Tadema, the effect of the show is most encouraging, and gives promise of the speedy arrival of that improved condition of affairs which is desired by the great majority of the members. One of the most interesting characteristics of the present show is its variety. Among the drawings of figure subjects Sir John Gilbert's "Standard Bearer" is wonderful as an instance of the vitality of a veteran in whom age has diminished nothing of his acuteness of vision and has left almost untouched his ability to put down without hesitation the facts that appeal to him as worthy of record. Mr. Macbeth's "The Gipsy's Sunday," a sturdy Romany maiden bathing in a stream, is a water colour version of a picture which he recently exhibited in the Academy; it is large in style and handled with much of his old freedom. Mr. J. R. Weguelin's graceful mermaids are, as usual, drawn with infinite charm of line; and Mr. Walter Crane's "Dawn" and "West Wind" are what he has accustomed us to expect. Professor Herkomer sends two small portraits only, of Mr. Watts and Mr. Basil Bradley; minute though they are, they show throughout the hand of a master.

For some time past the Board of Trustees for Manufactures has been engaged in maturing a scheme for the decoration of the National Portrait Gallery, Edinburgh. As formerly mentioned, several additional statues for the niches in the façade were commissioned, and those of Dunbar, David Hume, and James Watt are now in the hands of the sculptors. The Architect, Dr. Rowand Anderson, has been occupied in arranging for the ornamentation of the capitals of the pillars in the central hall, some of them after designs of selected pupils in the School of Applied Art, and these are now being proceeded with. The lighting of the hall having been found somewhat defective, a wall which separated three small rooms in front of the building from the ambulatory is in course of being taken down and open archways substituted. For the mural decoration of the central hall and ambulatory with this addition, the Board has decided upon a scheme illustrative of Scottish history, the commission for which has been entrusted to Mr. William Hole, R.S.A., the fee to be paid him for the work being 3000 guineas, on the understanding that the work shall, if possible, be completed under the superintendence of the Board in the course of three years from this time, Mr. Hole being entitled to employ such competent assistants as he may find necessary to ensure the work being carried on with efficiency and dispatch. Mr. Hole has executed a remarkable series of paintings of this class in St. James' Episcopal Church, Inverleith Row.

In his introduction to Mr. Cecil Brown's new work upon "The Horse in Art and Nature," Mr. Onslow Ford, R.A., testifies to the artistic value of the book, which he believes will prove of real service to Artists, whether in their work or in teaching. The study of the horse from life is, as Mr. Ford says, a perplexing subject, and it has been one which has been the earnest and diligent study of all Artists, from the unknown

sculptors who modelled the galloping steeds of the chariots of Rameses and Assur-bani-pal centuries before Christ down to Rosa Bonheur and Alphonse de Neuville of our own day. Mr. Cecil Brown's object is to supply the want of a simple and progressive method for the study of the horse from life, which, without being too technical, shall be accurate. As specimens of Mr. Cecil Brown's power of describing the horse in Art we will quote what he has to say about the famous horses of the Parthenon frieze:—"The Frieze of the Parthenon, from which we derive almost all our information concerning the horse of the Greeks, gives us a very high type, although most probably the animal itself did not approach the sculptures in perfection of form. If we look at this frieze from the same point of view as that from which we see the Greek idea of the human figure, we cannot help being impressed with the fact that the horses here represented are not exact reproductions of the actual animal, but an abstract idea of what the sculptor thought it ought to be in order to fit into his system of decoration. In these reliefs the action of the horses is always that of restraint, in direct opposition to the usual habit of the Egyptian and Assyrian sculptors. This no doubt was due to the advance in Decorative Art, or rather, perhaps, to the change from descriptive to decorative sculpture. One cannot help feeling that the sculptor took much more interest in the moving than in the standing horses, as the latter are comparatively uninteresting. The action, although in some cases exaggerated, is very expressive, the fretting against a heavy bit being shown by the open mouth and the jaw pressed back almost to the neck. The shape of the neck is rather remarkable, being evidently devoid of natural arch, as shown by the standing horses, which are distinctly ew-necked. The position of the legs in many cases suggests the action of what is technically termed 'changing legs,' which means that the horse which has been cantering with the off foreleg leading, changes step and leads with the near leg instead, or vice versa. Evidently the Greeks were up to the trick of 'provoking the caper which they seemed to chide.'"

A "FLOATING CHURCH" has just been inaugurated in the fen country. The parish of Holme, in the diocese of Ely, has, in consequence of the drainage of the fens, especially the famous Whittlesea Mere, so extended itself that about half the population are practically out of reach of their parish Church. To assist him in getting at these outside parishioners, the vicar is trying the experiment of using a kind of house-boat, which can be moved from point to point on the large fen dyke or canalised river surrounding three-fourths of the parish. The craft in question, fitted up as a Church, with a small American organ, portable pulpit, and lectern, has accommodation for a congregation of about forty, and in fine weather, all the windows to the leeward being thrown open, additional worshippers can participate in the service from the dyke bank.

PROFESSOR ARNOLD KROG, a distinguished Dane, and Art Director of the Royal Copenhagen Porcelain Works, has arrived in London for the purpose of studying our ceramic manufactures. Professor Krog is one of the finest flower and animal painters now living. He has invented a new ceramic decorator which is said to rival, and even to eclipse, the finest specimens of Japanese Art. The treatment is the same, but the colouring is more delicate. In a few days an exhibition of Herr Krog's artistic vases and plates will be held in the Danish Galleries, Regent Street. Before leaving Denmark Professor Krog had a lengthy interview with the Princess of Wales, who takes the deepest interest in the progress of Danish Art.

A CORRESPONDENT writes:—"It is generally understood that the Commissioners of Sewers are the sanitary authority of the City of London, and have similar powers to those of the metropolitan vestries as to drainage and

sanitary matters. The vestries—as I know from intimate knowledge—are, if anything, too vigilant in the detection of bad drains and water-closet accommodation; but the City authorities are obviously too lax, and seem determined by their supineness to frown upon and discourage the efforts of their humbler outsiders. As, however, an immense population—equal in number to the inhabitants of many outside districts—live in the City for eight or more hours every day, and the drainage of the offices where they work must be a matter of life and death to them, I should like to know what steps the Commissioners of Sewers are taking to see that sanitary conditions prevail. To the knowledge of all who occupy offices the drains are frequently shockingly bad, and the smells most unpleasant. If anyone falls ill therefrom, the fault is always visited on the dwelling-house in which they reside, and when the illness takes place the vestry official comes in, the drains are taken up, and the danger remains as before, because it is at the office the mischief lurks, and not at the home. The vestries have arranged for house-to-house inspection, but have the City authorities done the same; and if so how far has the inspection gone?"

At the mouth of the river Nervion, which flows into the Bay of Biscay between Portugalete and Las Arenas, a curious engineering structure has been erected, says the Manchester Guardian, within the last few years to transport passengers, cattle, and vehicles without interfering with the river traffic. It consists of a couple of towers 200ft. high, one on each bank; from these a bridge is suspended by chains at a height sufficient to clear the masts of vessels—that is, nearly 150ft. above the water level of the spring tides. This bridge carries a line of rails on which a trolley is pulled to and fro by an engine on the Las Arenas or northern side. With it goes a car, hung by steel cables, in which the passengers take their seats. This is not wound up to the top, but stays at the level of the quays. Thus the transit is effected quickly and regularly, without the delay inseparable from a swing bridge. A similar "pont transbordeur" is set up over the Seine near Rouen by a French company. In general appearance it will resemble the Spanish one, and if equally successful will probably lead to the application of the principle elsewhere. It seems odd that for such a simple and useful device engineers should have to go to Spain.

STAFFORD HOUSE, which is about the most magnificent private house in London, was formerly York House, having been built originally for the Duke of York (second son of George III.), by Benjamin Wyatt, the Architect, with money advanced by the Marquis of Stafford, afterwards Duke of Sutherland, who then lived in the Stafford House of that day, better known to us as Carrington House, which used to stand opposite the Horse Guards. The Duke of York being unable to afford to live in his new palace, sold the Crown lease to the Duke of Sutherland for £72,000. The original cost of the building and the purchase money went to the formation of Victoria Park. The upper story was added by Sir Charles Barry, the Architect of the present House of Commons, who also planned the internal arrangements of the house, which are very fine. The hall and staircase are perfect in proportion, and most harmonious in their beautiful purple and grey colouring, affording the best example in this country of Scagliola decoration. The great dining-room is monumental, and worthy of Versailles, and the picture gallery, 136ft. by 32ft., contains many famous and remarkable pictures from the hands of such masters as Raphael, Titian, Moroni, Murillo Velasquez, Delaroche, Van Dyck, and Watteau, although the original treasures have been much reduced by sales, notably that of the famous Cabinet Lenoir. In the green velvet drawing-room are two Marie Antoinette chairs, which were once in Le Petit Trianon, at Versailles.



## ROYAL INSTITUTE OF BRITISH ARCHITECTS.

### ANNUAL REPORT OF THE COUNCIL.

WE give the following extracts from the annual report of the Council of the R.I.B.A., as presented and adopted at the annual general meeting held *in camera* on Monday night, under the presidency of Professor G. Aitchison, A.R.A. The only other business of interest was the election of scrutineers to act at the forthcoming election of the Council and Standing Committees, and the appointment of the Statutory Board of Examiners for the ensuing year: During the official year 18 Fellows (of whom 11 were previously Associates), 40 Associates (of whom 18 were Students), and 8 Hon. Associates have been elected. The number of Fellows is now 602, as against 594, and the number of Associates 986, as against 968 at the corresponding period last year. The number of Hon. Associates remains the same, namely 55. Two Fellows have been transferred to the class of Retired Fellows in accordance with the terms of bye-law 13, viz., Messrs. C. H. Howell and S. S. Markham.

#### THE LOSSES BY DEATH

have been as follows:—Fellows: David Brandon, past vice-president, Wm. H. Clark and Henry Crisp (Bristol), F. J. Francis, J. G. Finch Noyes, Stephen Salter, J. W. Trounson (Penzance), Robt. Walker, and Wm. H. White, secretary. Associates: E. Howard Dawson (Lancaster), John Gethin (Cardiff), Frederick Morley (Dublin), Wm. A. Purdue, and C. W. Whittenbury (Manchester). Hon. Associates: Edward Armitage, R.A., Sir John Everett Millais, Bart., P.R.A., Lord Savile, G.C.B., and William Tipping, F.S.A. Hon. Fellow: Edward Falkener; and Hon. Corr. Member: Don. Mariano Belmas (Madrid). The Council deeply deplore the loss of their secretary, William H. White, who was appointed in the year 1878, and held the office until the time of his death, a period of eighteen years. During that period the membership of the Institute largely increased, the present system of examinations came into operation, and the responsibilities of the chief administrative officer were in other ways augmented. Mr. White devoted himself to his duties with the utmost zeal, bringing into play all the forces of a naturally energetic temperament in promoting the knowledge of Architecture and the welfare of the Institute whose interests he had so much at heart, and especially in maintaining cordial relations between it and kindred societies abroad. Mr. White's illness prevented his attending personally, except intermittently, at the Institute after the beginning of last year, although he maintained his interest in its affairs until the last, and his place will be very difficult to fill.

#### THE SECRETARIAL VACANCY

has been advertised, and out of fifty-seven candidates the Council have selected Mr. William J. Locke, B.A. Cantab, who will enter on his duties after Easter; and they have also appointed Mr. Herbert G. Tayler as assistant secretary. During the vacancy in the secretaryship an unusual amount of work has been thrown upon the hon. secretary, and the Council desire to record their indebtedness to him for so kindly carrying it out, and also for the willing assistance rendered by the whole of the staff. The Council also desire to express their acknowledgments to Mr. Alex. Graham, F.S.A., Vice-President, for his services as hon. editor since Mr. White's decease. The Institute has lost a warm friend and generous benefactor in the late David Brandon. The Preliminary Examinations of June and November 1896 were held in London, Manchester, and Bristol, with the result that 165 gentlemen have been registered as probationers. At the same time Intermediate Examinations were held in London and Manchester, with the result that sixty-eight probationers have been registered as students. There are now 872 probationers and 798 students on the respective registers. The final and special examination qualifying for candidature as Associate was

held in London and Manchester in June, and in London only in November last, when, of the seventy-six candidates examined, 35 passed. The Ashpittel Prize was awarded to Mr. T. Denton Brooks (A.) he having most highly distinguished himself among the thirty-five gentlemen who qualified during the year for candidature as Associate. The prize offered by Mr. Cates for the best set of testimonies of study submitted by students for admission to the final examination was awarded to Mr. C. S. F. Palmer (A.), who qualified for candidature as Associate in November, 1896. The Council desire to record their indebtedness to the Allied Societies at Manchester and Bristol, under whose charge examinations have been conducted during the official year; as well as their obligation for the gratuitous services rendered by the London Board of Examiners.

#### THE ROYAL GOLD MEDAL

for the promotion of Architecture was presented to Mr. Ernest George, vice-president, in June last. For the current year Mynheer P. J. H. Cuypers (Hon. Corr. M.), of Amsterdam, has been selected for the honour for his executed works as an Architect, and Her Majesty the Queen has graciously signified approval. Early in the official year the President received a communication from the Right Hon. Joseph Chamberlain, Secretary of State for the Colonial Department, asking him to submit the names of three or four Architects to furnish designs for new public buildings to be erected at Kingston, Jamaica. A notice was inserted in the Journal calling attention to the matter, and inviting applications from members of the Institute and others. A selection was made from those sent in, and forwarded to the Colonial Office, and an intimation was in due course received that Mr. W. H. Harrison [F.] had been selected to carry out the work. The Special Committee appointed in December, 1895, to consider the question of the

#### NOMINATION AND ELECTION OF FELLOWS

have, after numerous meetings and consultation with the Allied Societies, reported to the Council, who have adopted the suggestions made, and these will be submitted to the general body at a special general meeting on the 31st May. A communication was received in June last from the Board of Regents, the governing body of the University of California, stating that it had been decided to prepare a programme for "a general competition for a permanent, comprehensive, and grand plan of the grounds and buildings of the University of California at Berkeley," and asking for suggestions with respect to the preparation of such programme. The matter was referred to the Competitions Committee, who have drawn up some suggestions which it is hoped will contribute to the successful issue of the competition. The present Jubilee year is also the Jubilee of the Architectural Association, and the Council are glad to have the opportunity of expressing their appreciation of the efforts of that body in the cause of architectural education.

#### REPORT OF THE ART STANDING COMMITTEE.

Trinity Almshouses.—Your Committee are glad to report that the threatened demolition of these interesting buildings by the Trinity House Corporation has been averted, the Charity Commissioners having refused their sanction to the scheme. The Committee, having strongly opposed the demolition, consider the result most satisfactory.—St. Mary Woolnoth. This building has also escaped its threatened destruction. Although the House of Commons inserted in the City and South London Railway Bill certain clauses for the purpose of protecting the Church, these clauses were struck out by the House of Lords. The House of Commons, however, reinserted them, and they were finally agreed to. In this matter also the action of your Committee greatly assisted to avert the destruction of the Church.—New County Hall for London. Your Committee, having taken much interest in the proposed site for the intended new County Hall, were invited to an informal con-

ference with some of the principal members of the County Council, and certain of the head officials. The chairman, Mr. W. Young, and the honorary secretary, were delegated for this purpose, and the meeting was held on Friday, December 4th, 1896. The views of the committee were laid before the Conference, and the committee were thanked for the trouble they had taken in the matter.—Preservation of Old Buildings. At the invitation of the London County Council your Committee consented to prepare a list of buildings in London which may be said to possess historic and architectural interest. With this view they obtained your consent to invite the

#### CO-OPERATION OF OTHER SOCIETIES

interested in the matter. Afterwards, however, the London County Council themselves called a meeting for the consideration of the subject, to which your Committee were invited to send three representatives. After considerable discussion it was decided that it is desirable to prepare a register of the old buildings, and that a general committee should be formed of the various societies represented at the Conference, the matter being left in the hands of the London County Council.—Carfax Tower, Oxford. The Committee have had some correspondence with the municipality of Oxford respecting this tower, and after carefully inspecting photographs of the Church, together with measured drawings prepared by Mr. Hare, and hearing the opinions of those members of the Committee who had inspected the building, decided to report that there is nothing in the tower of architectural interest, and that some scheme for remodelling it is desirable.

#### REPORT OF THE PRACTICE STANDING COMMITTEE.

The question of the payment of Architects' fees by fire offices in connection with the reinstatement of buildings after fires has been further considered by the committee. After correspondence and negotiations with the principal insurance companies through their association, a report thereon was submitted to the Council. Letters were referred to the committee by the Council respecting Architects participating in the commission of Quantity Surveyors, also respecting charges and duties of Architects and other matters, and reports have been made thereon to the Council. The proposed new bye-laws of the London County Council regarding drains were considered, and a report thereon, suggesting amendments, was made to the Council. The amended paper on the subject of the professional charges of Architects prepared by a sub-committee has received much attention, and is still under consideration.

#### REPORT OF THE SCIENCE STANDING COMMITTEE.

The experiments in brickwork testing have been continued. A further series of experiments is in hand at the present time. These have reference more particularly to brickwork in walls as distinguished from those previously held in regard to brickwork in piers, and the committee have again to acknowledge their obligations to Sir William Arrol and to the London and India Docks Joint Committee for the valuable assistance rendered by them in regard to these experiments. The committee hope in due course to issue in pamphlet form the results of the whole series of experiments.

The report of the Literature Standing Committee contained nothing of moment.

THE tenders for the great extension of Ostend harbour and docks, which was provisionally estimated to cost nine millions of francs (£360,000), have been opened at the offices of the Provincial Government at Bruges. One half of the cost is to be paid by the town of Ostend, and the remainder by the Belgian Government. There were three tenders only—that of a firm at Roulers, West Flanders, 9,435,800f.; a Bruges firm, 9,470,000f.; and a Paris firm, 12,340,930f. The tenders will be submitted to the Government at Brussels for final decision.



## Professional Items.

**ABERDEEN.**—The following is taken from the report of Mr. Munce on the designs for the new fire brigade establishment:—In compliance with your request, I beg to report as follows: Every one of the designs showed considerable study by its author. After examination and consideration, four of them showed marked superiority in arrangement. Design No. 2 is placed first, its arrangement being better than any of the others, although it would require some modification, still the variations would be less than in any of the other plans. The elevation would be very much improved by a small expenditure. The estimated cost of the design (£10,400) is lower than that of any of the others, so that there is room for improvement without exceeding the cost of the next in order of merit. No. 12 has a pleasing elevation, but the plan of the fire department has been injured through placing the weights and measures department in front, and thus practically putting the firemaster's dwelling on the second floor. This could be amended by placing the weights and measures department at the rear. No. 14 has the same defect as No. 12, but would be more difficult to amend—there are too many staircases. No. 18 has the engine-room, stables, &c., well arranged on the ground floor, but the upper floors would be found difficult of access, and the whole arrangement would prove dangerous and inconvenient, with a want of privacy. The yard could not be confined to the fire department, and therefore would be practically useless for drill, and would increase the difficulty of supervision. Although the elevation of No. 2 is not so imposing as some of the other plans, it is placed first on account of its arrangement, and No. 12 second. If the committee decide to carry out any of the designs, it would be well to combine the best points of the two plans.

The plans of the new theatre to be erected in Rosemount Viaduct are now in an advanced stage of preparation. The old houses on the site are to be demolished immediately after Whit Sunday, and building operations begun. It is claimed that the building will be one of the safest and most completely-equipped theatres in Scotland.

**AMBERGATE.**—The new Church at Ambergate has just been internally improved. The altar steps and communicants' dais, formerly composed of wood, have now been taken up and replaced by marble. That of the communicants' rail is of black Derbyshire marble from the Ashford quarries, and the other is red Belgian marble, while the altar now stands of white Italian marble, from the famous Carara quarries, Italy. The idea carried out in the new work is from the passage in Dante's "Purgatorio," and is symbolical of Christian progression. The work has been carried out by Mr. Berresford, of Belper.

**ASHOPTON.**—A new Wesleyan chapel and school at Ashopton, in the Bradwell circuit, were opened on the 22nd ult. A better position for the chapel than the old site could not be found, situated as it is by the side of the Sheffield Road in the centre of the village. Mr. J. G. Ronksley, of Sheffield, gave land upon which to erect a new chapel adjoining the old building, which remains in use as a Sunday school. The work has been carried out by Messrs. Alfred and Hedley Hill, of Tideswell and Litton, and the Architect is Mr. Herbert W. Lockwood, of Sheffield. The estimated cost was £760.

**BELFAST.**—One of the few remaining landmarks of old Belfast a century ago is now in process of demolition to clear the ground for a palatial block of buildings about to be erected for the Directors of the Scottish Provident Institution. The site forms a portion of the large plot of land extending from Wellington Place to Wellington Street, and from Donegall Square West up to and including the premises on which the buildings of the Young Men's Christian Association stand. The new insurance

building for the Scottish Provident will occupy a space of about 100ft. square, leaving the remainder for future development. They will be in the Palladian style of Italian Architecture, executed in white stone, with a lofty columnar order, resting on a rusticated stylobate, and crowned with richly-moulded cornice and balustrade above 80ft. in height. An octagonal dome placed at the angle will rise 120ft. Below it will be placed the separate imposing entrance to the insurance office, another porch, with electric lift and stone staircase, accommodating the various suites of offices on the upper floors. The plans of the entire block have been prepared by the Architects, Messrs. Young and Mackenzie.

**BLACKPOOL.**—An inspector of the Local Government Board has attended at Blackpool to inquire into an application for sanction to borrow money for the extension of the gas works and other municipal purposes. It is sought to spend about £10,000 on new mains, meters, and lamps. Application for other moneys was made in respect of a proposed underground convenience at the westerly end of Station Road, South Shore, and for works of street improvement in different parts of the town.

**BRECHIN.**—The plans of the proposed Joint Infectious Diseases Hospital and the site have been finally approved of. The scheme for a joint hospital was agreed upon some considerable time ago; but difficulties cropped up which threw the arrangements back. Altogether there will be four blocks of buildings—two ward blocks, an administrative block, and a mortuary block. Each ward is provided with a bathroom. In each block is a nurse's room, with small projecting window overlooking the wards. A small scullery is also provided in each block. The administrative building consists of matron's room, living room or kitchen, with scullery, pantry, coalhouse, servants' bedroom, and dispensary, on ground floor; and two large bedrooms and bathroom on first floor. The mortuary block contains mortuary, ambulance shed, washing-house, disinfecting chamber, store for patients' clothes, coalhouse, and other offices. The heating and ventilation have received special consideration. Each grate admits a supply of fresh air heated as it passes into the ward. There will be a fresh air inlet at the floor level under each bed, and this will be used in hot weather, while another inlet six feet above the floor, fitted with a patent fresh air warmer, will admit the air during colder weather. Patent extract ventilators will be fitted up in the ceiling, and mica flap-ventilators in each flue. The buildings are designed so that they will easily admit of future extension. The walls are to be of red pressed brickwork, and the roofs covered with green slates. The inside walls are to be finished with highly polished cement. The floors are to be of narrow pitch pine, closely screwed up and dressed off very smooth. A layer of dry shivers covered with asphalt will be laid under all floors, and the spaces under floors will be thoroughly ventilated. The Architect for the work is Mr. T. Martin Cappon, of Dundee and Brechin.

**BRIGHOUSE.**—The newly-erected St. Andrew's Mission Church in Thornhill Road, Brighouse, was dedicated recently. The building has been erected from designs by Mr. E. C. Brooke, Architect, Brighouse, at a cost of about £1000.

**BRIXTON, S.W.**—A music hall is to be built by a syndicate, which has acquired a freehold site opposite the Turkish baths in Carlton Grove, and plans have been prepared by Messrs. Wilson and Long. The erection will be commenced in the course of this month, and the hall when completed will be capable of seating nearly 3000 people. Its cost will be between £17,000 and £18,000.

**DERBY.**—The Bishop of Derby, who presided at the annual vestry meeting, said that Mr. William Smith was about to present some carved oak choir stalls for the chancel, and also an oak screen, in memory of his late

parents. It had been estimated by Sir Arthur Blomfield that it would cost about £3000 to repair and complete the Church tower, and it was hoped that next year action would be taken with the view of securing funds for this work. The designs for the chancel screen were being drawn, and would be laid before a future vestry meeting.

**DUNDEE.**—A very important architectural improvement at the West Port will be begun on an early date in the erection of a new block of buildings for the branch office of the British Linen Company Bank. The site is at present occupied by the Bank and other buildings, and covers a large area of ground. The buildings have frontages to West Port and Brown Street, and consist of two blocks. It is the intention of the bank authorities to demolish the block fronting West Port, and erect a new and commodious building, which should form an outstanding feature in the Architecture of that thoroughfare. The plans for the new office are almost completed. The purchase of the site, it may be mentioned, was made from the directors of Dundee Royal Infirmary.

**GLASGOW.**—The students attending Mr. D. Bennet Dobson's High School classes paid their monthly visit to works of note to the Glasgow Art Galleries, in course of erection in Kelvingrove Park. It is now 3½ years since the works were started, the basement and first floors being now pretty well advanced. The total cost of the buildings will amount to about £174,000. The external stone used is from Locharbrigg's red quarry, Dumfries, and in the two stories erected gives a bold effect. Most of the interior is to be lined with white stone, which is from Giffnock quarry, near Glasgow. The main entrance, which is from Kelvingrove Park, is beginning to show to great advantage. The Grand Hall occupies a prominent part in the building, being well over 125ft. high. On the ground floor it is proposed to place museum exhibits, and in the galleries above, the pictures. Two very fine central towers will flank the main park entrance, and will be over 150ft. high. Messrs. Peter McKissock and Son, whose contract for the mason work is £116,905, have five moulding machines at work, in addition to sawing ones, producing work even superior to the hand-work. The resident Clerk of Works conducted the students, who appreciated the visit, and at the close accorded the customary vote of thanks to Messrs. Simpson and Milner Allen, the Architects, of London.

The most recent addition to the schools erected by the Glasgow School Board—Rosemount Public School, Milburn Street, Garngad Hill—has just been opened by Sir John Neilson Cuthbertson. The school is erected on a site at the highest point of Garngad Hill. The school and class rooms, sixteen in number, and varying in size from accommodation for 173 to 62 scholars, are grouped round the central hall on two floors, and provide places for fully 1203 children, of which 608 are for infants at eight square feet each, the remainder being at ten square feet. The plenum system has been adopted for the heating and ventilation. The building is very simply treated externally, but the necessity for ample lighting has been adequately recognised, the windows forming the principal feature of the elevations. The walls are of red sandstone, from Ballochmyle quarries, finished in squared rubble with polished dressings. The playgrounds, which are very extensive, are laid with tar-macadam paving. The total cost, exclusive of site, is expected to come within £13,000. Mr. J. B. Wilson, Glasgow, was the Architect.

**GRESHAM.**—The School Board authorities have approved of plans and accepted an inclusive tender of £2800 for the erection of new premises. The site selected is near the Church, and, although in the vicinity, is on higher ground than the present schools. The new buildings, when complete, will give accommodation for 178 children. Towards the entire cost of the work the Board has had sanction to borrow £3035.



**HANDSWORTH.**—The opening of the new school in connection with the Handsworth Congregational Church, and reopening of the chapel, took place on the 28th ult. The new school includes a room capable of seating 300 to 350 adults and an infants' schoolroom, while the existing school has been divided into ten commodious classrooms, outbuildings, &c. Heating of all the school premises is by hot-water apparatus. The church has also been redecorated, and the lighting of the buildings has been rearranged. Total cost, including site of the new school, is about £1,600.

**HEXHAM.**—Plans for the new grammar school at Hexham have been laid before the Technical Education Committee of the Northumberland County Council by Messrs. Oliver and Leeson, Architects, Newcastle. A site of about four and a quarter acres, immediately to the south of Hexham, has been secured. The plans provide accommodation for 150 boys, thirty being boarders. The main entrance doorway to the school is in the centre of the principal front, and, passing through this, access is obtained to a handsome hall and staircase leading to the dormitories on the first floor. At the left of the entrance is the school hall, a lofty room lighted from both sides, whilst beyond are class-rooms of various sizes. To the south of the class-rooms, in a separate wing, is the physical laboratory. On the first floor, over the class-rooms, are the chemical laboratory, preparation room, and lecture theatre, with a special science classroom. There will be separate cloak-rooms and lavatories for the day boys and boarders, and a common room for assistant masters. On the right of the main entrance is the boarders' common room and dining-hall, and beyond that the head master's house. Separated from the main building is a covered playshed for the boys and a large room for manual instruction. The buildings are proposed to be carried out in stone, an admirable quarry being situated a very short distance from the site; and the roofs are to be covered with green slates.

**HORRINGTON.**—New and spacious Board School premises were opened a few days ago. The buildings are of native stone with Douling stone dressings and are of a substantial character, with ample playgrounds and offices. The contract amounted to a little over £1100.

**HULL.**—The new Sunday School built in connection with Queen's Road Wesleyan Chapel has now been opened. The school marks the completion of a scheme formulated twenty years ago. Accommodation is provided in the central hall for about 700 scholars. Attached there are an infants' schoolroom, and twelve class-rooms, a church parlour, minister's vestry, and the usual kitchen and offices. The cost of the building is about £3500, the greater part of which has already been subscribed.

**KIDSGROVE.**—The foundation-stones of the new Victoria Hall and public offices about to be erected by the Urban District Council were laid a few days ago. The site of the new buildings is the gift to the Urban District Council of Messrs. Robert, James, and A. H. Heath, and occupies an elevated position on the east side of Liverpool Road. It is proposed to erect buildings for the accommodation of the council, and a hall for public meetings, &c., a fire station, and a town yard. Messrs. Wood and Hutchings, of Tunstall, are the Architects; and the tender of Mr. Charles Cope, of Tunstall, for £2046, has been accepted. It is probable that a tower and clock will be added, to commemorate the Diamond Jubilee of the Queen, but this is not included in the present scheme.

**LEEDS.**—The Watch Committee of the Leeds Corporation has resolved to accept the tender of Messrs. Appleby Brothers, of Bramley, for the erection of a new police station at Upper Wortley, the cost being £2760. The committee has considered the question of providing a new police station for East Leeds, but, however, has decided not to erect a station

there. The question of a new police station for Woodhouse was adjourned till the next meeting of the committee.

**NEWCASTLE.**—The Newcastle Finance Committee has agreed to accept the offer of the Water Company to give up immediate possession of the offices in the Police Court buildings, which will enable the Corporation to carry out the contemplated structural alterations, which include the making of a second court of the large room lately occupied by the directors of the Company, the removal of the existing offices, and the formation of solicitors' rooms, waiting rooms for witnesses, and also a room for the holding of Watch Committee meetings. It is also proposed to make certain alterations in connection with the present magistrates' room. There will be two entrances to the premises, one from Pilgrim Street, and the other from Worswick Street.

**OXENHOPE.**—The foundation stones of the new Wesleyan Sunday School at Oxenhope were laid on the 24th ult. The school will occupy a site to the west of the present chapel, and will take the place of premises which are too small. The new buildings will consist of an assembly room, a gallery, an organ recess, library, lecture room, infants' schoolroom, and other rooms. The site has cost £600. The outlay on the buildings is expected to be £4200.

**QUEENSTOWN.**—The Queenstown Custom House, as it is called, is about to be taken down and a new building erected on the site of the old one. The old building has been in use for a long period for a Government structure, and for an important seaport town such as Queenstown is, it is strange that such an inconvenient building was made to do duty for such a long period. It is nothing better than a boat-house, with a few dingy rooms overhead totally unsuited to the requirements of the place.

**RASTRICK.**—The corner-stone of new premises for the Rastrick and Fixby Conservative Association was laid on the 24th ult. The new premises are being erected in Church Street, Rastrick, from plans prepared by Mr. A. E. Halliwell, Architect, Brighouse. On the ground floor they comprise two lock-up shops and caretaker's house. On the first floor are news, smoke, billiard, and secretary's rooms.

**SHEFFIELD.**—The whole of the faience used in the decoration of the Prudential Assurance Company's new building at the corner of Pinestone Street, adjoining St. Paul's Churchyard, a description of which we gave in our issue of April 14th, was supplied by the Leeds Fireclay Company, and was their well-known Burmantoft's ware.

**STRADBROKE.**—For upwards of a century no repairs were done to the bells of Stradbroke Church; consequently their condition became such that action was imperative. Two years since Mrs. Morgan-Kirby commenced active work to secure the required fund, and succeeding in obtaining nearly £100, the cost of the work. It has now been executed by Messrs. H. Bowell and Son, bell founders, Ipswich, they having rehung the bells in an English oak frame, with new fittings.

**SWANSEA.**—A new chapel has been erected in Henrietta Street, from designs of Mr. W. Williams, by Mr. H. Billings, contractor. The building will seat 500 persons, and has cost about £2500.

**SWINDON.**—A new theatre is to be erected at New Swindon from designs prepared by Messrs. E. Milverton Drake and J. M. Pizey, Architects, Bank Chambers, Baldwin Street. The theatre will accommodate about 1600 persons. Three sides of the theatre abut on public streets, which admits of a most complete arrangement of exits and entrances. It is to be well provided with dressing-room and bar accommodation, and heated with hot water. The height of the auditorium from

the pit stalls to the sun burner is 40ft. The proscenium opening, boxes, and internal decoration generally will be Italian Renaissance very artistically treated. Ample means of ventilation are provided. Externally the building will be of brick and freestone, and is of a very imposing character. It is to be called the Queen's Theatre, and will be opened about the beginning of October. The plans have been duly passed by the District Council and the Wiltshire County Council.

**WANSTEAD.**—A new building, known as Grove Hall, has just been opened. The building has cost upwards of £2500, and it will seat over 500 people. The Architect was Mr. E. N. Whitaker, and the builder Mr. J. Jolliffe.

**WAVERLEY.**—Another important stage in the work of reconstructing and enlarging the Waverley Station and its approaches has been reached by the completion of the new double line of rails between Waverley and Abbeyhill, and of the new up main line platform. Its construction involved the removal of, among other buildings, a large grain store, and Dryborough and Bernard's breweries, and the setting back of the North Back of Canongate to the foot of the Calton rock. It also involved the cutting of a new tunnel through the Calton Hill, and the carrying of the double line of rails to Abbeyhill Junction. Extensive operations were thus necessitated over a large area, but the work has been pushed forward by the North British Railway Company's engineers and contractors. While access to the station by the Waverley steps will be preserved, the principal approach will still be from Waverley Bridge, but there will be two inclined accesses in place of one as at present, and the gradients will be slightly improved, as the new booking office will be further east than the present one. Opposite the foot of the inclined accesses there will be a large block of new offices. The west portion of this block will contain a large booking hall, about 75ft. square, in the centre of which will be the booking office, while the principal waiting-rooms will be grouped around it. Four wide passages will lead direct from the booking hall to the platforms, one leading to the main up platform, another to the main down platform, and two to four docks at the east end of the station. For the four docks at the west end there will be separate booking-office accommodation near the foot of the inclined accesses. The suburban double platform will be covered by a verandah roof, will have separate offices and waiting-rooms, and will be connected with the main station by bridges both for passengers and luggage. The construction of the roof of the new station has been limited to a height of 42ft. above the rails, which is a very low elevation for a roof covering such a large area. It has, therefore, been designed so as to look as light as possible, and will be carried on light steel lattice girders resting on ornamental cast-iron columns. Substantial progress is being made with the work of reconstruction. The booking hall is rapidly approaching completion. The walls have been finished and the roof is in a forward state. The hall is a commodious one, and will be a striking feature of the new station. Work has also been begun in connection with the building of the hotel.

**WORKSOP.**—The scheme for the enlargement of the schools connected with St. John's parish at Worksop is now complete. The enlargement has taken place at the Eastgate and Dock Road Schools, and the cost is over £1000. The result is increased accommodation for about 500 scholars.

The ancient Baptist Chapel at Nantwich, with its old-fashioned burial ground, in which the body of Milton's wife was laid to rest, has been sold by public auction for £130.

A statue erected in Hyde Park, Sydney, to the memory of the Right Hon. William Bede Dalley, one of the principal statesmen of the colony, and the first Australian statesman to be made a Privy Councillor, was unveiled by the Governor recently.



## Trade and Craft.

### ELECTRIC LIGHTING AT BELFAST.

The Electric Lighting Committee's report, which has been adopted by the Belfast Corporation, approves of plans, specifications, and estimates prepared by their Engineer for the proposed new installation, and recommends the Council to authorise an application being made to the Local Government Board for their sanction to the Council's raising a sum not exceeding £65,000 for the first section of the undertaking. The committee purposes laying down a small portion of the plant as soon as the makers can supply it, and in the meantime pushing on with the erection of the station buildings and the laying of the wires.

### THE ANAGLYPTA COMPANY.

The illustration we give represents an excellent design received from the Anaglypta Co., and intended as a commemoration shield for the Queen's Diamond Jubilee. It is made in Anaglypta in very high relief, and is suit-



able for either outdoor or indoor decoration. The Company has also issued a sheet of drawings giving suggestions as to how the shield can be arranged with flags to make a trophy to the best advantage.

### MESSRS. STRODE AND COMPANY.

We have received from Messrs. Strode and Company, of 67, St. Paul's Churchyard and 188, Piccadilly, copies of special electric Diamond Jubilee illumination designs prepared by them. There is an originality about some of the designs only equalled by their appropriateness. We would specially mention a patent device representing an Imperial crown. The arrangement of this design is very effective. Only a few incandescent lamps are required, the light being reflected on to a background of glittering gold, with the jewels, represented by coloured lamps, showing up in strong relief, and the effect thus obtained is very pleasing. The same arrangement is also applied to mottoes and other devices. For outlining buildings with electric lamps, Messrs. Strode have a method by means of which damage to the structure is avoided, and any number of lamps can be fixed up in a very short space of time. Devices and mottoes can also be traced out with electric lamps and various colours embodied, adding greatly to the effect. Another speciality for outlining buildings will be white or coloured moons, a rather ingenious device which converts a small incandescent lamp into a handsome globe. The same idea is also adopted with balloons. They are very suitable for festoons, and are particularly effective when used in illuminating gardens or trees. Special arrangements are being made to meet the great demand for electric current.

### DISCOVERY IN STEEL MANUFACTURE.

The art of producing steel is reckoned among those which are lost. The old swords hailing from Japan or India will simply cut clean through our modern steel without their edge

being spoiled in the least. Some progress has recently been made towards the recovery of this Art by a brother of Mr. Hiram S. Maxim, who resides in the United States, and has sent small quantities of steel over here to be tested. Mr. Maxim's brother has drawn his information from old Hindoo sources, and at his first experiment succeeded in making a drill which would cut its way with perfect ease through a file made of the finest metal we can produce nowadays. Of the process of manufacture nothing is as yet publicly known, and it has not yet been placed on the market. Mr. Maxim is said to regard it as merely the prelude to more important discoveries still in the same direction.

### THE TRAMWAYS AT BIRMINGHAM.

There is an interesting sequel to the report of the Special Tramways Committee sent out by the Birmingham Corporation to investigate the various methods of electric traction. The inevitable quarrel as to the terms of the lease is sure to follow, and at the present moment Birmingham is excited because the Tramway Company refuses to carry out the wishes of the Special Committee. The Company contends that it is only bound to lay a portion of the tramway on the conduit system—not more than ten miles out of the twenty-four or twenty-five miles of existing tramways. The Corporation, on the other hand, denies any definite agreement as to a limit. It is admitted by the Corporation that any conduit line laid in excess of eight miles must be bought up at a valuation on terms agreed upon, when the lease terminates. Hence the deadlock.

### MESSRS. WEBB AND CO.

Messrs. Webb and Co. have concluded arrangements with the Della Robbia Pottery Co., whose beautiful ware attracted so much attention at the recent Building Trades Exhibition, and have a fine collection of this pottery on view at 292, Euston Road. We would strongly advise all those interested in this class of mural decoration to visit Messrs. Webb's show-rooms. The collection comprises figure and ornamental panels in high and low relief, for friezes, spandrels, lunettes, jambs, pilasters, all of the most beautiful designs, many by well-known Artists; and we understand some panels are in preparation from pictures by Rossetti and Burne-Jones.

The Rugby Urban District Council has just completed the purchase from Mr. B. H. C. Fox, for £8000, of eighty acres of land, on the north side of the town, chiefly for sewage disposal purposes.

Mr. J. Wolfe Barry, C.B., has been elected President, and Mr. W. H. Preece, C.B., Sir Douglas Fox, Mr. James Mansergh, and Sir William Anderson, K.C.B., Vice-Presidents of the Institution of Civil Engineers.

A PUBLIC hall and library is shortly to be erected at Briton Ferry. Several houses have now been purchased, and the site selected is Lowther Street. In addition to a library and reading-room there will be three rooms for the Urban District Council, and bank premises, Masonic hall, and shops.

The officers of the Cambridge Volunteers are appealing for funds for building a new armoury. What is desired is a building which shall contain an armoury, offices for the Commanding Officer and Adjutant, office for the Sergt.-Major, and a band-room. Colonel Fawcett estimates the cost of the required alterations at £800.

RIGHT in the centre of the manœuvring ground of the German Garde du Corps, between Spandau and Potsdam, lies an old village called Döberitz, the Church of which is said to be almost 1000 years old. The military authorities having acquired the whole of the ground—about four square miles in extent—by legal expropriation, the inhabitants of the village were forced to quit. An order has been issued by the General Staff to the effect that large barracks are to be erected on the site of the village, which is to be demolished, and with it the Church.

## Correspondence.

### R.I.B.A. ELECTIONS.

To the Editor of THE BUILDERS' JOURNAL.

Sir,—A doubt has been expressed as to the accuracy of the statement that a large proportion of the members do not vote at the annual elections for the Council. The following are the actual figures from the Institute Journal, in reference to the last election. There were only 468 envelopes sent in containing the voting papers, and twenty-nine of these were spoiled by informalities, no candidate obtained more than 391 votes, although the total number of members with voting powers was then 1581, therefore no less than 1113 neglected or refused to send in their votes. It is to be hoped that there will be more voters this year, and that they will consider six new members of the Council, with twelve old ones, to be a fair proportion. The best way to secure this result would obviously be to "plump" for new candidates only, for it is absolutely certain that twelve, at least, of the existing Council will be returned.

Yours faithfully,

A METROPOLITAN FELLOW.

London, April 29th, 1897.

To the Editor of THE BUILDERS' JOURNAL.

Dear Sir,—The fact that 60 existing members (out of 64) have nominated themselves for the standing committees should be widely known. The best thing to be done under the circumstances will be to "plump" for new candidates, as in any case a large proportion of existing members must necessarily be returned. As seventeen of the existing council are renominated for eighteen seats it is desirable that all members vote, and for new men only; the existing seventeen members will, no doubt, be well looked after by their own friends, and, as they have nominated themselves, will probably also vote for each other, but a few of them should make place for new blood.

LONDON ASSOCIATE.

April 28th, 1897.

THE "special defence works" of India, which have been in progress for twelve years and have cost more than £3,000,000, but nearly £200,000 less than was originally estimated, are now practically completed.

The inauguration of the new waterworks at Worthing, which, together with other local improvements, have been constructed by the Corporation at a total cost of over £100,000, took place on the 26th ult.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two.

Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St.,  
Strand, W.C.



## SOCIETY MEETINGS.

**The Architectural Association.**—Mr. Beresford Pite presided at an ordinary meeting of the Architectural Association, held on Friday evening, at which votes of thanks were accorded Messrs. Legg and Son for granting the Association permission to visit the Royal Palace Hotel extension, and to Mr. Banister F. Fletcher for permission to visit 27, High Street, Kensington. It was announced that the following had been reinstated members of the Association: Messrs. E. Dru Drury, S. R. J. Smith, A. H. R. Tenison, Keith D. Young, and H. Gray Robins. In announcing that the annual dinner of the Association will be held to-night (May 5th), the President said the event was especially attractive as it celebrated the Jubilee of the Association. The Committee had invited all the past Presidents of the Association, and their guests would include such a distinguished orator as the Lord Chief Justice of England, and such an authority as the Bishop of London. To-morrow (Thursday), at three o'clock, a conference will be held at 9, Conduit Street, to discuss the work of the Association in its several aspects. Tea will be provided before the soirée, which takes place in the evening at St. George's Hall, Langham Place, and at which a musical play, written by Mr. E. Howley Sim, will be produced.

**Edinburgh Architectural Association.** At an ordinary meeting of the Edinburgh Architectural Association, Dr. R. Rowand Anderson, President, in the chair, a large number of drawings of old Scottish work by students of the Applied Art School were exhibited, and explanatory historical and architectural notes on them were read by Mr. J. Forbes Smith and Mr. Ramsey Traquair, students. Among the subjects of the drawings were Holyrood Abbey, Craigmillar Castle, Argyll's Lodging at Stirling, and Cowane's Hospital. The Chairman, in proposing a vote of thanks to Messrs. Ramsay Traquair and Smith for their communications on the interesting buildings they had been studying, said that the Association, in devoting one of its evenings to an Exhibition of the work of the students of the Applied Art School, was desirous to make it known, especially to those who were to follow Applied Art, that the Association was doing its best for them, because it made annually a subscription from its limited means to forward the cause of education, and did not limit its subscription to benefiting those only who were to follow Architecture, but gave its support to a school which, in carrying out its system of education, made no distinction between the Architect and all other Art workers—that was to say, that the scholarships and other rewards at the disposal of the school could be obtained and held by the Decorator, the Sculptor, and any other Art-worker equally with the Architect. The Association also desired to emphasise the great importance of the study of ancient work, in all its departments, as a true foundation for the future work of the Artist.

The members recently visited Bavelaw Castle, near Balerno. Mr. Frank W. Simon, Architect, who conducted the party, described the castle, and Mr. Glover, factor for the property, supplemented Mr. Simon's description. A vote of thanks was given to Mr. Gulland and Mr. Robertson, who had given permission of inspection, and to Mr. Simon for his descriptive notes.

**Devon and Exeter Architectural Society.**—The annual meeting of the Plymouth, Devonport, and Stonehouse branch of the Devon and Exeter Architectural Society was recently held at the Plymouth School of Art. Mr. Charles King presided. The report was considered very satisfactory; meetings and excursions have been held at regular intervals during the year. The ballot for the election of officers resulted as follows: Chairman, Mr. C. King, re-elected; committee, Messrs. H. G. Luff, M. A. Bazeley, B. P. Shires, J. H. Dwyer (re-elected), and A. G. Bewes; hon. secretary and treasurer, Mr. Edgar M. Leest, re-elected.

**Glasgow Archaeological Society.**—At a recent meeting of the Archaeological Society of Glasgow Mr. David Murray, LL.D., presided, and Mr. John Orr, Newhall Terrace, exhibited the upper stone of a quern found near Glasgow Green, and a number of perforated sink stones. The chairman read a description of the stones and of the positions in which they were found. The quern stone was got in 1894 by Mr. Orr in the construction of a sewer, and the sink stones were found in the gravel bed of the Clyde near Rutherglen Bridge. The latter were probably used by salmon fishers to weigh down their nets.—Mr. P. Macgregor Chalmers, Architect, read a paper on the vaulting of the lower Church of Glasgow Cathedral, in which, criticising the theory recently promulgated by Mr. T. L. Watson, Architect, he said that a careful examination of the building showed that there was no evidence that there had been any intention to carry out any design other than that existing in the centre aisle. The evidence of the building left no room for doubt that, whilst some parts of the work betrayed want of skill, the present design was as originally projected.

**The Engineers' Association.**—The members of the Incorporated Association of Borough and Municipal Engineers held their annual meeting at Dover on Saturday, the 24th ult. The president, Mr. F. May, of Brighton, was supported by a very large number of engineers from London and other important centres. Two papers were read by Mr. Stilgoe, Dover, borough engineer, on the municipalisation of scavenging and the tramways just adopted at Dover, the latter being an electric overhead system. The meeting was in complete agreement as to the value of municipal control in such matters. Mr. Walmisby, engineer to the Dover Harbour Board, also read a paper on sea defence works.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BARNSTAPLE.**—For the construction of a concrete impounding sewer, Cross-street, for the Town Council. Mr. H. Masteron, engineer, Boutport-street, Barnstaple:—  
James Nuttall ... £1,100 W. C. Shaddock, 5, Hills-boro', Plymouth\* ... £747  
J. Parmenter ... 840  
H. Burgess ... 840 \*Accepted.

**BELPER.**—For the erection of shops, Derby-road, for the Park Foundry Company. Mr. Maurice Hunter, Engineer. Quantities by the Engineer:—  
General contractors' work, including the glazing of roofs, by Messrs. Mellows and Co., Sheffield.

H. Weldon, Birmingham ... £2,915 10 9  
Ford and Co., Derby ... 9,145 0 0  
Walker & Slater, Derby ... 9,050 0 0  
Jos. Walker and Son, Warkworth ... 8,990 0 0  
J. F. Price, Nottingham ... 8,678 0 0  
Groom and Co., Derby ... 8,570 0 0  
Bakewell ... 8,570 0 0

Iron Roofs, Columns, and Girders.

W. Jones & Co., London £4,666  
Finches Morton & Co., Liverpool ... 4,314  
Handyside & Co., Derby ... 4,129

\* Accepted. † Withdrawn.  
**BRANDON (Suffolk).**—For alterations, &c., to school buildings, High-street, for the School Board. Messrs. E. Boardman and Son, Architects, Queen-street, Norwich:—  
Parsons and Sons ... £1,995 12  
R. Mayes ... 1,799 0  
T. H. Yelf ... 1,624 0  
W. T. Newton & Sons ... 1,588 14  
C. Fryer ... £1,560 0  
Collins and Barber ... 1,550 0  
J. G. Cowell, Soham, Cambridgeshire\* ... 1,483 0

\* Accepted.  
**BROMLEY.**—For erection of the "Royal Bell" Hotel, Bromley, Kent. Mr. A. Saunders, Architect:—  
F. and F. J. Wood ... £21,088  
Maid and Morpew ... 20,485  
Wallis and Son ... 20,400  
W. Shurmer ... 19,490  
F. and H. Higgs ... 19,480

For the erection of new bottling stores at the Eagle Brewery, for Messrs. W. W. Nell, Limited, Messrs. Veall and Sant, Architects. Quantities by the Architects:—  
W. Thomas and Co. ... £2,475  
Williams and Thomas ... 2,068  
J. Blight ... 2,089  
Henry Gibbon ... 2,050  
S. Shepton and Son ... 2,035  
John Gibbon ... 2,023  
Melhuish Bros. ... 1,998  
Jones and Maddren ... 1,996

\* Accepted.  
**DORCHESTER.**—Accepted for building a house in the Cornwall-road, Dorchester. Mr. A. L. T. Tilley, Architect, 16, Cornhill, Dorchester:—  
Rendell and Co., Dorchester ... £1,060

**FARNBOROUGH.**—Accepted for additions and sundry alterations to Duns Cottage, for Col. F. Dorling. Mr. W. E. Trevena, Architect, Farnborough. Quantities by the Architect:—  
A. C. Total.  
J. B. Seward, Wokingham ... £264 ... £187 ... £1,051

**FARNBOROUGH.**—Accepted for a pair of houses, Peabody-road. Mr. W. E. Trevena, Architect, Farnborough:—  
E. C. Hughes, Wokingham.

**FARNBOROUGH.**—Accepted for a pair of houses, Rectory-road. Mr. W. E. Trevena, Architect, Farnborough:—  
G. Finch, Frimley.

**GOSPORT (Hants).**—For alterations, &c., at the work-house, Park-road, for the Alverstoke Board of Guardians. Mr. H. A. F. Smith, Architect, Star-chambers, High-street, Gosport. Quantities by the Architect:—  
Clarke and Sons ... £4,238  
T. P. Hall ... 4,197  
T. W. Quick ... 4,136  
J. Crockerell ... 4,052

**HALE END (Essex).**—For mission hall at Hale End, Chingford. Mr. F. Boreham, Architect:—  
Foster ... £1,210  
W. Shurmer ... 1,188

**ILFORD.**—For rebuilding the "Angel" Hotel, Ilford. Mr. H. W. Wakley, Architect:—  
Pain and Fotheringham ... £9,927  
R. Mitchell ... 9,620  
Hearle and Farrow ... 9,572  
Edwards and Medway ... 9,075  
B. E. Nightingale ... 8,770

**IPSWICH.**—For additions to Tower House, for the School Board. Mr. J. Sydney Parmenter, Ipswich:—  
Parkington and Son ... £2,599  
Grimwood and Sons ... 2,569  
T. Hipwell ... 2,527  
E. West ... 2,460

\* Accepted.  
**KING'S LYNN.**—For the ironwork for a grain warehouse, "Bentinck" Dock:—  
About 230 tons cast iron at per ton. ... £12 6  
About 300 tons wrought iron at per ton. ... £11 5 0

Lockerie and Wilkinson ... £7 12 6  
The Horseley Co., Ltd. ... 6 15 0  
John Abbot and Co., Ltd. ... 6 15 0  
Newton, Chambers & Co., Ltd. ... 7 0 0  
Thornton and Crebbin ... 6 16 5  
Cochrane and Co. ... 7 0 0  
Cochrane, Grove, and Co., Ltd. ... 6 7 6  
The Butterley Co., Ltd.\* ... 6 0 0

\* Accepted.  
**LEYTON.**—For rebuilding the "King William IV." public-house, High-street, Leyton. Messrs. Shoebridge and Rising, Architects:—  
E. Toms ... £5,850  
J. Anley ... 5,780  
Edwards and Medway ... 5,677  
Parker ... 5,587  
Scharien and Co. ... 5,587

**LEYTONSTONE.**—For new premises for the London and Provincial Banking Company. Mr. A. R. Barker, Architect:—  
Roberts ... £6,394  
Wood ... 6,257  
W. Shurmer ... 6,236  
Chessum and Son ... 5,997  
Mattocks ... 5,991

Patman & Fothering-ham ... £25,500  
Gardner ... 5,930  
J. Bentley ... 5,895  
Gough ... 5,834  
Carmichael ... 5,319

**LONDON.**—For pulling down and re-erecting "The Prince George" public-house, Hillingdon-street, Watworth, for Messrs. Barclay, Perkins, and Co., Limited. Mr. George Hubbard, Architect, 23, Finsbury-circus, E.C.:—  
Balaam Bros. ... £4,215  
H. Wall and Co. ... 4,198  
J. C. Richards ... 4,186

**LONDON.**—For the erection of a warehouse in Iron-monger-lane, E.C., for Mr. L. Salomons. Mr. George Waymouth, Architect, 23, Moorgate-street, E.C. Quantities by Mr. A. Paul, 6, Quality-court, W.C.:—  
Colls and Sons ... £2,985  
Grover and Sons ... 2,848  
Richardson Bros. ... 2,741

**LONDON.**—For new premises at Plaistow Wharf, Tidal Basin, for Messrs. Lyle and Sons. Mr. J. Slater, Architect:—  
Holloway Bros. ... £13,300  
W. Shurmer ... 12,771

**LONDON.**—For new warehouse, Green Dragon-court, Blackfriars, for Messrs. Corby. Mr. W. H. Plunnett, Architect:—  
Spencer and Co. ... £2,150  
W. Shurmer ... 2,142

**LONDON.**—For the erection of works at Gainsborough-road, Victoria Park, for Messrs. G. Ellis and Company. Mr. W. H. Duffield, Architect. Quantities supplied:—  
Beale ... £2,290  
Sabey and Son ... 2,028  
Patman and Fotheringham ... 1,911

**LONDON.**—For the erection of warehouse, Hope Wharf, Rotherhithe, S.E., for Mr. A. F. Gardiner. Mr. A. R. Stenning, Architect. Quantities supplied:—  
Whitehead and Co. ... £1,475  
Onthwaite and Co. ... 1,317

\* Accepted.  
**LONDON.**—For erecting a new police-station at Poplar for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, Architect. Quantities by Mr. W. H. Thurgood:—  
Higgs and Hill ... £10,810  
Kilby and Gayford ... 10,600  
W. Shurmer ... 10,593  
Gregar and Son ... 10,590  
Lawrance and Son ... 10,540  
Perry and Company ... 10,500

**LONDON.**—For proposed work to Canning Town Congregational Church. Mr. F. Troup, Architect:—  
Maddison ... £1,440  
North ... 1,140

**LONDON.**—For warehouse at Broadwalk, S.E. Mr. Ed. Power, Architect. Quantities by Mr. W. Barnett:—  
Allen and Son ... £10,072  
Britton ... 9,997  
H. and F. Higgs ... 9,778  
Edwards ... 9,736

**LONDON.**—For alterations, &c., to the "White Hart" Hotel, New Cross-road. Messrs. Eedle and Meyers, Architects:—  
J. Anley ... £3,850  
J. Rider and Son ... 3,830  
W. Shurmer ... 3,796

**LONDON.**—For warehouse, &c., at 89, Worship-street, E.C., for Messrs. L. Rose and Co. Mr. G. Hornblower, Architect:—  
Holloway Bros. ... £11,800  
Lidstone and Co. ... 10,565  
Goff and Co. ... 10,490  
Marsden ... 9,816  
Faulkner ... 9,900

**LONDON.**—For new warehouse at Shoreditch, for Messrs. Clark, Hunt, and Co. Mr. W. Gilbey Scott, Architect:—  
Godfrey and Son ... £5,572  
W. Shurmer ... 5,475  
T. Boyce ... 5,380  
Ashby Bros. ... 5,197  
F. and F. J. Wood ... 5,187  
Woodward and Co. ... 5,000

C. Cox ... £4,990  
G. E. Todd ... 4,779  
Harris and Wardrop ... 4,748  
Creston and Co. ... 4,695  
J. Carmichael ... 4,580  
J. Chessum and Son ... 4,490

McCormick ... £29,888  
J. Grover and Son ... 9,870  
Holland and Hannen ... 9,790  
W. Shurmer ... 9,699  
Kilby and Gayford ... 9,486



UNEQUALLED FOR ALL DECORATIVE PURPOSES.

# Aspinall's

## ENAMEL.

**DURABLE AND EFFECTIVE.**

**READY FOR USE.**

This Enamel, which has taken the Highest Award wherever exhibited, imparts a rich glossy appearance to all surfaces to which it is applied, and dries with a hard, impervious surface as washable as Porcelain. It is admirably adapted for use in Hospitals, Public Institutions, Mansions, Private Houses, &c., where Sanitary conditions are of the first importance. One gallon will cover about seventy square yards on a non-porous surface, and is equal to about three gallons of mixed paint.

**ASPINALL'S ENAMEL** can be made to any tint, is absolutely non-poisonous, and is unequalled for ALL Decorative Purposes.

Builders and Decorators should apply for full particulars of our special "DECORATORS' ENAMEL."

**ASPINALL'S ENAMEL LTD., NEW CROSS, LONDON, S.E.**

WORKS:  
**DARWEN.**

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF

# Anaglypta

THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
92  
Great Russell St.,  
W.C.

## ECONOMY IN BUILDING.



**B. WARD & CO.,**

15, Gt. George St., London, S.W.  
And at CARDIFF, etc.

**PATENT STABLE PAVING.  
PAVING.**

**FIREPROOF STAIRCASES.  
ARTIFICIAL STONWORKS.**

**FIREPROOF FLOORS.**

**WOOD BLOCK AND MOSAIC PAVING.**

For Stables, Stable Yards, Cowhouses, &c. Impervious, Jointless, Grooved and Channelled on Surface. Broken brick bed only required.

Granite Concrete Paving suitable for Warehouses, Yards, Footpaths, School Playgrounds, Breweries, Dairies, &c., &c.

Formed *in situ*, or cast and fixed like stone. Moulded or plain. Special finish to treads. Will not turn slippery.

Free from shakes, equal in colour and appearance to Portland, Mansfield, other stone. Weathers perfectly.

Catalogues, Estimates, and further particulars for the consideration of Architects and others.



**LONDON.**—For foundations of new premises, for the Argus Printing Company, Tudor-street, E.C. Mr. C. Val Hunter, Architect:—  
 Jerrard and Son ... £1,169  
 Lascelles and Son ... 1,144  
 W. Downs ... 1,073  
 W. Shurmer ... 1,044  
**LONDON.**—For new hall, dispensary, &c., at Bromley-by-Bow. Mr. R. H. Hill, Architect:—  
 J. Grover and Son ... £2,992  
 W. Shurmer ... 2,880  
 Holloway Bros. ... 2,750  
**LONDON.**—For premises at Nassau-street, W. Mr. J. Slater, Architect:—  
 D. Prosser ... £6,212  
 W. Shurmer ... 6,083  
 Patman and Fother-ingham ... 5,851  
**LONDON.**—For additions to their Hornsey-road works, for Messrs. Shackell, Edwards, and Co., Limited. Mr. W. A. Aickman, Architect, 34, Gresham-street, E.C. Quantities by Messrs. Raven and Crickmay, 18, Adam-street, W.C.:—  
 Holloway Bros. ... £4,268  
 E. Lawrence and Sons ... 4,080  
 Jas. Smith and Sons ... 3,985  
 J. Grover and Son ... 3,680  
**LONDON.**—Accepted for reconstructing gateway, and building fireproof floor at van works, New-road, E.:—  
 George Barker, Mile End ... £100  
**LONDON.**—Accepted for the erection of villa residences at Clapham Common, for Mr. Thomas Ingram:—  
 George Barker, Mile End ... £14,080  
**LONDON.**—For alterations and additions to the general offices of the Lambeth Water Company, Brixton Hill. Mr. John A. Gill Knight, Architect, 21, Godliman-street, E.C. Quantities by Mr. E. J. Sadgrove, 22, Surrey-street, Strand, W.C.:—  
 D. Gibb and Co. ... £5,330  
 Holloway Bros. ... 5,170  
 Johnson and Co., Ltd. ... 4,683  
 Maxwell Bros. Ltd. ... 4,651  
**LONDON.**—For the erection of a new store-room, for the Lambeth Waterworks at Brixton. Mr. John A. Gill Knight, Architect. No quantities supplied:—  
 T. E. Mitchell ... £920  
**LONDON.**—For rebuilding Nos. 22 and 23, Warwick-lane, and 10 and 11, Paternoster-square, E.C. Mr. Walter Stair, Architect, 9, Queen Victoria-street:—  
 Allen and Sons ... £9,225  
 Evans ... 6,998  
 Spencer and Co. ... 5,927  
**LONDON.**—For alterations to Nos. 10 and 11, Bunhill-row, City. Mr. Walter Stair, Architect, 9, Queen Victoria-street:—  
 Richardson Bros. ... £795  
 Lascelles and Co. ... 617  
**LONDON.**—For alterations, &c., at "The Cat and Mutton" public-house, London Fields, N., for Mr. H. S. Rooke. Mr. Henry Roberts, Architect, 113, Lewisham-road, S.E.:—  
 Ellis ... £280  
 Taylor ... 789  
**LONDON.**—For the erection of a gate lodge, Dullerton, for Major-General Bond. Mr. W. E. Pinkerton, Architect, 8, Diamond, Derry:—  
 John Golliger and Co. ... £745  
 Robert Colhoun ... 656  
**MITCHAM (Surrey).**—For the erection of laundry, &c., at schools, for the Holborn Union Guardians. Mr. C. Evans-Vaughan, Architect, 25, Lowther-arcade, Strand, London:—  
 Wm. Reason ... £6,137  
 H. Walland Co., Carlton-road, N.W. (accepted) 6,087

**MITCHAM.**—For the erection of the nave, aisles, baptistry, and north porch of the new Church of St. Mark, Mitcham, Surrey. Messrs. R. M. Chart and Son, Architects, Union Bank-chambers, Croydon. Quantities by Messrs. Franklin and Andrews, 25, Ludgate-hill, E.C.:—

J. Burges	£5,200	Extra for glazed dado.
J. Longley and Co.	5,195	£110 0
S. Page	4,955	64 0
E. J. Burnand	4,915	60 0
J. Dorey and Co.	4,875	55 0
J. Smith and Son	4,700	68 0
D. Waller	4,600	75 0
D. Stewart and Sons	4,508	57 10
P. Peters and Son	4,087	63 15

**MITCHAM.**—For the erection of a fireproof warehouse at Western-road, Mitcham, for Mr. C. H. Blume. Messrs. R. M. Chart and Son, Architects, Union Bank-chambers, Croydon:—

D. H. Bacon	£2,240	E. J. Burnand, Walling-Price and Price	2,200	ton *	£1,508
J. Burges	1,650				

**PENGE.**—For repairs to the "Railway Bell" public-house, for Nalder and Collyer's Brewery Company, Limited. Messrs. R. M. Chart and Son, Architects, Union Bank-chambers, Croydon:—

D. Waller	£198 10	W. Smith and Sons	£127 15
A. Bullock	138 10	Hanscomb and Smith	125 0
E. Goulder	129 10		

**POKESDOWN (Hants).**—For alterations and enlargement of the Rosebery Park Baptist Chapel, for the Committee. Mr. C. M. Bennett, Architect:—

Jenkins and Sons	£993 0	S. Whittaker	£833 0
Kitcher Bros.	875 0	T. B. Freak	787 0
McWilliam and Son	850 0	H. B. Mudge	742 10

**REIGATE.**—For the erection of seven pairs of cottages and stabling, Blackboro'-road, Reigate, for the Reigate Industrial and Provident Society, Limited. Messrs. Baker and Penfold, Architects, Reigate:—

Seven Pairs of Cottages.	Stabling.
R. Killick	£7,995
General Builders, Limited	7,961
J. J. Carrick	6,651
Buckland and Waters	6,195
E. Worrell	6,170
T. Bushby	5,936
R. Lee and Son	5,557
Bagaley and Sons	5,300
C. Nightingale and Sons	5,240

**SOUTH SHIELDS.**—For private street paving works, &c.:—

Barnes-road, South Frederick-street, &c.	
M. D. Young	£1,366 3 5
G. E. Simpson	Thornton and Co. £1,254 6 0
Newcastle-on-Tyne	1,236 19 9

**Oxford-avenue and Marlborough-street.**  
 M. D. Young ... £232 15 0  
 G. E. Simpson ... 457 7 6  
 Thornton and Co. ... £389 13 0

**Isabella-street and Alfred-street.**  
 M. D. Young ... £217 15 0  
 Thornton and Co. ... 197 1 0  
 G. E. Simpson, Newcastle-on-Tyne ... £196 10 6

## THOMAS ADAMS & SONS LTD.

Dry Oak, Mahogany & Teak, Red & Pine Deals, &c.

Large Stock of Floorings and Match Boardings.

BLOCK FLOORING A SPECIALITY.

TIMBER YARDS AND SAW MILLS—

CRESCENT WHARF, CAMBRIDGE STREET, BIRMINGHAM.

Depôt for Bricks, Slates, and Building Material,

BREWERY WHARF, CAMBRIDGE STREET.

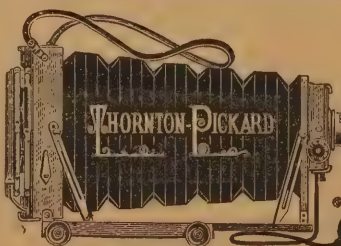
FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.

DO . . .  
YOU . . .  
WANT . . .  
TO BUY . . .  
RIGHT ?

Telephone No. 77 (Hop)



173 & 175, KENNINGTON CROSS,  
LONDON, S.E.



THE THORNTON-PICKARD  
SIMPLEST AND BEST.

CAMERAS AND  
SHUTTERS.

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.



## J. J. ETRIDGE, JR.

SLATE MERCHANT,

SLATER AND TILER.

ESTIMATES GIVEN FOR

## SLATING AND TILING,

To be Executed by Contract in any part of ENGLAND.

Penrhyn-Bangor,

Oakeley-Portmadoc

And other descriptions of Slates ready for immediate delivery to any Railway Station.

Applications for Prices, &c., to

BETHNAL GREEN SLATE WORKS,  
Bethnal Green, London, E.

THE  
BATH STONE FIRMS LTD.  
BATH,

FOR ALL THE  
PROVED KINDS OF BATH STONE.  
FLUATE,

for Hardening, Waterproofing, and Preserving Building Materials.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,  
48, HAMMERSMITH ROAD, W.



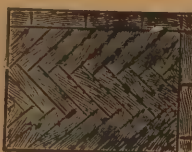
# THE SMOKELESS FIRE CO. LTD.,

Sole Proprietors of Marsh's Patents

FOR THE

## COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.



### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM JOINERY WORKS,

Clapham Junction, S.W.

M. D. Young	£188 0 0	Hunter-street, May-street, &c.
Thornton and Co.	174 9 0	G. E. Simpson, Newcastle-on-Tyne
M. D. Young	£249 6 0	George Potts-street, Warrington-street, &c.
G. E. Simpson	228 7 8	Thornton and Co., South Shields
M. D. Young	£428 12 0	Maraden-street, Moffett-street, &c.
Thornton and Co.	398 14 0	G. E. Simpson, Newcastle-on-Tyne
G. E. Simpson	£20 19 6	George Potts-street, Thornton and Co., South Shields
M. D. Young	17 13 0	Thornton and Co., South Shields
R. Summerbell and Son	£69 0 0	Erection and Completion of Urinal, Type Dock, Thornton and Co., South Shields
W. Wilson	£23 0 0	Sewer at East Jarrow, Thornton and Co., South Shields
J. Hornsby	30 16 8	Thornton and Co., South Shields

**SOUTH SHIELDS.**—For the extension to boundary walls, Harton Cemetery, for the South Shields Burial Board. Mr. Henry Grieves, Architect, South Shields:—  
G. T. Manners ... £1,498 0 0  
Robt. Brown ... 1,818 19 6  
G. Thornton ... 1,290 8 0  
\* Accepted.

**SPITTAL.**—For the erection of a block of fifteen houses, Promenade, for Messrs. Baston. Mr. J. L. Miller, Architect, 39, Hyde Hill, Berwick-on-Tweed:—  
Masonry:—  
M. Gray and Sons ... £3,470  
H. Elliott and Son, Berwick\* ... 3,060  
D. Storar and Son ... 2,970  
Joinery:—  
Henderson Bros. ... £1,650 0  
W. Brigham ... 1,498 10  
J. Dalgetty ... 1,422 0

**TONBRIDGE.**—For road works, for the Tonbridge Urban District Council. Mr. Wm. Lawrence Bradley, Engineer:—  
Barden-road:—  
Chittenden and Simmons ... £337 2 11  
R. Langridge ... 340 0 0  
\* Accepted.

**Plumbing.**—  
G. McAdam ... £325 9 0  
J. Piercy ... 295 15 0  
Teesdale ... 290 12 6  
J. W. John and Son ... 287 0 0  
D. A. Lamb and Son ... 270 0 0  
G. Smith ... 263 10 0  
\* Accepted.

**Northcote-road.**—  
Chittenden and Simmons ... £153 9 8  
R. Langridge ... 160 0 0  
\* Accepted.

**TUNBRIDGE WELLS.**—For alterations and additions to "The Homestead," for Mr. E. H. Stevenson. Mr. H. C. Lander, Architect, 22, Surrey-street, Strand, W.C.:—  
Soper and Jones ... £713 0 0  
W. E. Judd ... 699 17 8  
\* Accepted.

**TUNBRIDGE WELLS.**—For alterations and additions to "The Homestead," for Mr. E. H. Stevenson. Mr. H. C. Lander, Architect, 22, Surrey-street, Strand, W.C.:—  
Soper and Jones ... £713 0 0  
W. E. Judd ... 699 17 8  
\* Accepted.

## CONTRACTS OPEN.

### COUNTY BOROUGH of WEST HAM PRIVATE STREET WORKS. TO CONTRACTORS.

The Council hereby invite TENDERS for MAKING-UP and PAVING the following streets:—  
Balmoral-road, Forest Gate.  
St. George's-square, Forest Gate.  
Plaistow Park-road, Plaistow.  
Russell-street, Plaistow.  
William-street, Stratford.  
Robertson-road, Stratford.

Plans may be seen, specification, form of Tender, and further particulars obtained at the Office of Mr. LEWIS ANGELL, Borough Engineer, Town Hall, Stratford, E., on payment of One Pound, which will be returned on receipt of a bona-fide Tender.

Tenders, endorsed "Tender for Private Street Works," to be sent to my Office not later than FOUR o'clock on TUESDAY, MAY 11th, 1897.

The Council do not bind themselves to accept the lowest or any Tender. The contractor will be required to enter into a bond, with two sureties, for the due performance of the contract, and no work will be ordered under the contract until such bond has been duly executed.

The contractor whose Tender is accepted, and with whom a contract is entered into, will be required to pay to the who'e of his workmen such rate of wages, and observe such hours of labour, as are recognised by the workmen's trades unions, and in force at the time of signing the contract. In the event of any breach of such agreement, the Council will enforce the penalty clause in its entirety.

By order of the Council,  
FRED. E. HILLEARY,  
Town Hall, West Ham, E.,  
April 28th, 1897.

**BOROUGH of ROTHERHAM.**  
The Baths Committee of the above Corporation are prepared to receive TENDERS for the WORK

# M'NEILL'S FELTS M'NEILL'S SLAG WOOL

(Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)

(Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. M'NEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

## THE UNITED ASBESTOS PATENT

# "Salamander"

**Gold Medal  
Awarded.**

NOVEL APPLICATION OF ITALIAN ASBESTOS IN EMBOSSED WALL AND CEILING DECORATIONS IN HIGH AND LOW RELIEF.

## Decorations

Designs by Leading Artists, capable of infinite variety of Decorative Treatment.

PRICES RANGING FROM 8d. PER YARD TO 7s. 6d. PER PANEL.

"It cuts smoothly and hangs easily."—*Journal of Decorative Art.*

"One cannot well over-estimate the importance of a fireproof covering to walls and ceilings. Many a fire has been materially assisted in its progress by wall-paper, and a substance capable of being adapted to such uses, and of an ultra fireproof nature, had long been sought."—*The Architect.*

Fireproof.

Plaster Effects at much below cost of Plaster.

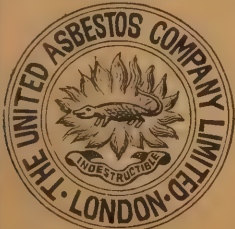
Easily Hung.

Very Light in Weight.

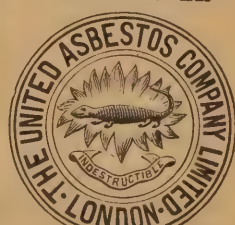
"SALAMANDER"



"SALAMANDER"



TRADE MARK.



TRADE MARK.

No. 1032. FRIEZE. Size, 11in. by 30in.

IMPORTANT.—Our Patent "Salamander" Decorations are being extensively used in H.M. Navy as a Protection from Fire. PATTERNS MAY BE SEEN AT ALL THE LEADING DECORATORS.

For Illustrated Price List fill up and send this slip to—

## The UNITED Asbestos Company, Ltd.,

SOLE MANUFACTURERS AND PATENTEES (WHOLESALE ONLY).

158 & 190, Charing Cross Road, LONDON, W.C.

HEAD OFFICES: DOCK HOUSE, BILLITER STREET, E.C.

(BUILDERS' JOURNAL.)

Name

Address

Profession or Trade

Date

189



required in the ERECTION of a SWIMMING BATH in Market-street, which will comprise the following:—

- (1) Brick and Stone work required on the top of each pier.
- (2) Brick work forming the bed and side walls, and Glazed Bricks, Flags, and Concrete flooring round the Bath.
- (3) Brick and Stone work required for the super-structure.
- (4) Joiner's Work for Windows, Doors, and Dressing Boxes.
- (5) An Iron Roof to be erected, Glazed and Slated complete, also Glazing Windows.

Parties may Tender for the whole of the work, or separately for different classes of work, or may Tender in both forms.

The work is to be carried out in accordance with the drawings and specification prepared by Mr. W. ECKERSLEY, and to his entire satisfaction.

Plans and specification may be seen, and form of Tender obtained, upon application at the Town Clerk's Office, Howard-street, Rotherham.

The Contractors must not pay less than the standard rate of wages paid in the district, and must observe the proper conditions of labour, and no sub-contracting will be allowed except by permission of the Corporation.

Tenders to be sent in to me not later than the 14th May next, endorsed "Tender for Bath."

By order,

H. H. HICKMOTT,

Town Clerk.

Council Hall, Rotherham,  
April 23, 1897.

### LEYS MALLEABLE CASTING CO. LIMITED.

Are prepared to receive TENDERS for the following WORKS to be done at the Vulcan Iron Works, Derby.

CONTRACT NO. 1.—For the Supply and Erection of Wrought Iron Roof to Extension of Annealing House, containing about 9 tons of Steel in girders, 35 tons of Wrought Iron in roof, and 10 tons of Cast Iron in columns, gutters, &c.

CONTRACT NO. 2.—For the Supply only of about 7½ tons of Cast Iron in Columns, and 6½ tons of Steel in Rolled Girders.

CONTRACT NO. 3.—For the Builder's Work required in the Alteration and Extension of Grindery.

CONTRACT NO. 4.—For the Building Work required in the Extension of Annealing House.

The specifications and drawings may be seen, and quantities obtained, on application to Mr. E. R. RIDGWAY, Architect, Long Eaton, near Nottingham, on payment of One Guinea for Contracts Nos. 1 and 2, and One Guinea for Contracts Nos. 3 and 4, which sums will be returned on receipt of bona-fide Tender.

The Advertisers do not bind themselves to accept the lowest or any Tender.

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

Price 3s. 6d.

**GLOSSARY OF TECHNICAL TERMS** used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.  
London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**R.I.B.A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

**MASON'S PATENT** Used on the New TOWER BRIDGE.

**UNWEARABLE, NON-SLIPPING STAIR TREADS.**

Non-Slipping Sideway Entrance Covers, Hydrant, Manhole, Inspection, and other Covers, Coal Plates, &c.

Contractors to H.M. War Office and the Admiralty.

**THE SAFETY TREAD SYNDICATE, LTD.,** 15, Barbican, London, E.C.

### APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

### THE LONDON (TELEPHONE { Holborn, } No. 1011.) DRAWING & TRACING OFFICE,

98, Gray's Inn Road, Holborn, W.C.

MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR. (Adjoining Holborn Town Hall.)  
Cheques Crossed The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS, PERSPECTIVES, SURVEYS, COMPETITION DRAWINGS,**

Black Line PHOTO-COPIES and Blueprints.

Quantities, Specifications LITHOGRAPHED.

**MODELS, DIAGRAMS, &c.**

Estimates by return of post on receipt of full particulars to the MANAGER.

### CORPORATION of LEICESTER.

WANTED, a thoroughly competent CLERK of WORKS (Stonemason by trade) for the supervision of a stone and concrete River Bridge. Salary £3 10s. per week.

Applications, accompanied by three recent testimonials, stating age and experience in similar and other work, to be delivered to the undersigned not later than THURSDAY, MAY 6th.

E. GEORGE MAWBEY, C.E.

Borough Engineer and Surveyor.

Town Hall,  
April 26, 1897.

### CORPORATION of WARRINGTON.

The Paving and Sewage Committee are prepared to receive applications for the APPOINTMENT of a FOREMAN for macadam roads.

He must be thoroughly acquainted with the construction and the preparation for repairs, and have had considerable experience with the management of workmen.

Applications to be sent in, with testimonials, to my Office not later than TWELVE o'clock noon, on MONDAY, MAY 12th, stating experience and salary required, and endorsed "Applications for Road Foreman."

The length of roads is about 18 miles.

THOMAS LONGDIN,

Borough Surveyor.

Borough Surveyor's Office, Warrington,  
April 27, 1897.

Jubilee Panel in Red and Buff Terra Cotta, commemorative of the 60th Year of Her Majesty's Reign.

### SEMI-ENCAUSTIC PAVING TILES.

(Specially suitable for Entrance Halls, Conservatories, &c.)

### BROWN & DRAB GLAZED BRICKS.

White and Coloured  
Enamelled  
Bricks.

**STANLEY BROS. (LTD.) NUNEATON.**

Glazed Sinks.

RED CRESTING and  
FINIALS.

Red and Buff

Chimney-Pots, Roofing and Ridge Tiles,  
Glazed Pipes, Blue Bricks, Quarries, Copings, &c

ILLUSTRATED LIST ON APPLICATION.

**GODWIN'S TILES**

For PAVEMENTS  
WALLS HEARTHES &c

AS USED BY THE  
Leading Architects & Builders

13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.

Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON,** Lutwarrins Works, WITHERINGTON,  
Patronised by Royalty. | Established 1848. | Near HEREFORD.

20,000 yards  
FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!

### ILLUMINATION BUCKETS IN ALL COLOURS.

Commemorating the 60th year of Her Majesty's Reign.

SEND YOUR ORDERS EARLY

To

**J. YOUNG & CO.,** Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.

Telephone No 4712 (Hop).

Telegrams:—"YOUNGS, KENNINGTON CROSS."

### WIRE DEVICES,

With Patent Wire Clips, to hold Bucket Lamps, in Crowns, Monograms, Letters, Feathers, and Window Blinds.

WRITE FOR DRAWINGS AND PRICES.





# Surveying and Sanitary SUPPLEMENT.

MAY 5TH, 1897.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.\*

(Continued from page xlvii.)

BY ALEXANDER DREW.

NO. IV. OF SERIES.

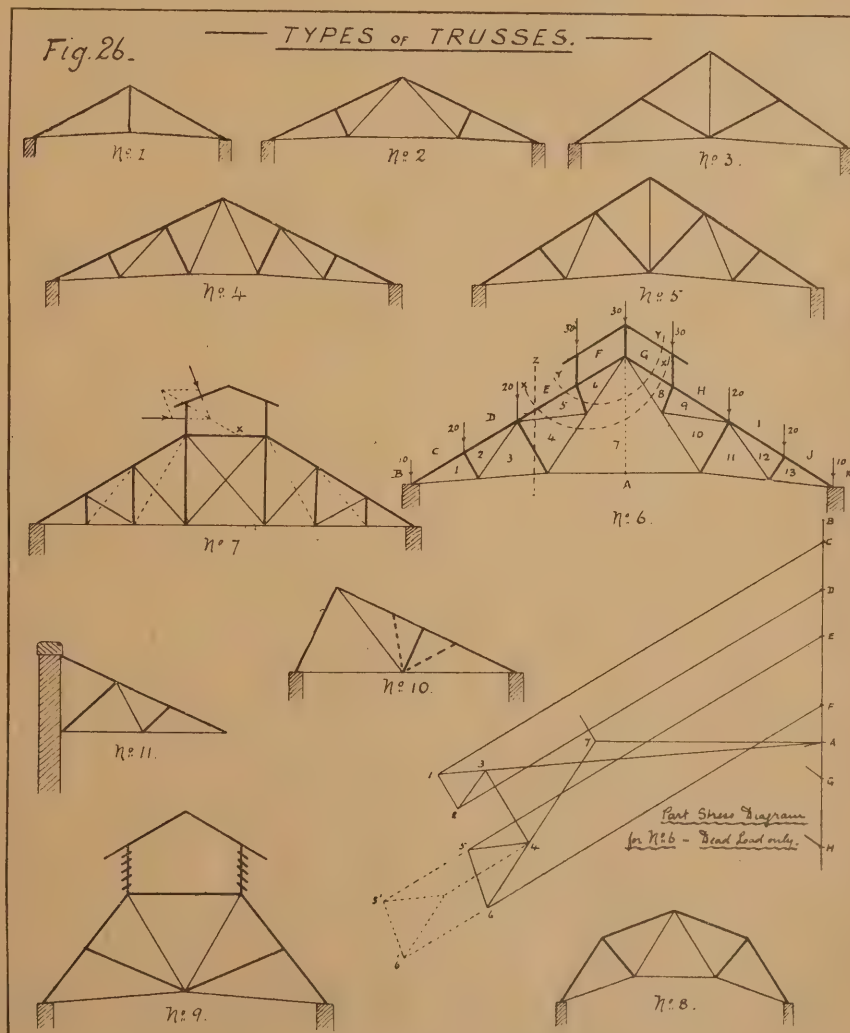
BUT it is not sufficient to compare only the cost of the trusses, for each of these, even when all are equally spaced, requires a different area of covering; and it is necessary to take the cost of this into account in each case before a true comparison can be made. Thus this last table (e) gives the areas of covering required, which vary from 48½ sq. yards to 42½ sq. yards for the two extreme rises noted. The cost of slates and boarding has been assumed as 7s. per sq. yard, while that of corrugated sheets and iron purlins complete has been taken at 5s. per sq. yard, and the respective total costs for the various areas have been extended out. The two last lines on this table are got by adding the value of one truss and that of the area for one bay of the two different coverings together; and these total values on comparison bring out very conclusively the well-known practical fact that the medium rises of about one-fourth or one-fifth of the span, in the majority of cases, form the cheaper roofs. Such a complete investigation as this is very instructive, and shows how carefully the whole facts must be considered before an accurate conclusion can be drawn; the cost of the truss increases from £4 6s. for one-third rise, to £5 19s. for one-sixth, while the cost of covering per bay falls. Neither of these in themselves are of any real use as comparisons, but the addition of truss and covering immediately emphasises the fact just noted.

This table will also bring out the desirability of keeping the main ties as low as possible, for any unnecessary raising of these, by reducing the angle at the shoe, increases the stress on the several bars, and necessarily raises the cost of the truss; here no advantage due to alteration in cost of covering can be got, and consequently increased cost and less efficiency is the result.

The types which the various roof trusses may assume are almost unlimited in number, but a few of the more common forms are outlined in Fig. 26, and the following brief mention of each must for the present suffice. For small simple spans No. 1 is that usually adopted; but as the span increases, so does the length of each rafter, and the necessity for some means of stiffening or strengthening this latter soon arises; such is done in Nos. 2 and 3 by introducing a strut on either side to support the rafter in the centre of its length. Where the rise is small the outline No. 2 will probably prove most suitable, the struts being

here short and set at right angles to the rafter; should the rise, however, be considerable, it is likely that No. 3 would be found an improvement, for though the struts are longer and not set at so efficient an angle, they are yet in a fairly satisfactory position, and the saving due to one king rod replacing two queen rods will undoubtedly assist in keeping down the cost of this type; it is sometimes necessary to introduce two light rods, called suspenders, to carry the long length of main tie. With a further increase in the span the necessity for a greater number of supports to the rafter arises, and

support points, but it has not been thought necessary to draw these. No. 6 shows a type very suitable for wide spans, particularly such as have a fair rise; it is usually called a "French" truss: the diagram shown underneath this will be returned to presently. No. 7 shows a more or less ornamental type of truss, in which the upright members are formed as struts, the diagonals being generally of flat iron; at the intersection of these latter it is very usual to fix some cast iron ornamentation to add to the appearance. Such a type as this is very suitable where the space to be covered in is slightly



Nos. 4 and 5 show types of a similar nature to those of Nos. 2 and 3, but with two intermediate support points to each rafter. In the same way these types might be further extended to give three or four intermediate

tapering, that is to say, where it is slightly wider at the one end than the other, for the centre bay may be to a considerable extent altered in width to allow for this tapering (the ventilator, of course, being kept to the

\* A lecture delivered before the members of the Edinburgh Architectural Association, and exclusively published in the Builders' Journal.



width of the centre bay), and thus the side slopes remain uniform throughout. No. 8 shows a type very similar to that of No. 2, except that the rafters are not straight in this case—such is often called a "Mansard" roof. A usual practice with this truss is to cover the two upper slopes with sheeting or slates, while the lower and steeper slopes are filled in with windows, thus securing a considerable amount of light to the building below. No. 9 shows another type supplied with large ventilator, and specially suitable where considerable ventilation is desired, the large space in roof allowing the foul air to collect and quickly find its way out. No. 10 indicates a form of truss much used in spinning and weaving sheds, where a large amount of light, but not sunlight, must find its way into the building; the flat slope is clad with sheets or slates, while the short steep slope is filled in with glass, and this latter is turned always towards the north. Such a type of roof is often called a "Northern Light" roof, or, from its appearance when seen as a series of spans, it is sometimes called a "Saw-tooth" roof. The span for such a type seldom exceeds 20ft., or at most 25ft., and where necessary the single strut may be replaced by double struts, as indicated by dotted lines, so that the long rafter may be further stiffened. No. 11 shows a simple form of overhang or bracketed roof.

Returning to No. 6, it may be noted that the members 5 6 and 8 9 are not placed symmetrical with the others, but are inclined so as to come under the supports of the ventilator. There is also marked on this outline a series of assumed dead loads, these being also taken irregularly for the purpose of emphasising a little difficulty which is likely to arise in drawing a stress diagram for such a condition. The diagram only represents one half of the complete dead load stress diagram, which is drawn in exactly the manner previously described. When the joint at foot of member 3 4 is reached, a difficulty will be experienced in determining the point 4 on the stress diagram, the irregular loading, &c., giving rise to this trouble. A simple expedient, however, will get one out of this trouble, for the lines from E and F can be drawn parallel with the rafter E 5 and F 6, and any point chosen in one of these lines from which a line may be drawn parallel to the member 5 6, and from the points 5' 6' two lines are drawn parallel to 5 4 and to 6 7. The point of intersection of this will indicate the relative position of the required point 4, so that a light line drawn from this point of intersection parallel with E 5 till it intersects the line 3 4 will give the real point 4, and no difficulty need now be experienced in completing the diagram. Should a diagram be attempted for No. 7, it must be borne in mind that in the case where the diagonal members are formed of round rods or of flat bars these cannot to any practical extent act as struts, and it is necessary to draw the diagram in such a way that they shall only be subjected to tension. It will also be found in doing this that only one of these diagonals in each bay is active, or in use, the other being what is called a redundant member, or a member which is superfluous under that condition of loading.

Referring again to No. 7, there is here shown the usual manner in which the wind pressure is allowed for in the case of a large ventilator. Considering the ventilator alone, the resultant of the normal pressure on the windward slope is combined with the resultant of the pressure on the vertical side next the wind, by making use of the principle of the parallelogram of forces previously described, and this resultant is produced till it intersects the rafter at the point marked X. It is only necessary then to neglect altogether (as far as wind stress is concerned) the ventilator, substituting for it this single force, inclined as shown, and acting at the point X. With the dead load, no trouble need arise, as the total load would simply be divided equally between the two supports.

Returning once more to outline No. 6, two curved dotted lines, marked X X and Y Y, are drawn to illustrate what has been previously noted, that the imaginary section lines used with the Method of Moments do not necessarily require to be straight. If such a truss as this be gone

over systematically by this Method of Moments, the stress in the members C 1, D 2, 1 2, A 1, A 3, or 2 3, are readily determined by taking successive straight line sections in the manner shown at Figs. 19 to 22; but when strut 3 4 is arrived at, it will be found that no section line, whether straight or curved, can be used without leaving too many unknown forces to be determined. Such being the case it is necessary to pass this member for the time being, and take the curved section line X X, with the turning point at the apex of the rafters; in this way we are enabled to get rid of the stress in all the members cut by that section line which meet at this point, leaving the tie 4 5, whose stress can be readily calculated. Having done this we may return to the strut 3 4, and by taking the straight section line Z Z, and the turning point at the left hand shoe, can then calculate readily the stress on this latter member now that 4 5 has been determined. The stress on member 5 6 is got at by taking the second curved section line Y Y, and the turning point at apex of rafters, as before. No trouble need arise with any of the other members, and it is well to note that in very few cases need much difficulty be experienced that cannot be overcome by a means such as here shown, of passing over for a time the difficult point, and returning thereto afterwards.

Thus far the assumption has been that all the external loads are applied at the joints or intersections of the various members with one another, but it frequently occurs that this is not the case, as where the purlins are spaced so that they rest on the rafters at some intermediate positions. When this is so, the first consideration is to refer these intermediate loads to the joint; that is to say, each intermediate load must, for purposes of calculation, be first replaced by equivalent loads placed at the joint on each side of it. A reference to Fig. 14 will show how such a single force has to be proportioned between the two joints, the total load being divided on the inverse proportion of its distance from the two joints. All loads being thus referred to the joints, the Graphic Method, or that of the Method of Moments, may be used to calculate the stress on the several members, and thus far all would be gone about as has already been described. It may be here noted that, strictly speaking, the dead load of the truss itself ought to be proportioned over all the joints, instead of over the joints at the rafters only; but such theoretical refinements are never indulged in in practice, the possible error being very small under any circumstance. Should the truss be used to support a ceiling, or some other loading be applied to the main tie, this, of course, must be considered as acting at the lower joints in the framework; but no real trouble or difficulty need arise in calculating the stresses on this account.

At a recent meeting of the St. Helens Town Council the Gas and Lighting Committee recommended that the sum of £25,000 be spent in extension of the gas works, and it was stated that the present total producing capacity of the works was 1,280,000 cubic feet, while on the day before last Christmas the consumption of gas actually reached 1,352,000 cubic feet. Statistics were given showing that the annual consumption of gas had increased from 111,800,000 cubic feet in 1880 to 256,022,000 cubic feet last year, and the proposed extensions would increase the producing capacity of the works by 750,000 cubic feet per day. It was estimated that the extensions would meet all requirements for the next ten years, and when they had been made the whole of the land available on the present site would be utilised, and there would be no room for further extensions. Additional storage accommodation would soon have to be asked for, as the present holders only had a capacity for 1,700,000 cubic feet, just a little over the average daily consumption of gas during the past year. The growing increase in the consumption of gas is attributed to the introduction of prepayment meters, whereby a large number of cottagers are using gas, and to the discontinuance of rent for meters and stoves.

## THE CLASSIC CORNICE.\*

By HUGH H. STANNUS.

IN a few introductory remarks Mr. Stannus paid a tribute to the President of the Association, and, passing on to deal with the subject of the classic cornice in a very discursive and informal manner—after announcing his intention to confine his remarks to profiling, to the exclusion of all considerations of the enrichment or the history of the cornice—he spoke of the functions of a moulding, and showed how a collection of mouldings forming a cornice should be placed together according to certain principles. The cornice had constructive functions to fulfil, but it had also aesthetic value. When they looked at a moulding they saw a number of pleasant parallel lines, and, in order to appreciate and produce beauty of curvature, Mr. Stannus subsequently recommended students to study the nude. He proceeded to explain the convex and the ogee kinds of cornices and, with frequent—almost constant—reference to diagrams, to analyse the construction and the beauty of the various forms, and to explain how and why they were beautiful, and the principles underlying their beauty. It was emphasised that mouldings forming a group should be confluent, but the groups making a cornice should not be confluent. The special functions of the groups were explained, and

### SIMPLE CURVATURE

recommended to students in preference to treble curvature, which, Mr. Stannus said, was always a premonitory symptom of decay. The question of phrasing was dealt with, the equality of size was deprecated, and, in concluding, Mr. Stannus said they must not forget that no moulding could exist merely to itself, and to make a perfect cornice each group had to be a perfect member of the coalition.—The President (Mr. Beresford Pite), in opening the discussion, said it was very interesting to have an address from a man who had made himself master of the subject he dealt with, delivered in the informal manner Mr. Stannus had adopted; it was so welcome after the laboriously-prepared papers they read when honoured with an invitation to address the Association. Now, this was a practical subject, and a subject which every one of them who had to design found difficulty in sooner or later. The moulding was the measure of the man. Street used to speak of it as "the Art and Science of moulding." They could always tell an Architect's capacity as well as the habits of his mind—whether industrious, patient, careful, intellectual—by his mouldings. "As a rule, your client did not interfere with your mouldings; he did not pay you for them. In many cases he would prefer

### THE TRADE STOCK PATTERN;

but the world would read the Architect, not in the trade stock pattern, but in his mouldings. Now, he supposed that a great many of them who had to design mouldings—even if they started with bedroom cornices at six or nine inches girth—had never dreamt for a moment of anything like the philosophy and science, to say nothing of the system of analysis which Mr. Stannus had revealed, being associated with cornices. They were scarcely in a position to proceed on an analytical basis; they had to do what laid at their hands. With Alfred Stevens, aided by Divine gifts, his sense of beauty acted more rapidly than his analytical sense, and he evolved beautiful cornices with an easy certainty of hand and mind which

\* Delivered before the Architectural Association on Friday night.

We hope soon to publish a series of articles on this subject by Mr. Stannus, together with illustrations and diagrams, without which the greater part of the author's remarks on Friday night would be unintelligible, as they partook more of an explanatory and analytical nature than of a running commentary, as is the usual order of the papers read before the Architectural Association. In view of the publication of this series of articles, which will deal very much more extensively with the subject than Mr. Stannus did in his recent remarks, we now merely publish a very brief summary of a few of the points raised at the Association meeting in order to incorporate some interesting remarks made by Mr. Beresford Pite and other members.—Ed.



marked him as a genius. Whether they, after studying the principles underlying the beauty of Stevens's work, could produce anything of the sort was a problem he would not care to solve. They could certainly get at the root of its beauty, but whether an examination of the root would allow them to grow a similar plant in their own intellect was an open question. What would Mr. Stannus suggest as a course of study to train the eye and the mind to produce beautiful cornices? Mr. Stannus had been extremely interesting and instructive in his remarks, yet he had not laid down any definite lines for the student's guidance in studying the subject. Mr. Stannus also had not given expression to what he must feel—the importance of a free-hand feeling in a cornice. Mr. Street had emphasised the desirability of freedom rather than mathematics and geometry in cornices, and he thought no better advice could be given the every-day student than to

#### THROW AWAY HIS COMPASSES,

and trust to his hand. With regard to the cultivation of a proper sense of beauty, there was only one perennial font—the curves of the human figure. When they began to study these curves—and every Architect should have some knowledge of anatomical drawings—they soon realised that there was an infinity of beauty of composition, and that the lines of every feature of the human frame in every single part of the outline had a subtle beauty which was absolutely indefinable. They could not make or copy that beauty with an instrument; they were bound to do it with their hands. Now, they might get naked models and look at them all night and yet fail to discern the beautiful, and if they passed from the Greek to the Roman revival they began to see what Mr. Stannus had called the debased sensuous element. They would find something in Michael Angelo's work, which Stevens could not excel—the expression of his square lines, and the power and delicacy of his curves. He had no doubt that Mr. Stannus's remarks would lead them to see that there was a vast amount of interest and meaning associated with the question of cornices, and for his masterly interpretation of the subject—or part of it—they could only return their warmest thanks.—Mr. C. H. Brodie, in a few words, proposed a vote of thanks to Mr. Stannus, and, in seconding it, Mr. Banister F. Fletcher said Mr. Stannus had given them a discourse on the principles which should guide them in designing cornices, and, although they might have previously had some idea of those principles, yet one got into the habit of doing these things merely by what one had seen before. He agreed as to the value to Architects of drawing from the nude; until they had gone through such a course of tuition they had really no idea of the

#### BEAUTY AND VALUE OF CURVES.

He would strongly advise all students to draw from the nude, and, in doing so, not to make laboured studies, but rather rapid studies and plenty of them. He hoped Mr. Stannus could be prevailed upon at some future time to treat Gothic mouldings, which would, he thought, form an equally interesting paper, and it would also be a matter of satisfaction if he would publish *in extenso* his MSS. on the subject of the classic cornice.—Mr. Hampden W. Pratt said Mr. Stannus's remarks made them hunger for a little more, and it would be very interesting and instructive if he could also be prevailed upon to treat the subject of enrichments. Such a paper would, he thought, be more welcome than one which branched off into Gothic styles. He would like to ask Mr. Stannus whether he considered it desirable in designing external cornices to design in profile as seen on the angle. He should say that the custom was to design them on the square and trust to one's experience as to producing a satisfactory effect when seen diagonally. One often noticed that Architects in designing cornices merely considered the effect it had upon the angle. Take the chimney cap, for instance, which was a kind of cornice. He thought they were invariably a great deal too heavy, and not in proportion to the chimney stack.

He was glad the question of the freehand method of drawing mouldings had been referred to. The eye and the hand could alone produce

#### PERFECT FORMS OF MOULDINGS,

and it was absurd to see anyone attempting to draw the forms with compasses.—The vote of thanks was carried with acclamation, and, in replying, Mr. Stannus disabused the idea that Mr. Stevens produced his drawings of profiles with easy certainty. Some of his sketches had been redrawn four or five times, and in one case a detail had been repeated 150 times before finally determined. Someone had said that all inventions were mere accidents, and Mr. Baker had replied, "Yes, well, they are—but some people have more accidents than others." Profiles had to be tried over and over again, and it was not until after a long series of experiments had been tried that they found out what were the most successful. Now, as to what was the best course of study, the royal road to designing mouldings—well, there was no royal road. It was a matter of brain worry. They must look at the best things, surround themselves with the best things, get every bit of Stevens' and thirteenth century work they could find. All Art was one, and all Artists had the same mind. As to free-hand drawing, he had always advised students to discard their compasses and tee-squares, and draw their mouldings entirely by hand. Street did it, Barry did it, Scott did it, and John Sedding believed that an Architect should even draw tracery by hand, and they had instances where this had been done. He (the speaker) thought that Architects ought to do more and more of the artistic side of their designing by freehand. He believed that the Greeks drew freehand, but did not agree with Penrose that the drawings were afterwards repeated with the compass. It was the training of the eye, in addition to the study of the nude form, that led the Greeks to make the beautiful curvature admired so much to-day. They could not emphasise too much the desirability of drawing from the human figure, for if they could draw the human figure they could draw anything in Gothic mouldings. More freehand, more brains, and less of compasses was the best "tip" he could give to students.

THE Health Committee of the Liverpool Corporation has given their approval to a report of the city engineer, requesting authority to carry out the work of providing additional cells, &c., at the refuge destructor in Smithdown Road, at a cost of £2500.

MR. CHARLES P. COTTON, Chief Engineering Inspector of the Local Government Board, has held an inquiry at Bangor into an application of the Local Authority for a loan to carry out the proposed sewerage extension of the township. The amount of the loan required is £3493, and the application was to give some branch sewers to the main sewer at present existing, and to make a main along to the Foley Bridge down to the outlet.

MR. R. HASSARD, C.E., has prepared a report on the proposed extension of the Dundalk Waterworks. These works were constructed in 1884, at a cost of about £40,000, and, though now yielding an average daily supply of 750,000 gallons, Mr. Hassard stated that from his examination he believed that a very great quantity of water—possibly as much as 300,000 gallons per day—is lost owing to either defective fittings or wilful carelessness on the part of consumers. The amount of water left to be accounted for by domestic consumption is about 42 gallons per head of the population daily, as against 20 gallons, which should be ample. Mr. Hassard warned the Commissioners that if this continued, a long period of drought would result in a water famine. This danger could be to some extent averted by adding to the capacity of the large storage reservoir; and if deemed desirable a separate main could be laid to the town to supply the manufacturing consumers at a cost of £3500. But the Commissioners should first endeavour to reduce the consumption to a proper level by rigid inspection of all fittings, and by requiring consumers to put up storage cisterns.

## Surveying and Sanitary Notes.

THE Nottingham borough engineer has reported on the condition of a syphon which carries the main Leen sewer under the Nottingham Canal at what is known as the Cork Hole, near Island Street. The syphon is a single one with a diameter of about 8ft., and it was put down in 1795, when the canal was constructed. The area of the Leen sewer is 52ft., and the area of the syphon is about 30ft. The syphon is, therefore, not more than three-fifths the size of the sewer, and quick bends still further reduce the discharging capacity of the syphon. Besides this, the working area of the syphon is very much reduced, as it is silted up to a very great extent. It is proposed to take out the present sewer and to replace it with an iron syphon in duplicate, each syphon being 6ft. in diameter, with ample space at each end for inspection and cleaning when required. The borough engineer estimates the cost of the work proposed at from £1800 to £2000.

UNDER pressure of the County Council, the Hamilton burgh authorities employed Mr. W. E. Copland, C.E., Glasgow, to report as to the disposal of the sewage, with a view to purification, and he has just forwarded to the Sanitary Committee an elaborate report. He sets out with the statement that of necessity the scheme which he suggests will involve a large amount of outlay, but otherwise does not present any difficulty. The ground which he has selected for the sewage disposal works is the portion of Bothwellhaugh immediately to the south of Raith farm steading. In order to reach this ground it will be necessary to carry the sewage across the river either by means of syphon or an aqueduct, and he would prefer the latter method. For the purification of the sewage he recommends the lime and alumina method, which has been in successful operation in the East End of Glasgow for the last three years. He estimates the cost of the work at £25,000, and their annual upkeep at £2008, which, at the present assessable rental, would be covered by an assessment of about 5½d. per £1.

DR. ALEXANDER WYNTER BLYTH, Medical Officer of Health for St. Marylebone, in his annual report to the vestry, gives a report of the work done by the Sanitary Department. There were no less than 1065 complaints received and attended to during the year. There were 1658 inspections of dwelling houses, and 613 kitchens, 98 schools, and 1154 houses registered under the Public Health (London) Act, 1891, were inspected. Then there were 114 inspections of dairies and cow-houses, 485 of bakehouses, and 95 of slaughter-houses, and 9150 miscellaneous inspections were made.

THE sanitary condition of Foleshill, and more especially the trouble caused in disposing of the sewage, has long engaged the attention of the Rural District Council. A report has been prepared by Mr. H. B. Nichols, Corporation Street, Birmingham, in which he says the activity of the Coventry cycle industry causes an overflow of population into Foleshill, and extensive building operations are probable in the future. The sewage scheme deals with a population of 15,000, but certain parts can hereafter be enlarged, so as to meet the needs of three times that number of people. He proposes a site for outfall works, where tanks would be erected and precipitants used. The cost of carrying out the works is estimated at £24,019, exclusive of land, which is put at £6000 additional.

At a special meeting of the Bath Surveying Committee, the pitching and paving estimates for the year were considered. The total was £1000 less than last year, the surveyor saying he had recommended as little as possible, as the streets would be pulled about by the relaying of the electric light mains. It was decided not to repitch the Royal Crescent roadway, but to lay down tar macadam, and thus save £400.



COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
May 7	East Ashford, Kent—Alterations to Infirmary Chapel, &c.	Guardians	Workhouse, Willesboro'.
" 7	Banstead—Enlargement of Schoolrooms	Chelsea and Kensington School District	Cecil Sharp, 59, Fenchurch-street, E.C.
" 7	Mallow—Erection of Piers and Gates	Guardians of Mallow Union	Board Room, Workhouse, Mallow.
" 7	Morley—New House	S. Sharp	George B. Clegg, 2, Peel-street, Morley.
" 7	New Tredegar, Mon.—Alterations, 105 and 106, Commercial-street.	Mrs. Thomas	H. Sketch, Architect, New Tredegar.
" 7	Manchester—Brickwork for Straining Well	Corporation	Secretary, Waterworks Office, Manchester.
" 8	Elgin—New Houses	James Scott	J. Jamieson, 2, Commerce-street, Elgin.
" 8	Lancaster—Erection of School	School Board	Clerk to the School Board, Lancaster.
" 8	Blackburn—Erection of Laundry, Workhouse	Guardians	J. Aspinall, Victoria-street, Blackburn.
" 8	Dolphinholme, near Lancaster—Rebuilding Church		Wright and Son, Surveyors, Lancaster.
" 8	Drumquin, Ireland—New Platform Pulpit	Presbyterian Church	Rev. D. Marshall, Drumquin.
" 8	Edinburgh—Additions to Morningside Public School	School Board	Mr. Wilson's Office, 3, Queen-street, Edinburgh.
" 8	Templepatrick, co. Antrim—Erection of Manse		Samuel P. Close, 53, Waring-street, Belfast.
" 8	Keld—Extension of Schoolroom		Rev. W. Crombie, Keld.
" 10	London, N.W.—Asylum	Central London Sick Asylum Board	Giles, Gough, and Trollope, 28, Craven-street, Strand.
" 10	London, W.—Temporary Iron Structure	Asylums Committee of the L.C.C.	Clerk of the Committee, 21, Whitehall-place, S.W.
" 10	Barry Dock, Wales—Erection of Chapel, &c.	Baptist Church	25, Regent-street, Barry Dock.
" 10	Halifax—House, Shop, &c., King's Cross	H. Ashman and Co.	Jackson and Fox, 22, George-street, Halifax.
" 10	Bristol—Enlargement of Premises	Polkinghorne and Co.	J. Hart, Liverpool-chambers, Corn-street, Bristol.
" 10	Plymouth—Erection of Covered Market	Corporation	G. Adam and Sons, Engineers, Bristol.
" 10	Preston—Repairing Bridges	County Council	Architect's Offices, 8, Princess-square, Plymouth.
" 10	Westcliff-on-Sea—Alterations to Hotel	J. J. Wagstaff	W. Radford, 19, Brazenose-street, Manchester.
" 10	Hartlepool—Public Hall and Offices	Concert and Lecture Hall Company	J. Thompson and Greenhalgh, Bank-chambers, Southend.
" 11	Hartlepool—Converting Coastguard Dwellings, &c.	Works Department	R. M. McDowall, Architect, Castleford.
" 11	London, S.E.—Conveniences	London County Council	R.N.R. Battery, West Hartlepool.
" 11	Baildon, Yorks.—Erection of Residence		Architect's Department, County Hall, Spring-gardens, S.W.
" 11	Billerica—Flooring, &c.	Guardians	Fairbank and Wall, Craven Bank-chambers, Bradford.
" 11	Dowlais, Wales—Building Thirty-five Cottages	Penywyn Building Club	Master of the Union House, Billericay.
" 12	Halifax—Erection of Stables, &c.	Urban District Council	8, High-street, Cardiff.
" 12	Ryton—Widening Stargate-lane	Urban District Council	Surveyor, High-street, Gosport.
" 12	Lynton, N.W.—Works for Infirmary	St. Pancras Guardians	Chas. F. L. Horsfall and Son, Lord-st.-chambers, Halifax.
" 14	Rotherham—Erection of Swimming Bath	Baths Committee	J. P. Dalton, Council Surveyor, Ryton.
" 15	Harting—Enlargement of Schools	School Committee	A. A. Millward, Vestry Hall, Pancras-road, N.W.
" 15	Bridgend, Glamorgan—New Stage, &c.	Committee of the Town Hall Trust	Town Clerk's Office, Howard-street, Rotherham.
" 15	Clayton-le-Moors, Lancs.—Erection of Thirteen Houses	Co-operative Society	C. Taylor, South Harting.
" 17	Cardiff—Erection of Library	Corporation	Lambert and Rees, Architects, Bridgend.
" 17	Farnham—Infirmary	School Board	Co-operative Society, Clayton-le-Moors.
" 17	Trowbridge—Recreation Rooms at Asylum	Wilts County Asylum Governors	W. H. Dashwood Caple, 1, St. John's-square, Cardiff.
" 18	Bucharest—Industrial School, Jassy		A. Ansell, 63, Finsbury-pavement, E.C.
" 18	Buenos Ayres—New Central Railway Station	London County Council	County Offices, Trowbridge.
" 18	Rockley—Public Convenience	School Board	Roumanian Ministry of Agriculture, Bucharest.
" 18	Grays Thurrock—Erecting Portion of School	Corporation	State Government, Buenos Ayres.
" 19	Middleton—Raising Roof of Retort House	Guardians of St. Olave's Union	Architect's Department, Spring Gardens, S.W.
" 20	London, S.E.—Erecting Laundry, Repairing, &c.	Corporation	C. M. Shiner, 2, Walbrook, E.C.
" 25	Brighouse—Erection of Press-house, Chimney Shaft, &c.	Guardians	T. Duxbury, Gas Manager, Middleton.
" 27	Prestwich—Erection of Vagrant Wards	Leys Malleable Casting Co. Limited	Newman and Newman, 31, Tooley-street, S.E.
No date.	Long Eaton—Alterations of Grindery, Extension of House		A. M. Fowler, 1, St. Peter's-square, Manchester.
"	Smeeth—Salop—Additions to National Schools		W. Telford, Gunson, & Son, 10, Marsden-street, Manchester.
"	Acharacle, near Oban, N.B.—Manse		E. E. Ridgway, Long Eaton, Notts.
"	Leeds—Two Houses, Kelso-road		A. B. & W. Scott-Deakin, Architects, Pride Hill, Shrewsbury.
"	Beeston, Notts—Pair Villas		W. Mackenzie, Architect, 42, Stevenson-street, Oban.
"	Burnley—Shops, Yorkshire-street, &c.		W. S. Braithwaite, 6, South-parade, Leeds.
"	Leenside—Technical School	Nottingham School Board	J. Huckerby, Surveyor, 8, The City, Beeston.
"			C. Parsons, Architect, 9, Grimshaw-street, Burnley.
"			A. H. Goodall, Market-street, Leenside.
<b>ENGINEERING—</b>			
May 7	Buckie, Scotland—Water and Drainage Pipes	Police Commissioners	J. Chisholm, Burgh Surveyor, Buckie.
" 7	Rother, Scotland—Precipitation Tanks, &c.	Rural District Council	Louis Harper, 115, Union-street, Aberdeen.
" 7	Doncaster—Cast-iron Pipes, Thurnscoe	Guardians	W. Spinks, 31, Prudential-buildings, Leeds.
" 8	Omagh, Ireland—Cooking and Laundry Appliances	Urban District Council	W. Cathcart, Clerk, Workhouse, Omagh.
" 8	Radcliffe, Lancs.—Sewage Disposal Works	Gas Corporation	Surveyor, Council Offices, Radcliffe.
" 10	Arbroath, Scotland—Erection of Gasholder	London County Council	R. S. Carlow, Gasworks, Arbroath.
" 10	London—Iron Structures at Asylum		The Clerk, 21, Whitehall-place, S.W.
" 10	Catania, Sicily—Harbour Works		Italian Ministry of Public Works, Rome.
" 11	Castlebar, Ireland—Cooking Appliances	District Asylum	Asylum, Castlebar.
" 11	Congleton—Waterworks	Rural District Council	Wyatt, Bryndwr, All Saints, Shrewsbury.
" 13	Manorhamilton, Ireland—Waterworks	Guardians	R. H. Dorman, County Surveyor, Armagh.
" 14	Carlrow, Ireland—Supplying and Fitting Range	District Lunatic Asylum	Clerk's Office, Carlrow.
" 15	Clitheroe—Supply and Erection of two Purifiers	Gas Committee	R. Barrett, Manager, Gasworks, Clitheroe.
" 15	Dartmouth—Construction of two Flushing Tanks	Urban District Council	T. O. Veale, Surveyor, Dartmouth.
" 17	Hinckley—Gas Apparatus	Urban District Council	Geo. Helps, Gasworks, Hinckley.
" 17	Cromer—Boiler House, &c.	Gas and Coke Company	P. Griffith, 55, Parliament-street, S.W.
" 19	Walford—Sewerage Works	Urban District Council	Council's Offices, 14, High-street, Watford.
" 24	Fortrane, Co. Dublin—Heating, Ventilating, &c.	Asylum Commissioners	G. C. Ashlin, 7, Dawson-street, Dublin.
" 25	West Ham—Engine and Boiler Houses, &c.	Corporation	Lewis Angell, Town Hall, Stratford, E.
" 30	Hebden Bridge—Two Cast-iron Culverts	Urban Council	J. Newton and Son, 17, Cooper-street, Manchester.
<b>PAINTING—</b>			
May 7	Manchester—Plumbers' Work	Baths Committee	City Surveyor, Town Hall, Manchester.
" 11	London, W.—Painting	Vestry of St. Mary Abbots	Town Hall, High-street, Kensington.
" 12	Manchester—Painting, Mousal Hospital	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 13	London, N.—Painting	Hornsey Urban District Council	E. G. Lovegrove, Southwood-lane, Highgate, N.
" 15	Hull—Painting		R. G. Smith, 1, Cogan-chambers, Bowlalley-lane, Hull.
<b>ROADS—</b>			
May 7	Bridlington—Supply of Whinstone, &c.	Rural District Council	Chas. Gray, Clerk, Bridlington.
" 7	St. Andrews, Scotland—Carting, 1 Year	District Committee	Thos. Goodwillie, District Surveyor, St. Andrews.
" 8	Sowerby, Thirsk, Yorks—Supply of Stone, about 3000 tons	Rural District Council	Chas. McC. Swarbrick, Clerk, Thirsk.
" 10	Warrington—Horse Hire and Carting, 1 year	Paving and Sewerage Committee	T. Longdin, Town Hall, Warrington.
" 11	West Ham—Pitching, Victoria Dock-road, &c.	Town Council	Lewis Angell, Town Hall, Stratford, E.
" 11	West Ham—Making-up and Paving Streets	Town Council	Lewis Angell, Town Hall, Stratford, E.
" 12	Oldham—Materials (various)	Surveyor's Committee	Borough Surveyor, Town Hall, Oldham.
<b>SANITARY—</b>			
May 8	Dollar, Scotland—Sewer, &c.	Essendon Parish Council	J. Aird, Glebe-cottages, Hatfield.
" 8	Radcliffe—Sewage Disposal Works	Urban District Council	Surveyor, Council Offices, Radcliffe.
" 10	London, N.—Sewers, &c.	Hornsey Urban District Council	J. E. Lovegrove, Southwood-lane, Highgate, N.
" 11	London—Public Conveniences	London County Council	Architect's Department, Spring-gardens, S.W.
" 14	Hurst, near Ashton-under-Lyne—Removal of Nightsoil	Urban District Council	Surveyor, Council Office, King-street, Hurst.
" 15	Barnard Castle—Sewers, &c.	Rural District Council	E. Robinson, 6, Dixon-terrace, Darlington.
" 21	Bury—Sewage Disposal Works	Corporation	J. Cartwright, Borough Engineer, Bury.
July 31	Oporto, Portugal—Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
May 15	Tonbridge, Kent—Technical Institute and Free Library	£31 10s., £21, £10 10s.	Urban District Council.
June 16	Morecambe—Designs for Hotel	£100, £50, £25, £15	Baxter and Abbott, Back-crescent, Morecambe.
No date	Chesterfield—Designs for Altering and Enlarging Memorial Hall, &c.	£25, £10	Market and Public Halls Committee.





### Arts and Crafts at Wolverhampton.

PERHAPS no aspect of the artistic revival in which we live is more full of encouragement than the interest which the provinces show in that side of the movement known as "Arts and Crafts." An Exhibition under this title was recently opened in Wolverhampton which is of considerable importance. Its success is largely due to the help of the Arts and Crafts Exhibition Society, which not only used its influence to induce artists to contribute, but appointed Mr. C. R. Ashbee and Mr. H. Wilson to assist Mr. L. W. Hodson, the representative of the local Committee, to arrange the Exhibition. Two downstairs rooms in the Art Gallery contain the exhibits, the smaller room, about 31ft. by 18ft., being mainly occupied by the work of William Morris and furniture by Mr. Ashbee. The principal attraction in this room is the exhibition of Morris tapestry. In the centre of the long wall is the "Primavera" of Botticelli, flanked by "Angeli Laudantes" and "Angeli Ministrantes," by Sir Edward Burne-Jones, and we question whether these tapestries have ever been better shown. Above them are casts of the Parthenon frieze, which are permanently fixed to the wall, and the bottom of the tapestry is within 2ft. of the floor. This arrangement, of tapestry below a frieze is the one that Morris himself advocated, and certainly the effect goes far to endorse his judgment. The windows are opposite the tapestry, so that the disadvantage of either a top or raking light is avoided. Among other exhibits are the Apple-Tree portière embroidered by Mrs. Sparling from her father's design, specimens of Hammersmith rugs, woollen woven fabrics, cretonnes, and in cases under the windows an almost complete set of the Kelmscott books, lent by Mr. Hodson, including the Chaucer, Jason, illustrated Glittering Plain, and several others on vellum, and the rest on paper. Mr. Ashbee's furniture includes a sideboard of oak inlaid with pewter, a writing-table with hammered copper ornaments, two cabinets, and a grandfather's clock. Besides the Kelmscott books the Exhibition includes a complete set of the books published by Chas. Ricketts, as well as the wood-blocks of the Milton and "Passionate Pilgrim," title-pages designed and etched by Wm. Strang, a number of Walter Crane books, and a few others. Another important feature is the collection of original drawings in which the work of Sir E. Burne-Jones is splendidly represented by the entire set of the twenty-nine Virgil drawings executed in 1873-74 for an illuminated manuscript planned by the Artist and Wm. Morris, which are lent by Mr. Hodson, and by ten of the Chaucer drawings for the "Legend of Fair Women," lent by the Artist. The contrast between these two sets is most interesting, yet, great as the change has been during twenty years, it is hard to say which set is the more delightful. There are also charming examples of the Artist's new method of painting in metal. A long series of the "Fairy Queen" drawings by Walter Crane, two exquisite designs for "The Sphinx" by Chas. Ricketts, drawings by Anning Bell, Aubrey Beardsley, A. J. Gaskin, Laurence Houseman, Walter West, Mrs. Gaskin, and others, are practically an epitome of all that is best in modern decorative book illustration. Be-

sides the furniture previously referred to, Mr. Ashbee is represented by a beautiful exhibit of his metal work and jewellery; by an architectural drawing of great interest, showing the alterations he is now making to Wombourne Wodehouse, near Wolverhampton; and, most interesting of all, by a mural sundial painted on copper, which ere long will adorn one of its gables. Mr. H. Wilson is represented by six drawings—three in pastel, one in water colour, and two in black and white—two showing designs for church interiors, another a formal garden at Welbeck Abbey, and the water-colour a garden seat, full of subtle charm partly gained from his master, John Sedding, and still more personal to himself. The Birmingham Guild of Handicraft send a very good show of jewellery and metal work. Nelson and Edith Dawson are represented by the casket which gained so much praise at the Academy of 1895, and the dish in beaten silver and enamel which graced the New

by the Office, but the Earl of Radnor would not agree to sell the freehold, and consequently the Commissioners came to Parliament for compulsory powers of purchase. The Bill was referred to a Committee in the usual way, before which any opposing petitioner had an opportunity of being heard, but at the meeting of this Committee on Friday it transpired that no such memorial had been lodged, and that the Bill was unopposed. Formal evidence was then given by Mr. Webb, one of the principal clerks in the Patent Office, who is well aware of its requirements, that it is in very great need of extension, and that the natural site for the purpose is these two houses, which in point of fact are encompassed by the Office on three sides. The Bill then passed through Committee.—The other measure is the much larger one—for the acquisition of the Carrington House site with a view to the erection thereon of buildings for the War Office. The site in question is bounded by Whitehall, Whitehall Place, Horse Guards' Avenue, and Whitehall Court,



ENAMEL BY ALEXANDER FISHER.

AT THE ROYAL ACADEMY.

Gallery last year. Alexander Fisher sends a most beautiful casket in ivory and enamel. Powells show a case of blown glass, De Morgan a case of pottery, Geo. Jack a fireplace, Lethaby firedogs and candlesticks, Cobden Sanderson a very beautiful book-binding, Zaehnsdorf three specimens of his work, Miss McColl two and photos of others; and various wall-papers, stencils, Fitzroy pictures, &c., help to complete the show. We heartily congratulate the Wolverhampton Committee on an admirable Exhibition, and we trust it will command the measure of success it deserves.

### Bills in Parliament.

Two Government Bills, to the provisions of which attention has been drawn in these columns, are now almost as good as law. One of them enables H.M. Office of Works to compulsorily purchase two houses—Nos. 27 and 28, Southampton Buildings—for an extension of the Patent Office. The leasehold interests in the property in question had been acquired

and the freehold is part of the property of the Commissioners of Woods and Forests so that its transfer to the Office of Works, though requiring Parliamentary sanction, is a matter of easily settled terms. Two petitions against the Bill had been presented, one from the vestry of St. Martin-in-the-Fields, and the other from the London County Council, but in course of last week the first was withdrawn, and when the Committee on the Bill met on Friday it transpired that terms had been arranged with the latter body. The first point was in regard to a sewer, the property of the Council, which passes under the site, and which it is proposed to divert. It was arranged that the County Council should, on being so required, construct the new diverting sewer at the expense of the Office of Works. The other point had reference to an inclusion in the Bill not only of the site but also of the site of the footway in Whitehall Place and Whitehall; but, as to this, Mr. John Taylor, C.B., principal Surveyor to the Office of Works, made it clear that there is no intention of permanently appropriating or building over the footway, or encroaching upon the old line of frontage. Some amendments



embodying the arrangement as to the sewer arrived at with the County Council were made in the Bill, which later in the day was duly reported to the House.—Mr. Knowles, M.P. for West Salford, may reasonably congratulate himself on the progress made with the Bill for the national registration of plumbers, which for some years he has endeavoured to place on the Statute Book. According to an official memorandum, "the chief object of this Bill is to afford additional safeguards to the public health by enabling persons employing plumbers to select, when they desire to do so, persons who have given evidence of their qualification for plumbers' work. There has been for several years a system of registration of plumbers established in the chief centres of Great Britain and Ireland, and by the Bill it is proposed to place this system upon a broader and more permanent basis. The arrangements as to the examinations for registration will be placed under the jurisdiction of a General Council representing the Master and operative plumbers of the Plumbers' Company and the chief educational and sanitary bodies of the United Kingdom, with branch councils in Scotland, Ireland, and Wales. It is proposed also to give the Council power to promote technical education among plumbers, and to exercise discipline among those whose names are enrolled upon the register. The Bill does not contemplate any monopoly, and it does not interfere in any way with the rights of non-registered plumbers. It prohibits, however, such plumbers from representing themselves to be registered."

#### "THE INSTITUTE ABROAD."

#### THE ARCHITECTURAL ASSOCIATION SOIRÉE.

"THE INSTITUTE ABROAD," a musical play by Mr. E. Howley Sim, produced at the annual soirée held at the Matinée Theatre on Thursday night, proved quite sufficient to upset the gravity of both the younger and older members of the Architectural Association. "The Institute Abroad" is an adaptation of last year's play, "The Celestial Institute," and, although an entirely new play would perhaps have been preferable, the joint effort of Messrs. Sim and Leonard Butler (the latter supplying the music) met with a very warm appreciation. The action of the play is indicated by its title. Abroad—we are not quite sure whether it is Africa or Turkey—Architecture is trampled in the dust, though not without great pomp and ceremony. In the first act we are introduced to a number of Moorish girls, who are architectural students, and to a trio of Architectural Association travelling students, who attempt numerous jokes remarkable, for the most part, only for their feebleness, but which were immensely appreciated, nevertheless, on account of "professional colouring." The second act is the more humorous of the two. In it an Institute meeting is burlesqued, and speeches are delivered which certainly possess the charm of novelty. The music is bright and tuneful, one or two of the numbers being particularly attractive. Mr. S. Constanduros carried off the honours here. The acting deserves a special word of praise. Mr. G. B. Carvill and Company produced the piece very creditably, and proved that dramatic ability in the ranks of the Architectural Association is by no means a diminishing quantity. Mr. Carvill adequately sustained the leading rôle—one Blarney Barnoolley, an adventurer and company promoter, who receives an appointment as president of the Institute—a position for which applicants "possessing some knowledge of Architecture" are asked for. Mr. F. D. Clapham was an entertaining "Librarian of the Institute," and Mr. Alfred Stalman and Mr. F. Collins as "The Sultan" and the "Secretary of the Institute" respectively were also very successful. The three leading ladies were the Misses Blanche Selig, Grace Wyldé, and Ada Yerbury, all of whom showed some ability. The soirée was largely attended, and presided over by Mr. Beresford Pite.

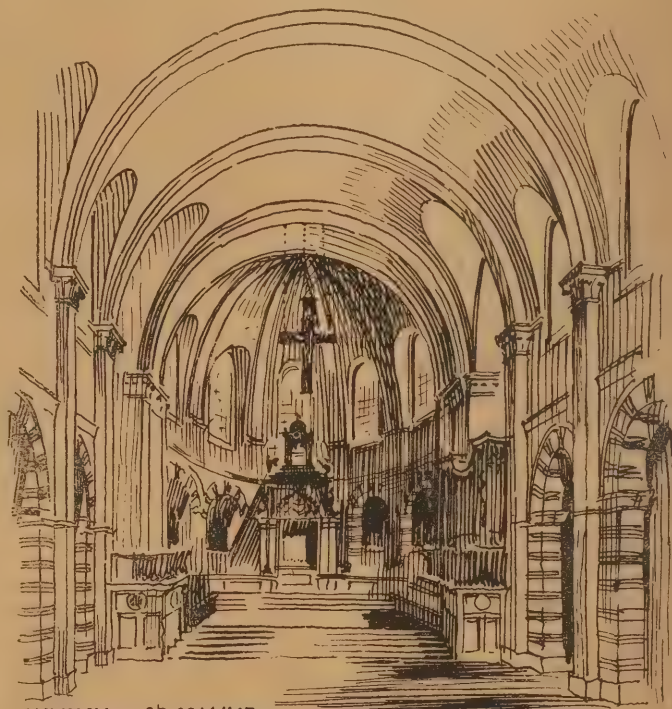
#### THE ROYAL ACADEMY.

##### SECOND NOTICE.

IN taking up our notes where we closed them last week, we cannot do better than give first place to the design for the chapel of Douglas Castle by C. W. Whall (1838), a really fine drawing of marble work and other decoration, chiefly in soft greens and greys leading up to stronger colour in the reredos. The general tones are light, and the drawing forms an effective companion to Mr. H. Wilson's more richly coloured one of the staircase, Welbeck Abbey, the iridescent effects in which are equal to anything that Mr. Wilson has previously exhibited, the blues and greens running into full purple in a masterly way. It seems, however, a pity that some more effective echo could not have been found for the mass of glowing red on the wall at the further end, the area of this being now a little too sharply defined to be quite pleasant to the eye. A drawing such as this is likely to disarm a cold-blooded criticism of the Architecture it illustrates, and, though it is quite conceivable that

a warm key shows a pleasing design for a house at Headingley by F. W. Bedford (1864). We should like to see more of Mr. Bedford's work at the Academy, his *technique* and colouring being far above the average in Architectural circles. No. 1868 is also a good drawing for a rector's stall by Gerald Cogswell, an unpretentious design that at the same time displays considerable individuality; while the same may be said of Mr. G. C. Carter's font, though in the latter case we incline to think that rather too much insistence has been placed on squareness and angularity, characteristics that are not, however, unsuited to the material in which it is designed. In No. 1873 we find the façade of the principal building at Earl's Court Exhibition, a work that we have hitherto associated with the name of Mr. A. O. Collard.

The restraint exercised in Mr. Jackson's design for new boarding-houses to Westminster School will prevent their jarring with the old buildings surrounding them; the plan seems somewhat crude in its arrangement, though possibly it satisfactorily meets the requirements of the case. The small sketch we give does scant justice to No. 1890, a very



CHURCH OF ST. COLUMB

BY W. A. PITE

Mr. Wilson's designs may justify an occasional charge of affectation or of inconsistency, we stand before his drawings and forget to make it.

Reluctantly leaving these two works, we continue on our way, finding close at hand Mr. R. S. Balfour's successful Soane design (1846), more noticeable for its good taste in detail than for imaginative force; the way the entrance cuts into the first floor, destroying the solidity of base to the pilasters of the central block, is rather a weakness in this design.

Mr. Mountford's new chancel to St. Anne's, Wandsworth (1849), appears to be skilfully adapted to the existing building. No. 1850 is a drawing of Mr. Colcutt's recent addition to the Savoy Hotel, by A. W. Prentice; it is vigorously handled, but somewhat hard in quality. No. 1851 shows a not unpleasing design for a Church at Exeter. The casual visitor must marvel at the exceeding activity of that city in this direction. Near this last Mr. Reginald Blomfield has two drawings, the more important of which is a scholarly Georgian design for a school at Hammersmith, in which the only unhappy feature seems to be the arrangement of balustrade between the centre and wings; while the other is a somewhat more freely treated sketch for a Parish Institute, of a simple character and apparently well suited to its purpose. An attractive water-colour in

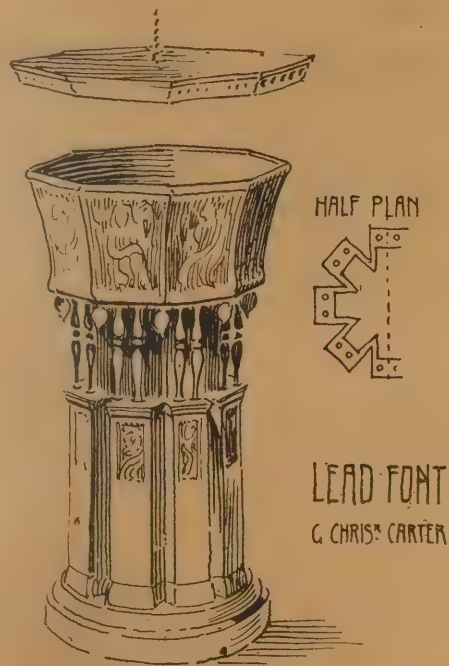
bright and effective water-colour of a Byzantine interior, representing Mr. W. A. Pite's design for the Church of St. Columb, Lancaster Road, a remarkably interesting treatment of the subject. Another design for a Church (1903), also showing an interior of Byzantine character, is by Mr. A. C. Hick, in which the columns of the nave arcades appear in the drawing to be somewhat stunted in proportion, perhaps the only point to which exception could be taken. Mr. C. A. Nicholson gives us, in No. 1896, another of his successful water-colours, in this case a font and cover of his design placed in a Devonshire Church; simple and severe in its general lines, well fitted to its position, and avoiding too ponderous an effect by judicious proportion and detail. Messrs. Bateman and Bateman's design for a house and outbuildings near Birmingham (1905) shows a quiet breadth that renders it far superior to their work exhibited in No. 1893. St. Mary's, Kettering, by Messrs. Gotch and Saunders (1918), is a building in which good proportions seem marred by a thinness and poverty of detail.

With regard to design No. 1917, we can only imagine that it found its way into the Academy cellars some half century ago, and has only this year been accidentally unearthed and hung as some compensation for the delay. Near at hand we come to a drawing signalling



the advent of the upholsterer, with a design that does him, indeed, reasonable credit, though we feel tempted to call "Author," and see what surprise the rising of the curtain has in store for us.

Of designs for the decorative accessories of Architecture we find rather fewer this year than in previous Academies, but, on the other hand, the actual work itself is year by year gaining ground in the sculpture room, and, now that the principle is admitted that the term



sculpture may be so extended as to include many of the accessory Arts, we may expect to see a great extension of the limitations that have hitherto governed the admission of such works. At present, while designs for stained glass, metal work, and wall decoration are found in the Architectural room, much that is quite as intimately connected with the Art of building finds its place with the sculpture.

We may note the window by Messrs. Shrigley and Hunt (1764) as one in which the balance between white and coloured glass is well kept; and those by Mr. William Aikman (Nos. 1909 and 1911) as possessing attractive qualities of line and tone. The bronze gates designed by J. J. Shaw are well drawn, and could be carried out with good effect if the masses were grouped with more variety; as it is, there is a slight impression of too even a distribution of parts that renders them rather monotonous in character. They compare favourably, however, with the design for wrought-iron screen and gates shown in No. 1792, which is commonplace and lacking in expression, conveying no definite idea as to the parts opening or their rational structure.

The most interesting piece of decorative work is the design for a painted reredos (No. 1915) by Mr. Joass, in positive colour with well studied lines to the inclosing frame.

In the Central Hall we find several pieces of sculpture architecturally interesting. A fine recumbent effigy of Archibald Campbell (No. 1943) by C. McBride is placed on a cist having regrettably commonplace detail. Nos. 1945 and 1947 are welcome as examples of sculpture for a recently executed building; their position is shown in the small model No. 2022, but might not the full-sized works have been raised to a position more nearly corresponding to that in which they are actually placed? In No. 1752 the figure is expressive and forcible, but loses considerably by reason of the extravagance of the scrollwork against which it stands. Mr. Reynolds Stephens has a panel in low relief (No. 1958) in which the balance of composition is admirably maintained.

Mr. Alfred Gilbert's striking piece of work in the Sculpture Gallery challenges instant attention, and repays most careful study. The general forms are simple, but the ornamental

detail is fraught with interest, the lines flowing and returning on themselves being full of grace and character, while the selection of coloured materials for the crowning group is a marvel of skill.

Mr. Gilbert's other exhibit of a design for a medal should also be noticed, while one is hardly likely to miss several works by Mr. Alexander Fisher, translucent enamels, possessing delightful qualities of colour, set in metal work displaying considerable originality. In the design of which we give a sketch (No. 2001), the conventional character of the enamel leaves nothing to be desired; but in the portrait of Lady Elcho, the naturalistic treatment of the head makes it too obtrusive, and somewhat mars the decorative effect of the whole. Mr. Onslow Ford's statue of Dame Alice Owen, and his memorial to Professor Jowett, scarcely please, but should perhaps only be judged amid the surroundings in which they will take their place. Mr. Frampton's panel (2042) hardly seems as happy as some of his previous works in low relief, not so much from any failure in the modelling as from the fact that the strong contrasts of tone in the frame do not permit the eye to rest satisfactorily on the centre of interest. A looking-glass by the Countess Gleichen should not escape notice, but the only two exhibits representing the Art of wood-carving are, to say the least of them, inadequate.

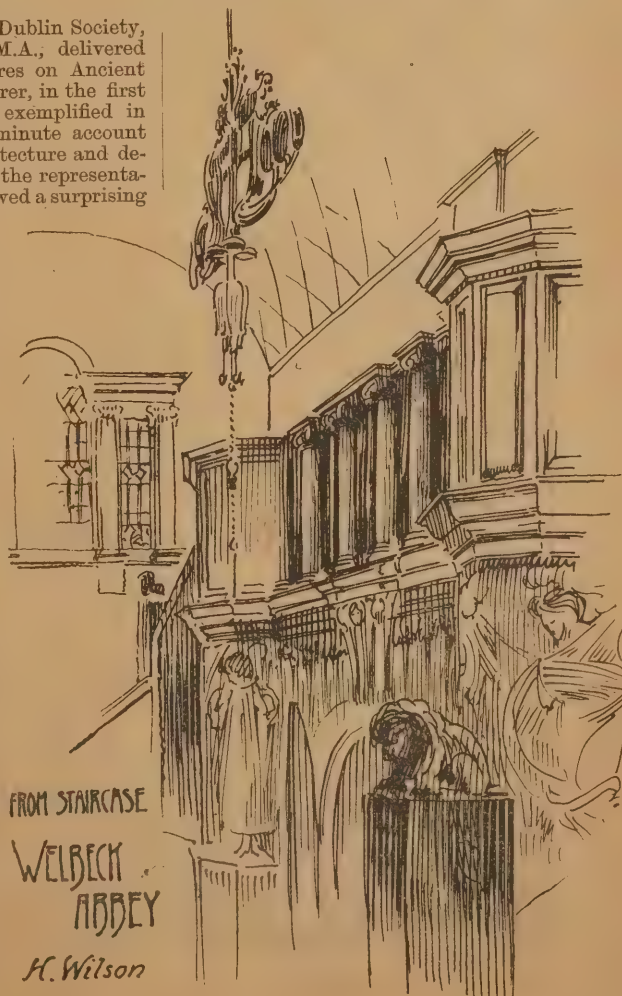
The work of the painter is less closely in touch with the Architect than is that of the Sculptor, but, regarding it from a colourist's point of view, few can fail to be interested in the work of E. A. Abbey, J. W. Waterhouse, Byam Shaw, H. J. Draper, and Harold. Speed, while in R. W. Macbeth's painting in the long room is a charming study of a North Country manor house. We must, however, leave to our reader the pleasure of seeking and finding other jewels for himself, though we warn him that this year they are lamentably few and far between.

#### ASSYRIAN PALACES.

IN the Theatre of the Royal Dublin Society, Mr. G. Baldwin Brown, M.A., delivered the second of a series of lectures on Ancient and Mediæval Art. The lecturer, in the first instance, dealt with Art as exemplified in Assyrian palaces, and gave a minute account of the character of the Architecture and decorations thereof. He said in the representation of animals the Assyrian showed a surprising degree of realism. Turning then to "Phœnicia and the Arts connected with the Temple," he said the Phœnicians were known more in history as a roving, seafaring people, and it had been questioned whether they attained to anything of artistic importance. However, the theory that commercial development was incompatible with artistic excellence was refuted by the case of the Florentines, and also of the Venetians; and scruples as to the artistic capacity of the Phœnicians were really set at naught by the account in the old writings of the works executed by them. The Phœnicians probably excelled any other of the old nations in producing grand effects in building by the use of very large materials. The biggest stones used in masonry were cut by their hands, and some of the stones used for the terraces on the Hill of Zion lay at the present day where they placed them. Some of these were 20ft. long by 3ft. in height, and remained there intact after the lapse of 3000 years. From the accounts

they had of their achievements, there could be no doubt of the artistic attainments of the Phœnicians. He then showed on the screens specimens of bas-reliefs and other types of Assyrian stone carving. The lecturer then turned to Art as it existed in the early Greek age, and dealt with the recent discoveries on the site of the ancient Mycenæ. There was little, he said, of continuity between this older Art and the later Greek Art proper. Homer regarded the Phœnicians as holding the highest place in Art in his age—800 or 900 B.C.—and appeared to regard the Greeks as copying from them. It had been said of Greek Art proper that its groundwork was centred in the world of Olympus. About 650 B.C. the human form began to force itself in as a motive in their Art, and soon became the preponderating feature. The commencement seemed to be in the shaping of figures in wood, and even in the second century before Christ they had the testimony of Pausanias that he had seen the remains of a wooden column. In conclusion, the lecturer showed types of early Greek vases and coins, and also views of the present site of Olympia, and the excavations carried on there by the German Government.

THE Horniman Free Museum, which was dedicated to the free use of the public in 1890, occupies a commanding position in London Road, Forest Hill, and contains curiosities collected by Mr. Frederick John Horniman, M.P., during the past forty years from all parts of the world. The exhibits include Cyprian and other pottery, treasures from the Holy Land, mummies from the tombs of Egypt, Oriental manufactures and artistic productions, and natural history and zoological curiosities. Two years ago a park and a recreation ground at the rear of the museum were thrown open to the public, and Mr. Horniman has now presented an additional eight acres to the neighbourhood. The added area will be a welcome acquisition, for the recreation room is very popular and an extension was much desired.





## In Istria and Dalmatia with a Camera.

By W. LAW BROS.

### III.—SEBENICO AND TRAU.

**S**EBENICO, the next town of any considerable importance we visited after Zara, is most picturesquely situated on a small creek or inlet of the sea, which constitutes a natural land-locked harbour, accessible at all states of weather, and frequented by a large number of coasting steamers which coal here. A small colliery, a few miles in the interior, is being developed, and at present produces about 500 tons a week. The town itself is situated on a low, pyramidal hill, the summit of which is crowned with a huge fort of mediæval date, but kept in repair and garrisoned at the present time by the ever-present Austrian troops.

The finest, and indeed the only building of any great architectural interest in Sebenico, is the Cathedral, a stone-roofed building commenced in 1443, and finished in 1536, according to Hartleben's "Führer durch Dalmatien," which is the fullest guide book I have discovered. Even the ubiquitous Baedeker gives only a few pages to this coast, quite disproportionate to its interest, although perhaps in full proportion to its number of visitors. But this is a digression from the description of the Cathedral, which should certainly be fitted with some special label to suit it. Classic it cannot be called, nor even Renaissance, nor Gothic, and it would be equally inappropriate to call it Romanesque, but yet it combines many of the leading features of all these styles. Perhaps it is best to avoid any descriptive label, and allow each reader to invent his own term from the photograph here reproduced. The most striking difference between it and the vast majority of Churches is in the absence of the huge gables which form such an imposing feature of most of these buildings. The west front looks specially bald and wanting in finish from this cause. On the other hand, one cannot help admitting that what is lost in exterior dignity is gained by the lofty interior, which is correspondingly improved, and the grandeur of this interior must be seen to be appreciated. Another great advantage arising from the suppression of this false wooden roof which surmounts the stone vaulting of our Churches

is the diminished risk of fire when the plumbing fiend is called upon to repair its outer skin of metal, and not infrequently sets fire to the dried woodwork and causes irreparable mischief. The outward thrust of these timbers is also avoided, and there is a general air of more sincere and honest construction than in our Gothic roofs. I would call attention to the elegant design of the north door, of which a view is given. The figures of Adam and Eve are by no means infrequent at these Dalmatian Church doors, and give a curious impression of pagan rather than of Christian sculpture. The incongruous combination of these figures with the Byzantine lions as the supporters of the columns on which they stand is also *bizarre*, but the whole effect of grouping and play of light and shade is most charming.

The Piazza dei Signori, as the grand square is nearly always called (the French Grand Place), is very Italian in character, and may be looked upon as a development of a special type. The Loggia is always present, and forms a marked feature in Italian social and municipal life. Here were made proclamations, and here sat the authorities of the respective cities at the times of public processions and sports which entered so largely into the life of these cities. But beyond the Cathedral and the square in which it stands there is little of interest to retain one at Sebenico, and the next place which claims attention is Trau.

If Sebenico is picturesque, what can we say of its small neighbour with a quarter of its population? There is here far more beauty and grandeur in the mass of Churches with which its streets are crowded, and at each step one sees some new feature to admire.

With a fairly extensive acquaintance of



SEBENICO CATHEDRAL.

cities both at home and abroad, I do not know any which can compare for architectural beauty with Trau. In proportion to its size it is fuller of interesting buildings than Oxford itself, and higher commendation than this is impossible. The view from the adjoining island of Bua gives some idea of this wonderful wealth of Architecture.

The city itself stands on a small island between the larger island of Bua and the mainland, but the channels between these islands are so narrow that they are easily bridged, and form one whole.

If you start from the northern end of the line of quays you will see at the extremity of the town the old Venetian fort shown in the photograph, now known as the Castel Camerlengo. Its machicolation shows that it was created at a time when the earliest artillery had rendered useless the primitive wooden *hourdes* which were previously erected in times of danger as a temporary defence against attacks on the walls, but which became at once obsolete when gunpowder came into use. We pass several monasteries and Churches which would suffice to establish the architectural reputation of many a larger town,



SEBENICO CATHEDRAL. WEST FRONT.



SEBENICO CATHEDRAL. NORTH DOOR.



and reach the delightful little fourteenth-century Dogana or custom-house, with the Venetian lion mounting guard prominently on its façade, then come remains of ruined walls with gates, bastions, and towers, which should give innumerable subjects to Artists and architectural students, and after a wonderful series of picturesque combinations, each more interesting than the last, arrive at a point from which we get a view of the east end of the Cathedral. This is triapsidal, of graceful proportion, and is typical of the best period of Venetian work. Turning to the left along the narrow lanes, formed of mediæval houses, you will come into the Piazza dei Signori, and see the Loggia and Palazzo Comunale which are clustered round the Cathedral. This consists almost entirely of early thirteenth-century work, and, as will be seen from the illustration we give, is simple in character, and of very fine proportions. The west front is concealed by the Galilee porch which is entered by means of the arch, also illustrated. On entering this porch or vestibule from the brilliant mid-day sunshine outside, the darkness renders it difficult to see the detail; but as you get accustomed to the subdued light you will be struck by a doorway, which, perhaps, can hardly be rivalled in Europe.

Of all styles of Architecture, probably the late Romanesque is the most ornate, and this is no exception to the rule. You see here the most marvellous composition of figure, animal, and floral design which the Architect has yet produced, while the Sculptor has most worthily carried out the superb design. No drawing can do justice to the delicacy of touch shown in the execution of the work, but unfortunately the position of this door in an ill-lighted narrow passage renders it impossible for the camera, even with the widest angle lens, to get a straight view, and to take at an angle such a fair piece of work is to give a most unjust representation of it. I was able, however, to obtain a view of one of the jambs, which is here shown. Hours might be spent in an adequate examination of the details of this doorway. It is with a sense of relief that you turn into the interior and rest your wearied brain with its quiet, dignified calm solemnity. With massive round arches and square solid piers, it seems calculated to ignore the flight of time, and to be quite impervious to decay. The ciborium or tabernacle over the altar carries one back to the early thirteenth century, and you wonder whether anything short of an earthquake can cause any settlement or destruction of such massive and solid work. I have paid two visits to Trau, but yet had not time to visit the many architectural wonders it has to offer. When one reflects that it is only a small country town of 3500 inhabitants, one cannot help wondering whether any other town in Europe, of ten times its size, has such attractions.

ABOUT £700 has already been promised to the fund for restoring the very ancient Church at Witton-le-Wear, Bishop Auckland.

It is proposed to expend £25,000, of which about £14,000 have been subscribed or promised, in building Churches at Newport, Swatter's Car, and on the borders of St. John's parish, Middlesbrough.

As a result of the notice given by the Oldham joiners and carpenters of their intention to seek an increase of wages, a decrease in the number of working hours, and a limitation of the number of apprentices, the Master Joiners' and Builders' Association has signed the revised code of working rules, agreeing to the cardinal points, which were that the men be advanced from 8½d. to 9d. per hour both winter and summer, for inside and outside work. Working time was also allowed as the men desired, all overtime worked up to eight o'clock to be paid for at the rate of time and an eighth; after 8 p.m. to 10, time and a half; after 10 to starting time next morning, double time. The employers also consented not to admit apprentices to the trade over 16 years of age. The rule as to the number of working hours was agreed to, which, according to Rule 2 of the revised code, shows a reduction of the weekly hours from 54 to 51 in summer, and to 46 in winter.

A A

#### THE ARCHITECTURAL ASSOCIATION. JUBILEE CELEBRATIONS.

THE Architectural Association has completed the fiftieth year of its existence. Fifty milestones have been passed, and to-day the coach, which has assisted many tired students

numbered over 200, and amongst those present were Professor George Aitchison, A.R.A., Mr. H. C. Richards, M.P., Dr. A. S. Murray, Messrs. W. H. St. John Hope, J. Jacob (Master of the Carpenters' Company), W. J. Cloake (Master of the Painters' Company), H. W. Pratt (President-elect), H. Lovegrove, J. M. Brydon, Alex. Graham, W. H. Seth-Smith, T. E. Coll-



LOGGIA, SEBENICO.

along the high road of Architecture, enters upon another stage of its long journey, better equipped, and with brighter prospects of sunshine and calm than has perhaps favoured it during many of the preceding stages. The jubilee of the Association was celebrated last week, and, as befitted such an auspicious occasion, the usual gravity of its deliberations gave way to a becoming air of festivity. A banquet at the Trocadero Restaurant on Wednesday night was followed on Thursday by a short conference, held to discuss the work of the Association in its various aspects, and in the evening of the same day by the annual soirée at St. George's Hall, Langham Place. But as to the banquet. Mr. Beresford Pite, the

cutt, Paul Waterhouse, G. H. F. Prynne, H. Tanner, W. M. Fawcett, F. W. Pomeroy, J. Sulman, Professor Kerr, J. Edmeston, T. M. Rickman, J. S. Quilter, J. D. Mathews, J. Norton, R. Plumb, T. Roger Smith, H. L. Florence, J. H. Christian, T. Blashill, H. C. Boyes, Aston Webb, T. H. Watson, John Slater, Leonard Stokes, H. O. Cresswell, E. W. Mountford, J. A. Gotch, F. T. Baggallay, S. F. Clarkson, W. D. Caröe, Cole A. Adams, H. D. Searles-Wood, W. White, J. P. Seddon, J. K. Collins, T. W. Goodman, J. Ely (Manchester), C. Hadfield (Sheffield), W. Henman (Birmingham), S. P. Pick (Leicester), and E. B. Vaughan (Cardiff). Dinner over, the toast list was opened by the President, who gave the usual loyal sentiment.



A VENETIAN FORT, TRAU.

President, who previously held a reception, was in the chair, and on his right was the Right Rev. the Lord Bishop of London, and on his left Viscount Halifax—Lord Russell, the Lord Chief Justice of England, who had been announced as one of the principal guests, being unable to be present. The company

Her Majesty the Queen, he said, had bestowed an infinite blessing on the production of

#### THE FINEST WORKS OF ARCHITECTURE

by the glorious peace which had been maintained within her realms, and by the wonderful wealth with which Divine providence had



blessed her subjects. If it had not been for these two priceless benefits they, instead of being met there in festive joy, would have been a scattered band of hungry Architects. As it was, without any merit of their own they would go down to posterity labelled with the magnificent name of "Architects of the Victorian Era"—the greatest era of English history, and consequently the greatest era of English Architecture.—The Royal toast having been duly honoured, the President submitted the toast of "The Church," and said the connection existing between the profession of Architecture and the Church was a connection which appealed to every Architectural student of this land. That connection was an exceedingly difficult one to define. The enthusiasm which Ecclesiastical Architecture aroused in the breasts of Englishmen was due primarily without a doubt to the magnificent character of our national Ecclesiastical Art. When they proceeded further, and asked themselves the question to what was due the pre-eminent character of this Art, they were face to face with the core of a difficulty in definition.

and English literature—in the days of Bacon and of Shakespeare—there was being fostered under these new influences, such work and such life as that of Inigo Jones and Sir Christopher Wren, which culminated in the Reformation. In the history of that Association—within the recollection of its past Presidents, whom they were delighted to meet on that occasion, and many of whose lives covered fifty years of Architectural work, there had been conflicts of tastes and opinions and battles of styles. These had been of the twelfth, fourteenth and fifteenth centuries, but the Architects who had debased Architecture had disappeared in the throes of the Renaissance, and to-day they were equally prepared to share the admiration of the fifteenth century and to distribute the honour equally amongst the unknown representatives of the Ecclesiastical Art and the concrete elements of Art and life as those of Jones and Wren, to whom he had referred. He asked them to drink heartily the toast of "The Church."—The Right Rev. the Lord Bishop of London, in replying in an attractive after dinner speech, said

one mighty span, offering space and largeness, things absolutely necessary for the development of every great Art. It was for these two reasons, first, that the Church required the exposition of ideas, and, secondly, that the mere form of its building was large, spacious, and splendid, that it called upon Architects, not only in their spiritual and moral nature, which they recognised played so large a part of any Art, but also in their

#### CAPACITY IN SIMPLE STRUCTURAL DEVELOPMENT.

giving those opportunities which had been so worthily made use of in the past, and also in the present. For since coming to London he had been struck by the exceeding resourcefulness of Architecture in modern times. Before he came to the metropolis he used to admire ancient Art; now he was learning to admire modern Art. The great growth of this great City had called for the Architect's work in every possible way, and as he went about his diocese he saw so many modern Churches which, in that quality which he called re-



TRAU CATHEDRAL. FROM PHOTOGRAPHS BY W. LAW BROS.

He felt that with the Lord Bishop of London on his right hand—a man than whom no one had a more comprehensive knowledge of the underlying secrets of our national history, he might venture to suggest that the problem which unites our Church history and our Art in a knot, in a chain, in a stranded cable, which drew them to the admiration of Cathedrals and of village Churches, was a subject which made them feel honoured in having his lordship as their guest that evening. No kind of Architecture in our own land aroused so much enthusiasm as Ecclesiastical Architecture. Their sketch-books were full, from the earliest days in which they could draw arches in perspective with attempts at Cathedrals and other

#### ECCELESIASTICAL BUILDINGS.

But there were other matters connected with Ecclesiastical Architecture which linked themselves to their minds on the present occasion, and they were conscious that when the Church was in a prosperous condition Architecture was also prospering, that the palmy days of things Ecclesiastical were also the palmy days of Architecture. The magnificence of the thirteenth century in England was proverbial. We were scarcely yet beyond the reach and glamour of its revival. But passing through the thirteenth century to the Elizabethan period, in the heyday of English intellect

they were met that evening either as Architects or as

#### PEOPLE INTIMATELY CONNECTED WITH ARCHITECTURE.

and, indeed, that was a definition that might apply to all men, for everyone was intimately connected with Architecture in that they all wanted some shelter over their heads to keep off the rain. To whatever profession they might belong, or whatever vocation they might pursue, they all felt that they owed a debt to Architects. But he thought there was this difference between the Church and other professions: that whereas everybody wanted Architecture which was adapted simply and solely to convenience, the Church wanted Architecture adapted to the expression of ideas. And it was simply and solely because the Church stood in that peculiar position to Architecture that it had inspired those engaged in the profession to erect those mighty works to which the chairman had referred. A house was a building split up for convenience into small rooms, and even a great building for municipal purposes, whilst affording artistic scope in the facade and general external treatment, had also to be split up into rooms, but the Church was the only building which directly challenged the Architect to do his best. Outside and inside alike the Church was

sourcefulness, called forth his warmest admiration. Our modern buildings demanded a disposition of site unknown in the old days. Architects were called upon to make use of sites which at first appeared very unpromising, and he was struck with that great capacity shown for using the small opportunities afforded and adopting the land to the purpose for which it was needed. Higher praise, he thought, could not be given to any Art. After all, vitality consisted in making use of opportunities. Now he thought they often cast a glamour of romance over the past which they denied to the present. And in the admiration of a past age it was often said that to-day they were not so artistic. He was not quite sure that if they studied in detail the

#### HISTORY OF OUR CATHEDRALS

they would be led to that conclusion. Of course people in the old days were not in a hurry. They did not want their buildings adapted to vastly growing populations, but were quite prepared to erect a building with no regard to the population which dwelt around. And then they must remember that these great Cathedrals had to compete for pilgrims, and were therefore built purely as advertisement in order that they might draw pilgrims from the other shop, which was not nearly so well adapted. They would



find that a great deal of the history of our Cathedrals was explained by this formula. Neighbouring Cathedrals competed with one another. First of all the choir was erected, and then the nave, and as they were proceeding to put up a west front the news was brought that a neighbouring establishment had gone one bay better; and, of course, it was necessary not to be cut out of the race, as otherwise the pilgrims would go to the other

necessity of providing increased Church accommodation were equally heavy. He was quite sure, however, that Architects were trying to do their best in all the Ecclesiastical buildings entrusted to them, and he was also sure that not only the buildings which had been erected by the piety and the genius of the past, but the construction of other buildings in the present, would be not unworthy of their predecessors. He wished them prosperity in the

arduous Profession they were engaged in. A clergyman must feel his dependency on the skill of the Architect—that all that he could say, all that he could do, was largely dependent upon the Architectural surroundings which the Architects would supply. He thanked them for the good work they were doing on behalf of the Church, and also thanked them for the way in which they had honoured the toast.—The Right Hon. Viscount Halifax proposed the next toast—“The Architectural Association.” There was one point, his lordship said, in which he was in total and entire

disagreement with the Bishop of London, and that was that ideas were by no means necessary in the construction of houses. It was quite true that from the Queen on her throne down to the humblest inhabitants all must live in houses, but he entirely disputed that ideas were unnecessary in connection with those houses. On the contrary, the great desideratum, the one thing more necessary than another was that

#### HOUSES SHOULD EXPRESS IDEAS.

How dull and uninteresting some houses were, and how delightful others were. The object of the Association was, he was informed, “the education of the young Architect as a professional student,” and just because they must live in houses, he earnestly wished success to the Association. When he knew how much influence a house had upon its occupants, and that so much depended upon windows and doors and fireplaces, not merely for comfort, but also for a sense of well-being, he confessed that there was no institution in England for which he wished a greater development than the Architectural Association. But there was another point in which he would like to say how completely he re-echoed the Bishop's words. He did feel that if there was one thing absolutely more trying—nay, enraging—than another, it was the position of the Architect who found himself with a beautiful scheme, something which he knew was most admirable, cut down in every way by an employer, who spoilt, not only his ideas, but his future prospects. In such a position the Architect must feel half inclined

to throw the plans in a client's face, and say, “You and your house perish together.” He had to confess that he went to that banquet in a state of considerable ignorance as to the objects and work of the Association, but he had been told that it had now been in existence for fifty years, and that many of the first members of the Association had during those fifty years come to the front in the Profession and

#### LEFT THEIR MARK UPON ARCHITECTURE.

He learnt that one delightful feature of the work of the Association was a week's excursion in the provinces every year, held for the purposes of sketching and visiting ancient buildings, and generally to foster the common interest of the Association. He could conceive nothing more delightful, and if such a state of things were possible, he should like to express the wish that some of those who did not belong to the Association might, in some honorary capacity, be invited to join the excursions. He was also told that the Institution amidst its artistic work by no means ignored sanitary science. He was obliged to say that all matters connected with drains and the like he found profoundly uninteresting. He had the greatest pleasure in proposing “The Architectural Association,” and he hoped that its anniversary celebrations would be repeated sixty years hence, when it would be said that during the fifty years since the Association's jubilee, English Art had made greater progress than it had during the period of which they were speaking that evening.—The toast was cordially honoured, and in replying, the President said they would understand something of the interest of the Architectural Association; something of the memories aroused at that gathering, and something of the hopes they felt for the future when they reflected that they were gathered to celebrate its fiftieth anniversary. When at the outset they were a little group of students, and also through the burden of years they suffered many vicissitudes; then lapsed into a state of apathy, but never unto death. But the hopes of the founders had been more than realised, but he could scarcely speak on this subject in the presence of their first President.

#### THE OCCASION WAS UNIQUE.

he thought, when the first president of an association survived to honour it with his presence at its jubilee celebrations, as Pro-



CATHEDRAL, TRAU.

establishment. The more one studied the history of the Middle Ages the more one found that prosaic and commonplace suggestions really lay at the bottom of a good many minds. In replying to the toast he spoke not only personally but on behalf of the clergy. Now the clergy might not appear in very great estimation with some of his hearers from a professional point of view, for they frequently stood to the Architect in the relation of the employer of labour, and he need hardly say that an employer embodied reminiscences of a

#### VAST AMOUNT OF UNINTELLIGENT CRITICISM.

It was their fortune—he would not call it misfortune—who belonged to that Society to be subject to a vast amount of unintelligent criticism. Well, he consoled with them. More criticism than was necessary was often proffered—in fact, it was often offered with a freedom and volubility which excited their admiration and respect. Of course, when they got it they did not like it. But he thought that on a little reflection all of them would welcome criticism when it came in its heartiest and most uncongenial manner, for it only bade them put themselves more in accordance with those by whom they were surrounded; and they need not shrink from such a contact. The other day he heard the story of a curate who went to call upon the great lady of the village, in order to introduce his newly married wife. Now, it was always a bad habit to make a joke at one's own expense. In introducing his wife, the curate remarked: “A poor thing, madame, but mine own.” The lady looked at him severely and said, “Sir, your wife ought to have introduced you as ‘a poorer thing, but my owner.’” Now he had often imagined how many Architects went to the clergy with plans and said in a humble way, “It is a poor thing, but my own,” and after listening to their criticism, went away uttering under their breath, “They are poorer things, but my owners.” This was what they all had to endure, and he would only assure them that the clergy were subject to the same thing, and though they perhaps frequently demanded of Architects to

#### MAKE BRICKS WITHOUT STRAW.

the demands made upon them (the clergy) by the increase of population and the consequent



MUNICIPAL PALACE, TRAU.

fessor Kerr did their Association that evening. Professor Kerr had maintained his interest in the Association throughout, and had aided it with his judgment, and he was present on that occasion to witness their sincere enthusiasm and the success which had attended the efforts of those instrumental in founding the Association. When they reflected that Professor Kerr was not alone on that occasion, that there



were sitting at that board those who, before he was called to the chair, were concerned in the initiation of what they were there the embodiment of. They were honoured with the presence of so distinguished an architectural draughtsman and so wonderful an Artist as Mr. J. C. Colling, and also Mr. Sedding. Looking from their ranks to the chartered royal body, which took upon itself the official exercise of those duties which developed upon the representative body of a profession, they recollected that Mr. Cates, one of its office-bearers, had formerly been the life and spirit of the Architectural Association, and it was his foresight which saw the necessity for some qualifying test for architectural students. After a lapse of something like a quarter of a century, the Royal Institute of British Architects instituted the examinations as they now knew them. But the Institute without the students trained in the ranks of the Architectural Association would have had a poor chance of carrying out the examinations. It (the Association) had supplied the sinews, and while looking up to the Institute with thankfulness and gratitude it was almost inclined to say that the Institute was the Association with an important difference. And coming to the present position of the Association, they found that a large number of those joining the ranks did so for the

#### EDUCATIONAL FACILITIES

offered in their studios and classes, and left the Association when they left London. At present, the Association numbered 12,000 active members, and although the number of students attending the classes only numbered 200, they must not forget the educational agency of the papers, discussions, excursions, etc. The Association had few needs. It supplied its own teachers, it supplied its own taught; but they had a burning need which, he was sure, must commend itself to everyone. The Committee hoped that as the result of the Association's Jubilee celebrations it would see its way open to obtain some building which would not be hired, and which would be an architectural embodiment of what he might call the glorious history of the Association and of its present glorious aims. On behalf of the past presidents, the committee, and all connected with its work, he begged to appeal earnestly and heartily to their successful brethren to provide them with the means of obtaining suitable premises in which to conduct their work. They at present had premises overcrowded, and those who knew how they had to conduct classes and knew with what generosity the Royal Institute of British Architects had placed its rooms at their disposal, and how loth the Association was to encroach upon its hospitality, and yet how necessary it was to do so, would agree that new premises were badly needed, not only class rooms and meeting rooms, &c., but a library to house their invaluable and ancient collection of books which provided students with that literature which was indispensable to the Architect. He thanked them for the kind way in which they had honoured the toast of "The Architectural Association."—"The Royal Academy, the Royal Institute of British Architects and Kindred Societies," was the next toast submitted by Professor Kerr. In its connection with other societies, the speaker said, the Architectural Association took its highest ground. It looked firstly to the Institute of British Architects as its head-quarters of organisation. The Institute recognised

THE ASSOCIATION AS A JUNIOR INSTITUTE more expressly by preserving one seat on the Council for a member of the Association. Now the Institute of Architects, of course, represented the profession of Architecture in this country, and, in fact, throughout the whole of the Queen's dominions, and it would be known to many of them that its operations were divided into four sections—Art, Science, Literature, and Practice. Now, taking Art, the Association claimed connection with the Royal Academy. The Royal Academy was to it the representative of Art in *excelsis*, and the natural aspirations of many of the younger members of the Association turned towards the Academy. He did not see why

any young man should be discouraged in cherishing the hope of sooner or later becoming a member of the Royal Academy. One thing he had always ventured to uphold in connection with that Association, and that was the encouragement of self-conceit. He considered self-conceit a most important agent founded by Nature for the advancement of youth. Artists were apt to say that Architects were a little in the way. But the time would come, he thought, when, instead of being a little in the way, they would be very much at the head of Art. Passing from Art to Science, he thought they ought to pay homage to the Institution of Civil Engineers. He believed that the young architectural students ought to be encouraged to study Science a good deal more than they did, so that the time would come when the Forth Bridge of the future would be rendered in some degree attractive by somebody. They recognised in the Institute of Civil Engineers that perfection of mathematical science in which no Architect ought to be deficient in knowledge. And, coming to the department of Literature, the Association was linked to the Society of Antiquaries. Many of the Association members were also members of this Society, which represented

#### THE HISTORICAL LITERATURE OF THEIR PROFESSION;

and no profession in the world, perhaps, had a better history than that of Architecture. Coming, lastly, to Practice, he did not know that they could do very much in this respect, but he wanted the young men connected with the Association—the Architects of the future—to bear in mind that they were closely allied to these several departments. It was very seldom that the scientific intellect and the literary intellect were combined in one individual, but the Architect must combine both these rival branches, not to any brilliant extent. In England the public required plain practical common sense and good workmanship. They had entered a hard-working Profession, and they could not do better than study the apparently rival elements as a means of satisfying the English public. The chief function of the Architectural Association was an educational one, and throughout the whole of the fifty years of its existence it had had this one end in view—to encourage study among the coming Architects for the improvement of their Art.—The toast was responded to by Professor G. Aitchison, A.R.A. The Academy, he said, was one of the first bodies in this country that gave instruction to young Architects, and this was due to an Architect, Sir William Chambers. But this was at the end of the Renaissance period, when

#### THE REVIVAL OF GOTHIC

had hardly been thought of—although it had been thought of, for in so popular a book as "Tom Jones" there was reference to a house, "a Gothic structure which almost rivals the beauties of Greek Architecture." The Renaissance Architects—if he might call them that, for they were not Architects at all, and had no idea of what Architecture meant—were very accomplished men, almost all having been goldsmiths, while some had risen to be sculptors and painters, and what they conferred upon Architecture was no doubt one of the greatest boons that had ever been conferred upon it. The Royal Academy had adhered to their old belief that if a man could draw the human figure and was nimble with his fingers he might do any artistic work. In the present day we were taking, unfortunately, a different view of Architecture, and he thought that this was not the best way to produce men of the greatest excellence in the Art. Referring to the Institute of British Architects—of which body, through the kindness and forbearance of his brother Architects, he had been re-elected president for the ensuing year—he said that it had done what it could for Architects and Architecture, and with the Association a more practical view was adopted in teaching young men of the profession the

#### NECESSARY KNOWLEDGE OF THEIR ART.

He hoped that Professor Kerr's words would

be remembered, viz., that Architecture is a constructive Art, and that without a knowledge, and a very good knowledge, of construction, Architecture could not be expected to make the progress that it once did. He (the speaker) was a member of the Association at the time of Professor Kerr's presidency. They were all of them looking forward not to the resurrection of any old or bygone style but the creation of a modern style. He did not see why Architecture should not become again a progressive Art, as it was at one time, if they once turned their attention to pursuing it in a proper way. Religion had been a great stimulus to all the Fine Art of the world. It was upon temples, mosques, and Churches that Architecture had lavished its greatest skill and shown its greatest power. This, however, was not wholly due to the religious feeling of the people, for there was something of a more mundane character to account for the erection of buildings for purposes of public worship. The temples of the ancients were also banks of deposit, and there was no doubt that a very fine temple of elegant proportions and impressive appearance caused more people to bank their money there than did temples of a less important appearance. What Architects had to do was to cultivate their faculties and study those things which were necessary in the

#### PROGRESS OF THEIR PROFESSION,

and he had no doubt that if the attention of the Association was sufficiently directed to those matters which were absolutely necessary for Architects to study, there would, as a result, be a new style that was fitted to the taste of the present day. He did not think that the powers that be had a proper idea of the importance of Architecture to a nation. Almost all the other triumphs of the human intellect were movable, or they could be absorbed by other nations, as the work of poets, for instance, but with Architecture this was not so, though the work of the Architect would remain to point out the character of the people who lived at the time of his work. Badly as Architects were recompensed, they were paid still worse in gratitude and honour. There was little admiration for Architecture in this country. A successful painter was sought after, but few people thought much of a successful Architect; that was not the way to encourage an Art which was of so much importance to a nation.—Mr. J. Ely (Manchester Society of Architects) responded for the allied societies, and said that the provincial Architectural Societies were kindred societies to the Association in name, profession, and in the objects they had in view. The Institute was concerned more in the professional side of the Architect's work and the Association with the educational, but in the kindred societies these two branches were combined. The objects of the societies allied to the Institute were uniformity of practice, professional integrity, the advance of Architecture, friendly communications, mutual advice and assistance in cases of disputes or professional jealousies, educational facilities for students, and the formation of libraries. All these aims had been intensified, and their achievement had been rendered more certain by the alliance with the central body in London.

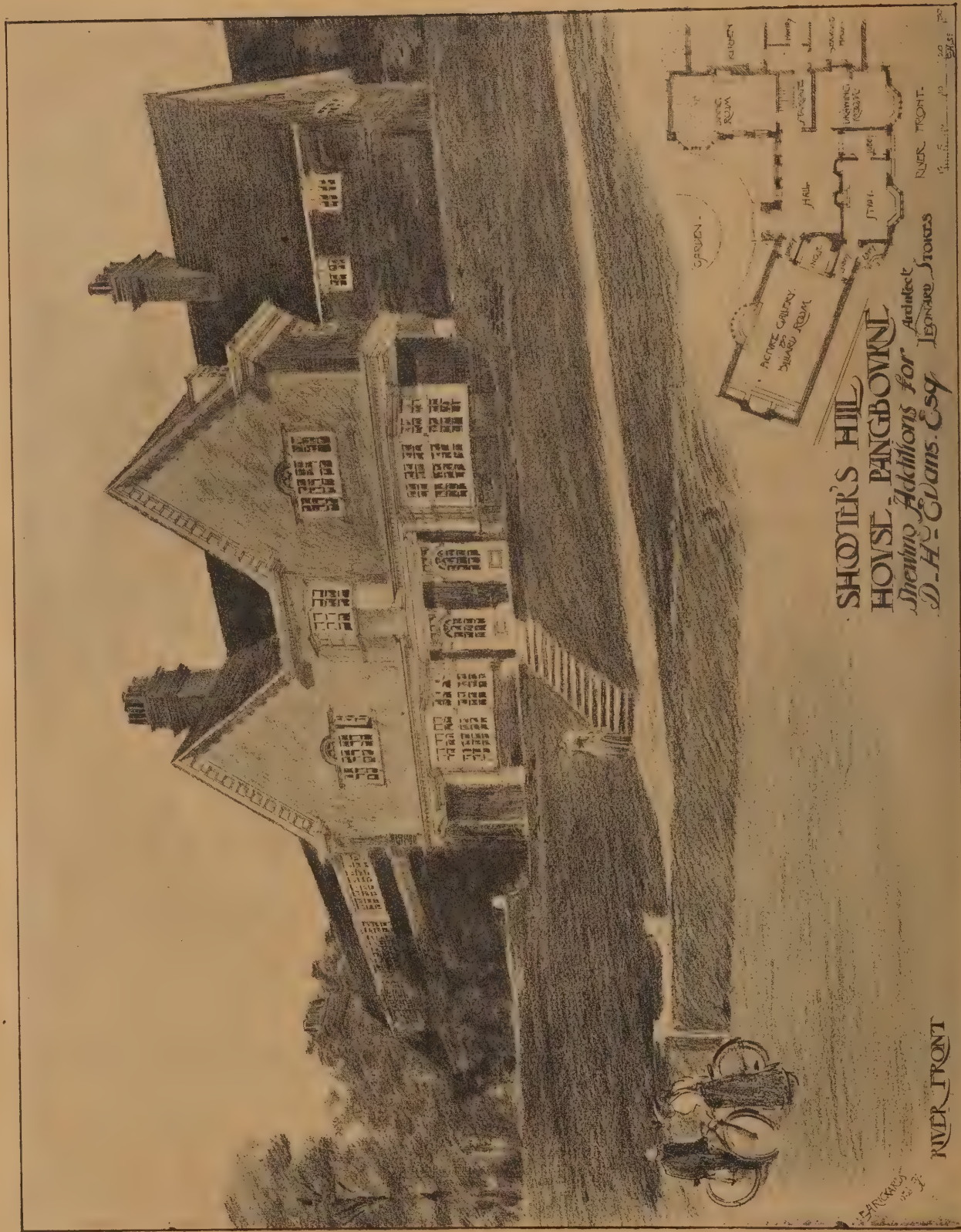
#### THE EXAMINATIONS OF THE INSTITUTE

had been of great use to students in guiding them, not only in the course of study they ought to pursue, but in showing them their shortcomings. The Institute, in bringing the examinations into the provinces, had afforded great assistance in guiding students. There were sixteen kindred societies allied to the Institute, and the total number of members of all of them was a little over 1000—a considerable number, considering that they were scattered all over the country.—"Literature" was the next toast, given by Dr. Murray. There was no body of professional men, he said, to whom the charm of literature brought greater delight and greater solace than to Architects. Architects knew that for many of the crosses and ills of life there was no cure like a good book. He had recently read a book by Mr. Palgrave on "Landscape in Poetry," and he wondered why there had not been done



LIBRARY  
OF THE  
UNIVERSITY OF MICHIGAN





SHOOTER'S HILL HOUSE, PANGBOURNE. RIVER FRONT. LEONARD STOKES, ARCHT.





SHOOTER'S HILL HOUSE, PANGBOURNE. GARDEN FRONT. LEONARD STOKES, ARCHITECT.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



a similar work on "Architecture in Poetry."—Mr. J. Alfred Gotch, whose name was coupled with the toast, said, in reply, that Architects were all familiar with the unintelligent criticism which the Bishop of London had referred to. One method of giving the public a little knowledge might be in literature. It had sometimes dawned upon him as a kind of hope that someone might arise in our generation and write about Architecture in such colours as would appeal even to the ordinary employer, though to do that the ordinary architectural literature would have to some extent to be avoided, for it was no use offering the ordinary public technical terms. If architectural literature was to appeal to the public, it must possess the main elements of literature and be fascinating. Architecture was something more than drains; there was a poetry about it, and there was something higher than piling bricks upon bricks or stones upon stones. He rejoiced that there was a more catholic spirit now in regard to the different styles. In his opinion this was due to literature, and he looked forward to the time, so great was our catholicity now, when a book would be written about the Architecture of Gower Street. He trusted that they would avoid clinging too firmly to the past. The future must be something different, and on different lines to the past, and it was one of the functions of literature to bring that state of things about. He objected to London holding the whole architectural genius of the nation, and one of the ambitions of the Association should be to send educated Architects into all parts of the country, so that in all parts of the land buildings which had

#### THE MARK OF CULTURE

upon them might be put up. He was struck with the remark of the Bishop of London that in his old diocese he was interested in the buildings of the past, but in London he was learning to admire the buildings of the present. As he (the speaker) happened to live in the Bishop's late diocese, the remark stung him to the quick, but he hoped that before long a remark of that kind would no longer be possible.—Mr. John Slater proposed "The Visitors." He said the Association had always done its work in an unassuming manner, and had never strained after publicity. He wished that there were more opportunities of friendly intercourse between Architects and other branches of the Profession and the general public, because meetings of that kind would go a long way to remove the misconceptions which existed as to the duties of an Architect, his method of conducting business, and his charges. It had been the practice of the Association to have an annual dinner, and as a rule the guests had been members of the Profession of Architecture. In future, could not their invitations be extended? Architecture was, he was afraid, *caviare* to the general, but he was glad to say that there had been some enlightenment in this respect. One of the most interesting signs in the past few years had been the action of the Universities of Cambridge and London in including Architecture in their course of lectures in their Extension schemes. He had been engaged as examiner for the two Universities, and he had been struck with the interest shown in Architecture by the non-professional students who had attended the lectures, though, no doubt, their interest had related to

#### ARCHITECTURE OF THE PAST.

He was glad that the Bishop of London was beginning to be interested in the Architecture of the present, but the Bishop would have a great deal to do if he wished to imbue the whole of his diocese with that view. He was told that at the Royal Academy the other day, when the galleries were crowded, the Architectural room had one occupant—an old gentleman who had gone there to take a nap.—In replying to the toast, Mr. H. C. Richards, M.P., chairman of the Society for the Protection of City Churches, remarked that Architects had often supported his petitions with respect to City Churches, and that was why he was present. He was not exactly a student of Architecture, but, like Lord Halifax, he was often a pilgrim to the architectural shrine;

he knew no greater pleasure than to behold the marvels of the architecture of Europe. In his Profession as a barrister, he had often been struck with the unanimity of Architects with regard to fees—how one member of the Profession thoroughly and heartily agreed with his professional brother's charges, and had thought that jealousies in the Profession were unknown.—"The President-elect" was the last toast, and in proposing it Mr. Aston Webb remarked that fifty pages of the history of the Association had already been written, and what Mr. Hampden W. Pratt would write none of them could say. He had no doubt of the zeal and ability with which he would occupy the presidential chair, and with the past Presidents and others, would do his best to secure suitable premises for the Association.—Mr. Pratt, in reply, said they had been looking back that evening, but the interest and the work of the Association laid in the present and in the future. There was much to encourage them in regard to the future work of the Association, to bid them go forward and commence another year with greater enthusiasm than in the past. The Association had lived on enthusiasm, and during his year of office he hoped he would have his hands strengthened by the Committee to help forward the educational work in which they were engaged. Looking back upon the past they might learn many lessons in what to avoid and what to imitate, and conservative as many of them were in the Association, he for one intended to do his best to lift high the Standard of Progress, for he felt convinced that the architectural student of to-day must ever be going forward.

#### THE EDUCATION OF ARCHITECTURAL STUDENTS.

##### CONFERENCE AT THE ARCHITECTURAL ASSOCIATION.

THERE are one or two "burning questions" agitating the councils of the Architectural Association. It was to discuss these heated questions, the President, Mr. Beresford Pite, explained, that a Conference was held at 9, Conduit Street, on Thursday afternoon. The work of Technical Institutes as relating to the Architectural Association was the first subject for discussion, and in introducing it the President explained the present position of affairs. The Architectural Association, he said, had to provide paid instructors for certain courses of study necessary, primarily, for the Institute examinations, and also necessary in view of the courses of instruction afforded at the colleges, polytechnics, and technical institutes in London, all of which had access to sources of income not open to the Association. They were no doubt aware that the London County Council had the distribution of large sums of money set apart by the Government for the advancement of technical education, and this was a subject upon which all Architects felt alike grateful and thankful. The institutions receiving these subsidies had to make the best possible use of the funds thus placed at their disposal, and that they did so was secured by official inspection and by compliance with regulations, &c. The Architectural Association found itself, in their classes for construction, drawing, science, &c., handicapped; it was in competition with these subsidised bodies, for a course of study which at the Association classes would cost a fee of say half a guinea could be obtained for about a shilling at other technical institutions. In some instances

#### THE DISPARITY OF FEE

was considerably greater. In spite of this, the Association classes were well attended, but this competition had had the effect of bringing about a reduction of instructors' fees to the lowest possible point, and the Committee was in this position: although the fees received from the students sufficed to pay the cost of instruction, there was no margin, and the apparatus used in connection with the classes had to be bought by the Committee, and the money taken from other funds. The Association could not very well retire from

the position it took up a few years before these technical institutes rose to their present position. The questions to be answered therefore were: What is the scope open to the Association in face of Technical Institutes? What policy should they adopt? Should they place themselves in line with the Technical Institutes, and apply to the Technical Education Board for a grant? Or should they seek to acquire subscriptions, and thus sacrifice their freedom and their independence? Or should they continue as at present, and do the best they could under the circumstances, trusting to other attractions to keep them together as an Association? These were questions to be dealt with in discussion.—The tone of the discussion was decidedly opposed to any action being taken towards receiving a grant from the Technical Education Board.—Mr. Trower very much doubted whether the Association, even if desirous, could obtain a grant. Its methods were not in compliance with the

#### CONDITIONS OF SUCH GRANTS.

For instance, if a grant was asked for in respect of a class for quantity surveying, it would be required that the students should not merely acquire a general insight into the subject, but that they should become quantity surveyors.—Mr. T. M. Rickman said it was a difficult problem as to whether it was advisable for young Architects to go in so largely for the technical subjects connected with building before learning the practice of their Profession. But if intuition could be obtained just as well and more cheaply elsewhere, why not look the question fairly in the face, and consider the advisability of dropping certain classes.—Mr. Hampden W. Pratt thought the Association had a work to do which no technical school or other body could perform, and therefore for the benefit of their Art he hoped they would induce their friends in the Profession to take that view. He hoped it would be possible to carry on this educational work, and he would suggest that classes of instruction in some of the more outside subjects—geology, for instance—should cease if necessary. If they dropped such subjects and threw themselves more entirely into designing, construction, drawing, and the art side of the Profession, he thought they would strengthen themselves considerably, and do more to uphold the reputation of the Association as an educational body. After other members had joined in the discussion, the President introduced the second question, which was:

#### "WHAT SUBJECTS SHOULD BE COMPULSORY

in an Architectural examination, and what studies supplementary?" Speaking of examinations as affecting the question of a man's competency, he said if an Architect was incompetent of building decently and honestly, need it mean also that he was incapable of designing beautifully? And that suggested the question of which subjects might be considered compulsory and which supplementary. Taking the Institute examination scheme, he thought they would find that everything in the preliminary examination was rightly compulsory and necessary. The intermediate examination, which came two years after passing the preliminary, was divided into two classes—Art and Science, drawing coming under the former head, and construction under the latter. He suggested that they should consider that it was necessary that every Architect should be qualified, and his qualification be a public and officially recognised one; that it was necessary that he should be a good builder, and that, in the interests of the community and the interests of the State, he should be compelled to be a good builder; and that his architectural education, secondly, should include everything necessary to perfectly efficient supervision of building. The course of study must therefore include the more practical side of the Profession, but he would make obligatory that Art which was essentially free—that Art which was to take a review of the whole history of the human race, and the whole practice of the Art of the human race. In other words, remove history and drawing and design from that part of the examination which was compulsory and obliga-



tory, and continue those subjects in the final examination which qualifies an Architect for membership of the Institute, and marks him as a man whom the public might safely trust with their public interests, their public health and wealth. The suggestion had been made that certain subjects included in the Institute examinations might be called honorary subjects, but, quite apart from the name, they were all agreed that they were essential to an Architect as an Architect, but not as a servant of the public. He would therefore include

#### THE HISTORY OF ART

and knowledge of ornament in the list of subjects at the intermediate examination, and knowledge of design at the final. He feared that a smattering of architectural history and an attempt to cram a further knowledge of architectural ornament without any knowledge of its theory and true practice, with a knowledge of architectural forms without architectural criticism, with a knowledge of architectural history gained from pictures and without a knowledge of the surrounding circumstances, really were more harmful than aidful to the architectural student, and that in the interest of architecture a body like the Architectural Association, which sought the higher qualification of architectural students, should seek to obtain from the Institute a more thorough training in our history, criticism, and architectural practice than at present existed. Into such an examination draughtsmen could enter. At the present time there was no satisfactory position for the high Art of architectural draughtsmanship, and that it was a high Art the exhibition of drawing in that room, illustrating the advancement of draughtsmanship during the history of the Association, amply proved. Of course, into such a scheme design could enter. It would be a matter of great interest to the architectural profession. They would be able every year to form an idea of the progress in artistic design the students who presented themselves for admission to the ranks of the Institute were making. At the present time the design of the Institute could only be called sketch design, and could not be considered as giving more than the slightest indication of the Architect's qualification. It was absurd to put

#### A LIMIT ON ARCHITECTURAL HISTORY

for examinations, or to say when a man's ability to design was sufficient to pass the examination; the Association wanted to carry architectural education as far as it could possibly be carried, and beyond examination point. He feared that the examinations, as at present carried on, were a distinct hindrance to architectural progress beyond examination point. What could the Association do in the matter? How could it induce students to extend their studies beyond what was required at the examinations? He suggested the establishment of an honours class, which would solve the Fellowship examination difficulty at the Institute by enabling a young man taking an honours degree at once to apply for his Fellowship. A short discussion ensued.

The International Art Exhibition at Venice was opened recently. Among the British and American exhibitors are: Messrs. Alma Tadema, Frank Brangwyn, John Collier, Walter Crane, Alfred East, G. Jacomb Hood, William Logsdail, Adrian Stokes, F. Tuke, H. Haig, Macneill Whistler, F. A. Bridgeman, John Sargent, and Miss Clara Montalba.

The special Commission appointed by the Dutch Government to discuss the scheme of draining the Zuyder Zee has just published its report, which states that such an undertaking is quite possible. The work would take thirty-one years for completion, but every year 10,000 hectares of land would be restored to cultivation. A dyke, 30 miles in length, will have to be constructed, extending from the extreme end of North Holland to the western coast of Friesland. The building of this dyke, which will be of a width of 35 yards at the base and 6 yards high, will take nine years. The total cost of the work is estimated at 26 millions sterling, and the total value of the land thus reclaimed is estimated at 27 millions.

#### What the Daily News says:

"That stately publication, 'The Architectural Review,' . . . Architectural drawings at the Royal Academy, and indeed at most other Art exhibitions, are apt to miss the recognition that may be due to them; but thanks to that new and sumptuous monthly periodical 'The Architectural Review,' compensation is at last accorded to the neglected Architects. . . . This noble number. . . ."

THE

## Architectural Review.

THE GREAT ART MONTHLY.

PRICE 6<sup>d</sup>. NETT.

MAY NUMBER

Contains reproductions of Seventeen of the accepted Drawings at this year's Royal Academy by

R. Norman Shaw, R.A.	Brewill & Baily
A. Waterhouse, R.A.	H. Wilson
Ernest George & Yeates	W. D. Caroe
John Belcher	H. T. Hare
T. E. Colcutt	Austin & Paley
J. Francis Doyle	Charles A. Nicholson
C. F. A. Voysey	Hall, Cooper, & Davis
	C. E. Mallows.

THE THIRD OF THE SERIES OF ARTICLES

ON

THE WORK OF

SIR EDWARD BURNE-JONES:

By H. WILSON.

W. EDEN NESFIELD: His Work and Method.

Illustrated by many unpublished Drawings and Plans. By J. M. BRYDON.

DESIGN IN DRAWINGS,

By BERESFORD PITE.

OF ALL NEWSAGENTS AND BOOKSTALLS THROUGHOUT THE COUNTRY.

It is particularly requested that any difficulty in obtaining the "Review" be reported to the Publisher,

EFFINGHAM HOUSE,

Arundel Street, Strand.

## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
May 12th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

SIR M. W. RIDLEY, the Home Secretary, presided over the Select Committee of the House of Commons appointed to inquire into the subject of Government contracts in connection with the fair wages resolution of the House. Mr. William Liddell was the first witness called. He said he was the general secretary to the Belfast Operative House Painters and Decorators, and the complaint he had to make was that Government contracts with reference to the military barracks in Belfast were let to a local builder, who sub-let the painting portion to an unfair employer—that was to say, to a person who employed a greater number of apprentices than were agreed upon between the local employers and operative painters, and who paid his men 1d., 1½d., and 2d. an hour less than the recognised scale of wages. The same contractor carried out a Government contract at Carrickfergus Castle under exactly the same conditions as those which prevailed in connection with the Belfast contract, and was doing the work nine months after the Belfast contract was brought to an end. Mr. John Fitzpatrick, president of the Dublin Trades Council, said that, as representing the local Society of Joiners, he had to complain of the Board of Works in Ireland in allowing the contractor who was doing work in the library of the Four Courts to get his joinery made in Portadown (where the wages were 28s. a week), and bring it to Dublin (where the wages were 36s. per week) to be fixed. His society held that this was a clear breach of the fair wages resolution. Complaint had been made to the Board of Works. Complaint had also been made to the War Office on the ground that soldiers were employed on joinery work in the Dublin Barracks, but replies had been received to the effect that by an Army order it was arranged that pioneers and engineers should do as much repairing in barracks as they conveniently could.

A VERY interesting departure in the construction of hospital wards is in progress at the Temperance Hospital in the Hampstead Road. This is nothing either more or less than a ward made of glass. The glass used is of an opaque white colour resembling porcelain with a high sheen. It is fixed in the shape of rectangular tiles about an eighth of an inch thick on a background of cement, and is "pointed" as bricks are when finished. The idea which is at the bottom of these glass walls is that the surface offers the least possible hold for the development and growth of microbes, and by turning on a hose they can be thoroughly cleansed with no trouble.

CONSIDERABLE surprise has been frequently expressed that up to the present no memorial has been erected over the tomb of Cardinal Manning at Kensal Green. This circumstance is now explained by the announcement that it is intended during the present year to remove the bodies of Cardinal Wiseman and Cardinal Manning to the new Westminster Cathedral now in course of erection. The ceremony



attending the removal will be of an imposing character, and the monuments erected over both Cardinals will be fully worthy of the prelates whose resting-places they mark. Cardinal Wiseman's monument cost many thousands of pounds, and will need little more than renovation.

As chairman of the Select Parliamentary Committee on Museums of the Science and Art Department, Sir John Gorst has received a memorial from a large number of distinguished Artists in the country, headed by Sir Edward Poynter. This document points out that the extraordinarily interesting collections at South Kensington Museum, which have been enriched by gifts and bequests valued many years ago at more than £1,000,000, cannot be properly arranged or seen, much less studied, owing to want of space, while the external appearance of the museum is a discredit to the nation. The memorialists, therefore, urge that active steps may be taken by Parliament to complete the building. In conclusion, they say: "We share the opinion already expressed that no more fitting national memorial of the sixtieth anniversary of the accession to the Throne of Her Most Gracious Majesty could be made than the completion of a museum which owed its existence to her Royal Consort, and which Her Majesty has declared that she has taken under her special and personal protection."

THE restoration of St. Bartholomew's Church in Smithfield, one of the oldest Churches in London, has now been completed, the work having lasted for a period of twelve years. The Bishop of London will re-open the Lady Chapel, which has for many years been occupied by a fringe factory, on May 18, and by way of celebrating the completion of the work a subscription luncheon will be held in the Great Hall of St. Bartholomew's Hospital.

SIR HENRY IRVING opened the Third Free Picture Exhibition at the Town Hall of Stratford last week. He had, he said, "a professional sympathy with pictures, for they were like strolling players, and these now before them had already fulfilled a successful engagement at Canning Town. Here at Stratford he was sure they would play to full houses. They had already enlarged the horizon of many minds, and done incalculable good by giving impressions of beauty to those who toiled amid conditions not always helpful to conceptions of the beautiful. They were true missionaries of civilisation ministering to that eternal need of the ideal which was as instinctive in us as the craving for material happiness. There had been a pretty hard struggle to obtain the national recognition of the duty of opening Art Galleries and Museums on the one day of the week which afforded rest and unrestricted leisure. They might congratulate themselves that no lingering prejudice could curtail the public enjoyment of that exhibition by treating Nature, and the artistic representations of Nature, as if they were doomed by original sin to turn their faces to the wall on Sundays."

THE funeral of the late Mr. Alfred J. Johnson, of John Street, Bedford Row, took place on Tuesday afternoon, the 4th inst., at the St. Pancras Cemetery, East Finchley. A number of his friends and brother members of his profession paid the last honours to one whom they mourn as a sincere friend and the soul of honour.

At the Royal Institution, Albemarle Street, the Rev. Dr. J. P. Mahaffy, Professor of Ancient History in the University of Dublin, recently delivered the first of a course of three lectures on "The Greek Theatre according to Recent Discoveries." The lecturer said the theatres at Pompeii were, he supposed, by far the earliest excavated, but we had no certainty that these theatres were not Roman. It was not till 1862 that by the efforts of the German, Strack, the site of the theatre of Dionysus at Athens was cleared, and we found out what this famous structure was in the last stage of its development. The lecturer proceeded to describe his first visit to it early in the seventies, remarking that its curved rows

of seats, the orchestra or flat centre, with its tessellated ornament, and the marble row of stalls around it, with the names of the official occupants, were unmistakable. There was something piquant in seeing the monumental evidence of the close connection of play-acting and religion; to see that what we might call the deans, canons, and prebendaries at Athens had their stalls, not in the choir of a church or temple, but in the front of a play-house, where not only solemn tragedy, but ribald comedy occupied the audience. The discoveries of other Greek theatres were next alluded to, and their ruins described with the aid of views thrown upon the screen. It was with these discoveries, he proceeded, that the comparative study of Greek theatres became possible, and it was to Architects that we owed all our greatest discoveries in connection with them. There was good reason to believe that the Greeks, so great in sculpture and in Architecture, were not great in music or in painting, and if nothing had been preserved in classical times but the music of the Greeks it would have been difficult to suspect their greatness in other fields.

THERE are many interesting features about the Imperial Victorian Exhibition opened at the Crystal Palace last week. Art is poorly represented, however. Its importance demands exclusive exhibitions, for in a show embracing so many phases of the progress of the Victorian era it would be impossible to do justice to so extensive a department. Thus the only exhibits coming under this head are a series of light sketches and a collection of cartoons. There are several models of old houses with overhanging fronts, and in them different industries are being carried on—joinery and pottery manufacture, for instance. A large model of a clock tower is being shown by Messrs. Gillett, of Croydon, and in the galleries two firms are exhibiting wall papers. Messrs. Jeffrey and Co. are showing special patterns of Victorian wall papers, and Messrs. Woodlams and Co. have a special wall decoration in leather which permits of very fine treatment. A prominent section of the Exhibition illustrates Victorian progress in shipbuilding, models of many of the greatest achievements in the Art being shown.

At Cardiff College the sanitary lectures were continued on the 1st inst. Dr. P. Rhys Griffiths, M.B., B.S., London, lecturer on hygiene and physiology, lectured upon ventilation, heating, and lighting. He showed how atmospheric air varied very considerably in courts, narrow streets, open spaces, in large manufacturing towns, and in the country, pointing out the nature and character of air in back-to-back houses. Then he described the various impurities found in the atmosphere, and referred to the several physical and chemical processes which gave rise to those impurities, mentioning the combustion of coal gas, candles, and oil, the decomposition of organic matter of many kinds, and the effects of the respiration of men and lower animals. Next he showed the various natural forces in nature which acted for the purification of the air, including plants, rain, and the ordinary movements of winds, and went on to deal with the amount of air which it was considered should be allowed to each individual in a living room. Discussing the natural and artificial agencies in the production of ventilation, he called the attention of the audience to the effect which fires in rooms had in this respect, and described desirable and undesirable inlets and outlets for currents of cold and vitiated air. Lastly, he described the method of practically examining the ventilation of any sort of building, illustrations being given on the screen by limelight.—Mr. Henry Seward dealt at length with the erection of buildings—such as hospitals, barracks, asylums, work-houses, &c. The best width for infirmary wards, he stated, was from 26ft. to 28ft. Dealing with the erection of houses, he explained how damp could be prevented, and recommended the placing of an inch or so of asphalt over foundation walls, and the erection of vertical air spaces.

IMMEDIATE application is to be made to the Standing Orders Committee of the House of Commons for leave to present a petition for a bill to extend the Victoria Embankment. It is proposed to form a company, with powers to make a new street commencing at or near the Victoria Tower of the Houses of Parliament, and terminating in the Horseferry Road at a point seventy yards or thereabouts to the westward of the western end of Lambeth Bridge; a new street from Great Peter Street opposite the Gas Light and Coke Company's premises to the new street at a point 250 yards north of Horseferry Road; a similar new street commencing to the eastward of the last-named and terminating by a junction with Horseferry road 150 yards from the south-east corner of the Gas Light and Coke Company's premises; and a new street commencing at the south-west corner of Victoria Tower Gardens, adjoining the Houses of Parliament, and terminating at the commencement of the proposed new Embankment. The bill also proposes the widening of Horseferry Road, Marsham Street, and Church Street, Westminster, and the construction of "an embankment or river wall with roadway thereon along the foreshore of the river Thames, commencing at or near the south-eastern corner of the Victoria Tower Gardens, adjoining the Houses of Parliament, and terminating at the western end of Lambeth Bridge."

THE curious underground houses of Techin and other places near Gabes, in Tunisia, are described by a traveller as being easily cut out of the clay-limestone rock. A square pit, 20ft. or 25ft. deep, is generally dug first to form a central court, from the lower part of which are made the grottoes that serve as sleeping and store rooms. A gently-sloping gallery rising from the level of the bottom to the level outside, and closed by a modern door, is the means of communication with the country without, or forms a part of other houses. Niches are cut in the walls of the entrance court for storage of the agricultural implements and things of minor value, and silos are provided for the grain crops and oil jars. The rooms are lighted only through the doorway from the entrance court. They are furnished with mats and carpets. A bed and a wooden pedestal for the lamp, rudely carved and whitewashed like the walls of the cavern, form the chief ornaments, and a few primitive utensils of enamelled earthenware are the principal articles of furniture. The size of the house and the number of rooms, &c., vary according to the wealth and station of the proprietor.

A LITTLE while back (writes a correspondent), without ceremony and almost unnoticed, a modest oaken monument was placed over the grave in Hampstead Parish Churchyard where, in their terra-cotta casket, the ashes of the late George Du Maurier were buried. The grave is situated only a few yards from the pavement of Church Row, close by the gates of the parish Church, and passers-by cannot fail to notice it. The monumental structure over the grave consists of a centre-piece supported by two uprights, carved in the form of ancient Celtic crosses. On the centre-piece is the following inscription, the last lines being the conclusion of "Trilby":—George Busson Du Maurier; born in Paris, 6th March, 1834; died in London, 8th October, 1896.

A most interesting apartment in Hampton Court Palace was recently thrown open to the public. It is Wolsey's private chapter, or oratory. This apartment leads out of the Mantegna Gallery, and corresponds in design to the Tudor portion of the Palace, the walls being panelled in oak to a height of 7ft. Above the panelling, occupying three sides of the room, is a series of sacred oil-paintings, which were restored under Sir J. C. Robinson's supervision. They represent "The Last Supper," "The Betrayal," "The Procession to Calvary," and "The Resurrection." The ceiling is decorated in a beautiful geometrical design, and the Cardinal's motto appears on the frieze. Among the devices are various Tudor emblems, especially the rose together with Prince of



Wales feathers and motto "Ich Dein," and competent authorities conclude, therefore, that the room was built during the period when Henry VI. was Prince of Wales.

THE great dome in the Champs de Mars, which was the pride of the Paris Exhibition of 1889, is being pulled down in order to make room for the greater glories of 1900. It took nearly a year to raise the massive iron framework, which contains a thousand tons of metal, and three months at least will be required to reduce the structure to its component parts, a speculator having bought the old material for a trifle more than 25,000*fr.* Mutability is the law which governs all human affairs, especially in France, and one is less surprised at the fall of this huge gilded plaything than at the fact that M. Bouvard, who designed it, will have the honour of setting up another in its place. The "Procession of Nations," painted in distemper on the walls, had been allowed to flake away, the gilding had given place to rust, and the vast hall was only used on rare occasions for vulgar and wearisome shows.

SAYS Mr. H. W. Brewer, in the Daily Graphic: "The little Church of St. Thomas, or, to speak more correctly, St. Thomas à Becket, Southwark, as seen at the present time, cannot boast of great antiquity, as it was entirely rebuilt about the year 1710. It is, however, of very early foundation, and was either built or rebuilt by the monks of St. Mary Overy's in 1213, after the great fire of Southwark, which destroyed the monastery and its magnificent Church, as well as London Bridge, and killed three thousand people. After this catastrophe the monks constructed buildings and erected a Church here, but it would appear that a kind of hospital, or almshouse, had existed previously, which was no doubt also destroyed by the great fire. Such an institution would be certain to have possessed either a Church or chapel. Probably the monks set up a temporary Church, as, after their return to their rebuilt monastery and Church, they appear to have turned their attention to the hospital of St. Thomas and its Church, which, with the assistance of Bishop Peter de Rupibus, they also rebuilt. There is some confusion about the matter, which may have arisen from the fact that there must have been three Churches or chapels dedicated to St. Thomas very near together—the Parish Church, the hospital chapel, and the chapel on London Bridge. When St. Thomas's Hospital was removed the Church was allowed to remain for the use of the parish, but as the parish has now been united to St. Saviour's, the magnificent, restored Church of which is amply sufficient for both, there seems every probability that the Church of St. Thomas will share the fate of so many of the City churches. It has been, however, suggested that it might be retained as a chapter-house for the collegiate establishment of St. Saviour's. St. Thomas's is a neat and well-proportioned building, with an elegant tower, constructed of brick with stone groins and dressings. It is decidedly worth preserving, if this can be done without any very great sacrifice, as it is a valuable landmark of old Metropolitan history."

AT Manchester the Duke of Devonshire has opened an exhibition of pictures and other objects illustrative of the Tudor dynasty, which have been collected by the committee of the Manchester Art Gallery. His Grace, in reply to the toast of his health given at luncheon, spoke of the leading part taken by Manchester in the promotion of loan collections of Art, beginning with the great example set at Old Trafford forty years ago. The Tudor exhibition was of a kind that must, not only from an artistic but from an historical point of view, lead to most instructive and interesting comparisons. When they saw the portraits of those who lived in bygone times and the pictures of the scenes in which they acted—when they were brought into direct contact with the relics and mementoes of those times—they were put into touch with men and events, and the actors in those

periods spoke to them directly, and not through the medium of the theories or prejudices of the literary historian.

THE Chantrey Trustees have bought Miss Lucy Kemp-Welch's large picture, "Colt-hunting in the New Forest," and Mr. David Farquharson's "In a Fog." In the sculpture gallery at Burlington House their choice has fallen on Mr. Pomeroy's marble statuette, "The Nymph of Loch Awe." The purchase of Mr. Napier Hemy's "Pilchards" has been already announced; but this detail may be added—that the sum of £1250 paid for it is the largest the Chantrey Trustees have yet spent on the work of an outsider. Miss Kemp-Welch, who is a pupil of Mr. Herkomer, receives £525 for her large canvas.

REGISTRATION Bill of the Plumbers' Company has passed its second reading in the House of Commons and been referred to the Standing Committee on Trade. There is, therefore, good reason to believe that it will become law this session. That this anticipation will be realised is devoutly to be desired in the interests of the general health of the community. Already the registration movement has been productive of great good, and there can be no doubt that when it has received Parliamentary sanction it will prove still more beneficial, and be the means in time of entirely revolutionising the conditions under which this important trade is carried on.

AT Rouen a novel kind of bridge, unlike anything yet seen in either France or England, is being erected over the Seine. Three-quarters of a mile below the lowest of the two existing bridges, it will not interfere in any way with the passage of ships, even of those with masts 150*ft.* high. "I shall perhaps give the best general idea of its appearance," writes the British Consul at Rouen, "by saying that two diminutive Eiffel towers are to be erected, one on each river bank, and that a narrow iron bridge will be suspended by chain cables between their heads. This bridge, which will be not less than 160*ft.* above the level of the quays, is not, however, intended for the passage of carriages, or even foot passengers. Several lines of rails will be carried along it, and upon these lines a skeleton carriage or platform on wheels will run. This will be dragged from side to side of the river by steel ropes passing over a driving wheel, to be worked by a steam or electric engine upon one of the banks. To the skeleton platform will be hung by steel hawsers, at the level of the quays, or 160*ft.* below the bridge, the 'Transbordeur.' This 'Transbordeur' is the slung carriage within which passengers and carriages will be transported from one bank to the other. It will be of solid construction, and not less than 13 metres in width by 10 metres in length. As by the time the 'Pont Transbordeur' is completed the electric tramways will be running on the south quays of the river, as well as on the northern, it is intended to make a connection between the lines at this point, and the 'Transbordeur' will be fitted to carry the tramcars, so that passengers by them will cross the river without changing their seats. I believe that over only one other river in Europe a similar mode of transport has been adopted, that is over the Nièvrion a little distance below Bilbao. Unlike most such works in France this has been left to private enterprise, and it will be carried out by M. Arnodin, of Châteauneuf-sur-Loire, who is also the patentee. It will cost the Municipality of Rouen nothing, but they grant the concessionaire a monopoly for eighty years of the bridge traffic over the Seine at this point according to a very moderate pre-arranged tariff. Foot passengers are charged only 5*cs.*, animals 5*cs.* to 10*cs.*, carriages from 10*cs.* to 25*cs.*, and a tramcar weighing not more than five tons will be carried from bank to bank for f.1. The work is already commenced, and the outside time allowed for its execution is eighteen months. It will bridge the Seine at the foot of the Boulevard Couchoise."

VARIOUS rumours have been circulated at Penzance and Scilly since the Government announced its intention to spend a sum of

money with a view to make the Isles of Scilly available as a naval coaling station. The position, however, appears to be a very simple one. The islands are now the property of the Duke of Cornwall, although for a great number of years they have not been administered by the Duchy authorities, but by private leaseholders. A new lease was granted to the present proprietor, Mr. T. A. Dorrien-Smith, some three or four years ago. It is believed that the Government proposes to purchase the freehold from the Duchy, and then to grant a new lease to Mr. Dorrien-Smith. The Government do not contemplate fortifying all the islands, the main object being to make Scilly a coaling station. For this purpose it is understood that the island of Stampson will be utilised, and strongly fortified, and possibly masked batteries may be put on some of the other islands.

AT the Society of Arts on the 6th inst. a paper on "The Railway to India" was read by Mr. C. E. D. Black. The chair was taken by Sir F. J. Goldsmid. Mr. Black assumed that we should always cleave to the Mediterranean route, and said that a straight line drawn as the crow flies from the northern end of the Suez Canal to Kurrachee, or whatever might be fixed upon as the western land gate of India, coincided with the route which he regarded as the shortest and best line for a railway to India. It was only after a long process of study and elimination that he arrived at the conclusion that the scheme he now put forward was the best. The route would be from Port Said eastward across the peninsula of Sinai to the Gulf of El Akabah, and thence, following the 30th parallel of latitude, to Bussorah. A branch would deviate a little to the south of the port of Grane or Koweit, which, it might be remembered, was the terminus of the Euphrates Valley Line, on which a Select Committee of the House of Commons sat twenty-five years ago. From Bussorah the main line would cross the Shat-el-Arab and Karun rivers by swing bridges, and follow the coast line of the Persian Gulf and Makran to Kurrachee. The Persian and Baluch sections could be constructed along the coast, and, in case of war, defended by the guns of our fleet. The Arabian section was defended by Nature from aggression. A great advantage of this railway would be the possibility of establishing a depot for the Indian troop relief at a suitable and fairly elevated station near the northern end of the Suez Canal, between Port Said and the Syrian frontier. Such a new Mediterranean station would complete the chain of Gibraltar, Malta, and Egypt, a chain which at present was very shaky, so far as the Egyptian end was concerned, and liable to be entirely interrupted if the Suez Canal were blocked.

MR. SYDNEY A. SMITH, the winner of the Penfold silver medal for being highest on the list, and also the Driver prize for conspicuous merit in the Professional Associate Examinations of the Surveyors' Institution, is just twenty-one years of age, and probably the youngest candidate in the non-student division. He has seen some excellent experience in the offices of Messrs. Ernest George and Yeates, Mr. J. R. Thornton, and Messrs. Weatherall and Green.

THE 400th anniversary of Cabot's discovery of the North American mainland is to be commemorated in Bristol by the erection of an observatory tower on Brandon Hill at a cost of £3000.

AN inquiry was recently held at Gildersome respecting the application of the Urban District Council to the Local Government Board for sanction to borrow £2500 for purposes of providing Council accommodation, recreation-ground, &c.

THE Chatham Town Council has accepted a tender at £20,598 for building a town hall, on a site at the foot of Military Road, in that town, which has been acquired from the War Department. Another contract will be entered into for furnishing and fitting the building.



## A TOUR IN HOLLAND.\*

By J. B. MITCHELL WITHERS.

(Continued from page 185.)

DORDRECHT (Dort) was one of the principal towns in Holland during the latter part of the Middle Ages. Here in 1618-19 was held the Synod of Dort, to settle points between the religious sects of the Armenians and Calvinists. The timber rafts from Germany are broken up here. The Groote Kerk is a conspicuous object, grouping well with the quaint gables, and many of the bits are very picturesque, and the river adds much to its charm. In the Groote Kerk at Gouda may be seen a set of twenty-eight fine old stained glass windows, painted between 1555 and 1603. Delft is a sleepy city, but well worth a visit. Its principal buildings of interest are the Stadhuis in the Groote Markt, built about 1618; the Prinsenhof, where William, Prince of Orange, was assassinated in 1584. There is also a fifteenth century Oude Kerk, in which is a monument to Admiral Tromp, who inflicted such damage on the English that he sailed with a broom attached to the masthead down the Channel to show he had swept them from the seas; and a fourteenth century New Kerk containing a monument to William, Prince of Orange. The gate-houses are interesting. The Hague has been the political capital since the sixteenth century, and is the most fashionable city in Holland. Originally it was a hunting seat of the Counts of Holland, and, though jealous of other Dutch States, was treated simply as a village, having no municipal or Parliamentary rights till Louis Bonaparte was king. The Vyver (fish pond) in the centre of the town is very interesting. Leyden is the

## UNIVERSITY TOWN OF HOLLAND,

and stands on islands formed by the Rhine. It is famous for the siege it withstood in the sixteenth century while the inhabitants waited for the Prince of Orange to fulfil his promise and come to their relief. This was eventually done by the dykes being cut, and the Prince's fleet sailing into the town, bringing provisions. William afterwards established a University to commemorate this event, and for a long period of time it was the most famous University in Europe. The Town Hall, or Stadhuis, is in the Bredestraat, and is worthy of notice, being a fine sixteenth century building. There is an inscription on it: "When the black famine had brought nearly six thousand people to death the Lord God repented, and gave us as much bread as we wanted." The Church of St. Pancras, which was built in the fifteenth century, contains a monument to the Burgomaster Van der Werff, who held the town during the siege. At Haarlem the Groote Kerk (St. Bavo) in the market-place is said to be one of the finest in Holland. These Dutch Churches of the early painted periods, as I have already mentioned, were influenced by the work carried on in Germany, and bear a strong resemblance to those on the lower Rhine, but with different materials; for instance, the roofs would be constructed of wood (in this case cedar), and the walls with brick. The carved oak pulpit, brass rail, and fine brass screen are worthy of notice, as is a trophy in memory of the Crusade of Count William I., composed of model ships hung from some of the arches. Amsterdam is on an arm of the Zuyder Zee and the river Amstel, and the houses are built on piles driven down into the sand. No description of Amsterdam would be complete without some reference to the Ryk's Museum. Of this set of collections now under one roof, the chief is the Dutch pictures, which bring visitors from all parts. But there are many other objects of great interest; for instance, a set of rooms, perhaps about half size, furnished and set out to show the old sixteenth, seventeenth, and eighteenth century rooms in different parts of the country, Delft ware, painted glass, chimney-pieces, furniture carving, ironwork, reproductions of old ceilings,

&c. The great Church is one of the best churches in Holland, and contains some interesting monuments. The pulpit with its large sounding board elaborately carved is good. The Ouda Kerk has some fine stained glass windows. The old weigh-house is also interesting; in front of it is one of the markets. Other markets are also shown in the following illustrations. The Montel Baens tower is also an interesting object. It is built of red brick, and used as a watch-tower and beacon. Alkmaar is what is called one of the dead cities, owing to these cities having been at one time of much more importance in the country than they are to-day. It is now specially famous for its cheeses, which are brought from the surrounding neighbourhood and sold in its market. Its sixteenth century weigh-house is a very striking and picturesque old building. It is in the market square. The old houses are also, as usual, most interesting. Hoorn was once the capital of North Holland, but is now of much less importance. In it there are many houses of the sixteenth century. Some of the old gates also remain, and its weigh-house and harbour tower are well worth attention.

## KEYSTONES.

THE design of Professor Eberlein, of Berlin, for the monument of the late Duke Ernest of Saxe-Coburg-Gotha, has been accepted by the committee. The first stone will be laid shortly.

At Halifax the Gas Committee of the Town Council has decided to recommend the Council to sanction the construction of a new holder, with a capacity of 6,000,000 cubic feet, at an estimated cost of £40,000.

The new Dublin Fish Market erected by the Corporation in St. Michan's Street, directly facing the western side of the new vegetable, fruit, and fish market, was opened yesterday by the Lord Mayor of Dublin.

The Carlisle Town Council has decided to erect a number of workmen's dwellings, at a cost of £2250, and to have plans prepared for a scheme for lighting the town with electricity, the cost being estimated at £25,000.

At West Norwood last week the Centenary Hall and new wings of the Jews' Hospital and Orphan Asylum were opened by the Duke of Cambridge. The wings have been extended 60ft. rearwards, there is a new story to the main block, a new dining-hall and kitchens, and other improvements.

The Special Committee appointed by the Corporation of Sunderland to consider the proposal to construct another bridge across the Wear from Deptford to Southwick has decided to consult a competent engineer as to the probable cost of a new bridge. After this has been done, the matter will be considered by the committee and the Southwick Urban District Council, and a report submitted to the County Council.

We have received from Messrs. Darlington and Co. a list of the new editions of their handbooks to North Wales, the Channel Islands, Isle of Wight, South Coast, the Wye Valley, Severn Valley, Bournemouth, and the New Forest, Bristol, Bath, &c. One and all of the handbooks have been thoroughly revised, and are replete with information as interesting as it is accurate. The subjects are exhaustively dealt with, and the tourist will find little or nothing lacking in Messrs. Darlington's publications.

At St. Leonards a new convalescent home, which has been built in connection with the Railway Mission, was opened last week. The building occupies one of the healthiest spots at the extreme west of the town. It takes the place of a small house in an obscure part of Hastings, which has for five years been used for convalescent railway men. Quite a palatial home has now been built at a cost of £7000. The building is well-fitted with every convenience. There are rooms for the lady superintendent, a library, the secretary's office, and a spacious dining-hall, adjoining which is the kitchen. There are also a doctor's consulting-room and cloak-rooms on the ground floor. On the first floor are bedrooms, bathrooms, &c.

## Professional Items.

ABERDEEN.—The Plans Committee of the Town Council has approved of the plans of the following:—Alterations in connection with granite works on the south-east side of Cotton Street, for Messrs. Simpson Brothers; additions at the rear of No. 14, Roslin Terrace, for Mr. George Bisset, per Mr. John Rust, Architect; alterations and additions in connection with the house No. 12, Bon-Accord Square, for the Misses Lunan, East Craibstone Street, per Messrs. Walker and Ross; cycle shop on the west side of King Street, for Mr. James Milne, per Mr. Harvey Mennie, Architect; store on the south-west side of Old Ford Road, for the Aberdeen Machine Firewood Company, per Messrs. Brown and Watt, Architects. The committee approved of the following plans, on condition that the size of the water pipes and the position of the water cisterns are fixed by the burgh Surveyor: Two dwelling-houses on the east side of Balmoral Place, for Mr. John Cameron; dwelling-house on the north side of Devonshire Road, for Mr. William M'Innes.

ALLERTON.—A new club is being erected at Allerton at a cost of £1200, exclusive of site and furnishing. The new premises will occupy a central position on the Allerton Road. The style adopted by the Architects is the Domestic Gothic. On the ground there will be a committee-room, a card-room, and a reading-room. From a spacious entrance-hall a good wide staircase gives access to the first floor, occupied by the billiard-room. A caretaker's house is attached to the club premises.

BALBY, NEAR DONCASTER.—The chancel window of the Parish Church has been filled with stained glass with the subject of the crucifixion, with figures of the Virgin and St. John occupying the three lights; the south window of the chancel, as a memorial to the late Vicar, and the window in the south aisle near the pulpit with figures of the "Good Shepherd" and Christ as "the Light of the World." They are from the studio of Mr. T. W. Camm Smethwick, near Birmingham.

BATH.—At a meeting of the Building Committee appointed in connection with the Art gallery scheme at Bath, Mr. Hallett and Mr. Morris said subscriptions were not coming in in consequence of the attitude taken up on the question by an Architect. Mr. H. O. Wills, the donor of £1000, wrote that he was utterly indisposed to contribute anything towards the expenses of a competition for designs—as resolved by the general committee—and said that all now wanted was to ask Mr. Brydon to finish his design. The following resolution was carried unanimously:—"That the Building Committee having before them the financial and other facts of the case of the Art Gallery and Library, and the objections of large contributors to the delay and expense of premiums, consequent upon recourse to general competition, respectfully recommend the General Committee to empower them to employ Mr. Brydon as Architect for the erection of the building."

BIRMINGHAM.—An important improvement in the centre of the city, in view of the erection of the new General Hospital and the proposed extension of the tramways, is the widening of Steelhouse Lane, a subject which has been discussed by the Improvement Committee on several occasions. Loveday Street, which forms the boundary on the lower side of the hospital, has already been widened on the average by about 12ft., and the lower part of Steelhouse Lane is in process of being broadened by an additional 15ft., the whole work involving an outlay of upwards of £2000. This improvement has once more drawn attention to the narrow part of Steelhouse Lane between Bull Street and the rear of the Victoria Courts. It would be a considerable advantage if that portion of the thoroughfare were broadened to the extent of about 15ft., so as to give the street a uniform width of about 45ft. The cost of this under-

\* A lecture delivered to the members of the Sheffield Society of Architects and Surveyors.



taking would be probably about £3000. The matter will be brought forward for further consideration at an early meeting of the Improvement Committee.

**BRADFORD.**—In connection with the movement for restoring the Bradford Parish Church as a memorial of the late Archdeacon Bardsley, a special meeting of the General Committee appointed some time ago was held recently. It was carried unanimously that the plans prepared by Messrs. T. H. and F. Healey, Architects, be approved. The plans selected provide for the removal of the galleries, a certain amount of compensation of sittings being secured by the addition of two transepts and the freeing of the Bolling Chapel for worship by the erection of vestries. A second resolution was proposed by Mr. John Ambler, seconded by Mr. G. S. Carr, and carried, to include in the faculty which it will be necessary to obtain provision for rebuilding the south, or Church Bank, side of the Church, and the restoration of the north side of the edifice. The estimated cost of the scheme approved is about £4000.

**BURLEY, LEEDS.**—During recent years no district within the Leeds city boundaries has been developed more rapidly than that of Burley. The population of the locality has increased enormously of late, and is still growing rapidly. A commencement has been made with a new Wesleyan Chapel, and the foundation stones were laid on the 1st inst. The site is in Cardigan Lane. At present this is only a narrow, inconvenient road, but it is said that the Corporation intend to widen it. The premises have been designed by Mr. G. F. Danby, Architect, of Leeds. They comprise a chapel, schoolroom, infants' room, Church parlour, minister's room, and twelve vestries, or class rooms. The style of Architecture adopted is the Decorative Gothic. The chapel is being built of stone, lined with brick, while all the internal woodwork will be of pitch pine. A leading feature of the front elevation will be a double doorway with granite columns, carved capitals, and moulded arches, terminating in a gable. Over this there is to be a five-light tracied window. At the south-east corner a tower and spire will rise to a height of 110ft. The chapel is to be 84ft. long, 48ft. across the nave, and 57ft. across the transepts. Accommodation will be provided for 480 persons on the ground floor, and for 320 in the gallery. The open-timbered roof will, in the centre, rise to a height of 40ft. The contracts at present let amount to about £6000. The contractors are: Mr. C. Myers, masonry; Messrs. Ledgard and Son, joinery; Mr. H. Boston, plumbing and glazing; and Messrs. J. Atkinson and Son, slating.

**BURNLEY.**—The new Church of St. Catherine, which has been built in Todmorden Road, was consecrated by the Bishop of Manchester on the 4th inst. This is one of three additional Churches which are being provided, largely through the liberality of the Rector of Burnley. The total cost of St. Catherine's Church is £8150, and already £7000 has been raised. The Church has been built from the designs of Mr. Medland Taylor, of Manchester, and is of rather unusual design owing to the shape of the site being a truncated triangle and the owners of adjoining land having rights of light over it. Altogether, the Church will seat about 700 people.

**CARDIFF.**—At a meeting of the Electrical Committee, the electrical engineer (Mr. Applebee), in conjunction with Mr. Harpur (the borough engineer), presented a report upon the extensions of the Cardiff electrical system. In his report, which dealt with technical details, Mr. Applebee stated that when the extensions now in hand are completed there will be a capacity of 17,000 8 c.p. lamps. In the engine-room of the new block could be fixed three machines, which would bring the total capacity to 50,000 lamps, provided they used plant such as Messrs. Ferranti are now making. The report recommended the committee to adopt and to use a pressure of 200 volts. It would necessitate an overhaul

of all the existing wiring, and supplying the consumers with a new set of lamps to suit the 200 volt pressure. The alternate current transformers would need but very little alteration, as all which have been purchased since 1895 are so arranged that they can be used at 100 volts or 200 volts as occasion requires. The cost of doing all this will be very considerably less than duplicating the mains and auxiliary apparatus.

**DUNBAR.**—The Parish Church, which has just undergone extensive alterations and improvements, was built seventy-seven years ago. In external design it is a very fair example of what could then be accomplished at that early period of the revival of our ancient Gothic Architecture. But the moment one passed into the interior it was thoroughly disappointing—a large square space with a gallery all round. As a better knowledge of Ecclesiastical Architecture spread, it was felt more and more that the interior of the Church was quite out of keeping with its beautiful exterior. In February of last year contracts were entered into with Messrs. Hall, of Galashiels, and others, and building operations at once commenced. The whole of the interior has been removed, and the area sub-divided into nave and aisles by means of stone arcades of five arches each. A semi-octagonal apse has been thrown out at the east end, opening into the nave with a chancel arch of moulded stonework, having a minister's vestry on one side and an organ chamber on the other. The fine old pulpit of the Church has been retained, and placed against the south jamb of the chancel arch, the baptismal font occupying a corresponding position at the north jamb, with the Communion-table between, on the centre of the apse. The splendid Dunbar monument now stands on the floor level of the Church, against the east wall of the north aisle, completely restored, and has never been seen to such advantage since the day of its erection 270 years ago. Gas has been introduced, the nave being provided with eight corona lights, and a large one of burnished brass hangs from the apse ceiling over the Communion table. The whole of the work has been executed from the designs and under the supervision of Messrs. W. and J. Hay, Architects, of Liverpool. The contractors for the mason and joiner work were Messrs. Robert Hall and Company, Galashiels; for the slater and plaster work, Messrs. Archibald Aitken and Son; for plumber, gas-fitting, and heating apparatus, Messrs. Melville and Son; for painting, Mr. Mackenzie—all of Dunbar; and for glazing, Messrs. George Lindsay, of Edinburgh. To Mr. W. G. Stevenson, E.S.A., was entrusted the work of taking down and reconstructing the Dunbar monument. The two stained windows were taken out and replaced by Messrs. Ballantine and Gardiner, of Edinburgh. In place of the old cracked bell, one of nearly double its weight has been provided by Messrs. Bryden and Son, of Edinburgh. The cost of the whole work will be somewhere about £4500.

**EDINBURGH.**—Cable-power stations are to be erected at Tollcross and Shrubhill in connection with the extension of the cable system of tramways throughout Edinburgh, and the Corporation has now entered into contracts for the necessary work. The site of the power-station at Tollcross is about an acre in extent, and cost £17,485. In order to provide for the formation of the necessary stable foundations for the engines and driving machinery, the site is being excavated to a depth ranging from seven to twenty feet, under contract, let to Messrs. Andrew Waddell & Son, amounting to £3363. The contract for the buildings amounts to £36,800, and has been let to Mr. Colin Macandrew, Lauriston. The whole is to be completed within nine months. The buildings, which are partly of one story and partly of two stories, with basement, are in three sections: the boiler-house, coal store, chimney, &c., on the north, next Fountainbridge; the engine-house and accessories in the centre; and the car storage sheds to the south, which will form the front of the buildings. Underneath the latter is formed the subways for the cables, tension races, &c. Messrs. W. M. Colan

and John Cooper are the Borough Engineers who are superintending the works.

**FORMBY.**—The new home for infants at Formby has just been formally opened. The building is a plain substantial one, and is situated in Andrew's Lane, a few minutes' walk from the station. On the ground floor there is a large recreation-room, a commodious dining-room, matron's quarters, kitchen, scullery, pantry, laundry, washhouse, and usual outbuildings. Upstairs there is a large dormitory containing eighteen beds, a smaller one containing twelve beds, and a ward for sick children with four beds. There is also the matron's room and the servants' bedrooms. The building was designed by and the contract carried out under the personal superintendence of Mr. J. H. Havelock Sutton, of Liverpool and Formby, and the work was executed by Messrs. J. and G. Chappell, of Walton Village. The home has cost about £2000.

**HARROGATE.**—A public meeting, presided over by the Mayor, was recently held for the purpose of ratifying or otherwise a resolution passed at a preliminary meeting, deciding that the local scheme should be in aid of a School of Art and a Museum. Mr. C. T. Meyer moved the adoption of the resolution passed at the preliminary meeting in favour of the School of Art and Technical Education, which he considered would be characteristic of the Victorian era.—Dr. James Myrtle seconded.—Mr. W. H. Breare suggested an attempt might be made to purchase the plot of ground in front of the Prospect Hotel.—The resolution was agreed to.

**KILKENNY.**—The foundation-stone of the new Church of St. John at Kilkenny has been laid. The cost of the building will, inclusive of its tower and spire, be close on £30,000, all of which the Loughlin family have undertaken to defray. Mr. Wm. Hague has prepared the plans, which show a large central front porch beneath a tower of massive proportions, flanked by two other porches for access to aisles, nave 90ft. by 30ft. 3in., aisles each 96ft. by 15ft., sanctuary and apse 43ft. 3in. long by 27ft. 6in. wide, side chapels 30ft. by 13ft. 6in., and sacristies 35ft. by 16ft. 6in., beneath which are store-rooms and heating chamber, and space for vaults. Adjoining the aisle porches are the baptistery and a votive chapel. The tower is 25ft. square externally, and the total length from inside of tower front wall to inside wall of apse is 152ft. 6in. by a width across nave and aisles of 60ft. clear. The design is Gothic of the Middle Pointed period. There are three entrances to the Church, the main one in the centre of the tower being deeply recessed, as are the other two, with granite shafts in jambs having moulded caps and bases, with richly moulded arches and labels and flowing cusping in head of the great doorway; the latter having spandril tracery panelling and pierced parapet, surmounted by a large bold tracery window 25ft. high, with ogee crocketed label and finial. Three light tracery windows are in the gables of side porches placed within recessed arches. The aisles are lighted by single light tracery windows in the alternate bays, with recessed confessionals, which are treated in a quaintly fashioned arcade with canopies between the buttresses. Externally the apse is lighted by eleven tall wide single lights, with double tracery and cusping in heads designed to receive stained glass. The clerestory windows are of two lights with suitable elaborate tracery, having buttresses between each. The tower is arcaded and pierced above the large window, over which is the belfry stage, 30ft. high, having in each face double light windows with mullions and open tracery and ogee crocketed canopies. The base of the spire has an open-pointed, arcaded parapet, with granite shafts and clustered crocketed pinnacles at each angle, running up to the termination of the broaches forming the octagon of spire, whence the latter rises until a height of 235ft. is reached from the ground to the top of the bronzed and gilt cross surmounting it. Buttresses are introduced at each bay of the aisle between the windows, with tablings one on each side, being carried up with weathered



canopy. The interior is arcaded in moulded stone, springing off carved caps resting on moulded granite columns, which, in turn, are seated on marble moulded cases with granite plinths. The ceilings throughout will be groined and richly moulded. The floors are of wood and mosaic marble pavements. The height from floor to apex of roof of nave is 70ft. The contract has been placed in the hands of Mr. Stephen Lalor, of Kilkenny.

**MAESTEG.**—The foundation-stone of North's Memorial Hall was laid on the 4th inst.; and on the same day the new Central Schools were opened. The total cost of the new buildings constituting the memorial, when completed, will be about £1500. They will be of two stories, and will consist of a large library, reading-room, committee-rooms, and billiard-rooms. The main room will be 58ft. by 29ft. The entire structure will be of dressed native stones, with pilasters of brick margin and gorilla panels. The site is opposite the Town Hall on the Maesteg Uchaf estate. The new Central schools are on the same estate, and the School Board has a leasehold occupation for a term of 99 years from North's Navigation Company. The new school buildings afford accommodation for 1016 children, and consist of boys', girls' and infants' departments. The contractors of the schools and the Memorial Hall are Messrs. Rattray and Jenkins, and Mr. E. W. Burnett, Töndu, is the Architect. All the rooms are ventilated by Boyle's patent ventilators, and heated by Shorland's patent grates.

**NEWCASTLE.**—At a meeting of the members of the Town Improvement Committee a deputation of property owners and residents in Osborne Avenue, Jesmond, attended with a request in regard to the repaving of the Avenue. They desired that instead of chips, there should be laid asphalt, so as to prevent the noises made by vehicular traffic, especially at night. The Committee decided that that part of the Avenue where it was intended to lay down chips, should be attended to as requested by the deputation. With regard to the roadway on the bridge in New Bridge Street, it was felt that it was highly expedient that something should be done in improving it. It was decided to recommend the City Council to urge upon the Railway Company to make the extension as originally proposed as soon as possible.

**OXENHOPE.**—A series of foundation stones were recently laid in connection with the proposed new Wesleyan Sunday School at Oxenhope. The school will occupy a site to the west of the present chapel, and will take the place of premises which are too small. The new buildings will consist of an assembly-room 40ft. wide, 26ft. high, and 54ft. long, a gallery 24ft. deep, an organ recess, library, lecture-room, infants' schoolroom, and other rooms. The site has cost £600, and was paid for some time ago. The outlay on the buildings is expected to be £4200.

**PATRICK.**—Plans were passed at Patrick Dean of Guild Court for the erection of a new U.P. Church at the corner of Lawrence Street and Alexandra Street, Dumbarton Road. The new building, which is to cost £6000, will be about 69ft. by 57ft., and have seating accommodation for 834 persons. Over the session-house there will be a hall 28ft. by 58ft., and altogether as shown in the plans the building promises to be rather a neat one in appearance.

**PENARTH.**—The new Sunday Schools erected in connection with Trinity Wesleyan Church at Penarth have recently been opened. The main hall and galleries will seat 500, and opening out from the hall is an infants' school, with accommodation for 150, fourteen class rooms, a library, and a large Church-hall, capable of seating 100 persons. The total cost has been about £2600.

**SHIREBROOK, DERBYSHIRE.**—The Shirebrook Colliery, Limited, which has just reached coal at a depth of 540 yards, is building a village for the workpeople at Shirebrook, Derbyshire.

Contracts for 150 houses have been let, and houses are rapidly being erected from plans drawn by Mr. J. Perkin, Architect, of Leeds and Shirebrook.

**SHOREDITCH.**—Baths and washhouses are to be erected in Pitfield Street, Hoxton, and the foundation stone was laid recently by the Chairman of the Shoreditch Vestry. The first-class swimming bath will be 100ft. by 40ft.; the second-class swimming bath somewhat smaller; there will be many slipper baths, besides accommodation for 50 washers. The site and building would cost £31,093. Mr. James Stuart, M.P., said the baths would represent part of a block of municipal buildings which would include a library, an electric lighting station, and a dust destructor.

**STOKE-ON-TRENT.**—The new schools at The Mount, Penkhal, Stoke-on-Trent, were opened on the 3rd inst. The house has now been converted into the administrative department of the new Blind and Deaf Schools, the stable range to the northwards being the only part destroyed. The new buildings have been added to the rear of the house eastwards for the deaf children, and southwards for the blind. There is accommodation for 139 children, and the necessary teaching and servant staff.

**STOURBRIDGE.**—The committee appointed at the recent town's meeting to carry out the scheme for erecting a technical institute has decided to acquire for the purpose a site in Worcester Street, adjoining the ground on which the Stourbridge Dispensary stands. The Technical Board have raised £707 towards the cost, and there is a County Council grant of £600 to come in. Since the Town Committee was formed £286 additional has been promised, and a general appeal is about to be issued for additional subscriptions to carry out the scheme.

**STOURTON.**—The corner stone of a new Episcopalian Church has been laid at Stourton. The building is to take the place of St. Andrew's Mission Church, which has become too small to meet the requirements of the district. The new Church will be of the late fourteenth century style of Architecture. It will be a brick building, with red Dumfries stone dressings on the outside, and a roof of red Staffordshire tiles. The dressings in the interior will be of Harehills stone. The Church will consist of a nave and aisle, chancel, organ chamber, vestry, and heating chamber. On the north side there will be a small chapel, providing accommodation for about twenty-five people. An octagonal turret will rise from the north-east corner of the nave. The aisles of the Church are to be divided from the nave by two arcades of five arches each. Above these there will be a range of three-light, traceried, clerestory windows. A large five-light east window and clerestory windows on the north and south will light the chancel. The main entrance to the Church will be at the north-west corner. There will also be doors at the north and west ends of the building. The chancel ceiling will be arched and panelled, and the roof of the nave will also be subdivided into panels. A floor of wood blocks, deal seats, and an altar made of oak complete the building. The estimated cost, including extras, is a little over £5000. Mr. Hodgson Fowler, of Durham, is the Architect, Mr. T. A. Bolton, of York, clerk of the works, and Mr. Isaac Gould, the contractor.

**TAYPORT.**—A mission hall has been opened in Tay Street capable of accommodating about 250. It is neatly and substantially built of brick, and off the main hall is the ante-room, which is also large and commodious. Out-houses have also been erected. The hall is well lighted, and the acoustics are excellent. The contractors for the work were Mr. David Robertson (who completed the mason and joiner work); Mr. W. Ferrie, plasterer; Mr. A. S. Jack, Newport, plumber; Messrs. Dewar and Lindsay, painters; Mr. John Storrier, Newport, slater. The total cost, including site, will be about £300.

## Trade and Craft.

### THE MIDLAND CANAL SCHEME.

The exhaustive report of Mr. Marten on the proposal for improving the water communication between Wolverhampton and Birmingham and the Bristol Channel seems to bring the long-cherished dream of converting these Midland centres of industry into ports within a measurable distance of realisation. Canals wide and deep enough for sea-going ships are rather costly luxuries, and when the waterway in question is required to extend over a distance of a hundred miles, one is apt to renounce the scheme as impracticable for private enterprise. But it is well to remember in the first place that vessels to be provided for are not ocean liners, but special barges of very modest proportions, and that the waterway has not to be constructed, for it exists already, but only to be deepened and widened. There is no danger, therefore, of the Bristol waterway scheme turning out a new Manchester Canal trap or Panama fiasco. Engineers' estimates in these cases are seldom very exact, but by no conceivable rectification of details could Mr. Marten's demand for £360,000 run into millions.

### CAST IRON PIPES FOR CHRISTIANA.

The Secretary of State for Foreign Affairs has received a dispatch from H.M. Consul-General at Christiana, stating that tenders are invited by the Christiania Gas Works for the supply of cast iron pipes. Tenders must be drawn up in accordance with the stipulated conditions of delivery, which can be seen at the Christiania Gas Works Office, and must reach that address in sealed envelopes marked "Ambud til Christiania Gasvoerk," before the 15th of May. Some further particulars may be seen at the Commercial Department of the Foreign Office any day between the hours of 11 a.m. and 6 p.m.

### BUILDING TRADE WAGES IN YORK.

During the past three months the York Master Builders' Association and the men's unions have been interchanging negotiations with reference to the advances of wages demanded by the men. On February 1st last, Messrs. T. Rawling and George Sharp, the joint secretaries of the York Master Builders' Association, were served with notices on behalf of the bricklayers, bricklayers' labourers, plasterers and plasterers' labourers, asking for an advance of wages. The bricklayers asked for an increase from 8d. to 9d. per hour, the bricklayers' labourers for an advance from 5½d. to 6d. per hour, the plasterers from 8d. to 9d. per hour, and the plasterers' labourers from 5½d. to 6d. an hour. In accordance with the code of rules in operation between the masters and the men, three months' notice was given. This expired on May 1st, but in the meantime the bricklayers had withdrawn their request for an increase. The Master Builders' Association has resolved to grant the plasterers an advance from 8d. to 9d. per hour, and has also agreed to accede to the request of the bricklayers' and plasterers' labourers for an increase from 5½d. to 6½d. per hour on condition that they undertake not to make a further application for an advance next year.

**MESSRS. SMITH, BRODRICK, AND LOWTHER,** Architects, notify us that they have removed their offices from Logan Chambers, Hull, to York Chambers, 77, Lowgate, Hull.

It is proposed to add increased hospital accommodation at the Cork Asylum, and we understand Mr. S. A. Roberts, the Architect to the Board of Control, has prepared a series of alternative plans for the guidance of the Governors.

The huge pavilion that is to be erected in St. Paul's Churchyard for Mr. Maskelyne has been designed by Mr. James G. Buckle, of York Buildings, Adelphi, and not by Professor Banister Fletcher, as recently stated. The accepted tender amounts to over £3250.



## Correspondence.

### PLANNING OF SMALL HOUSES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be much obliged if you or Mr. Lanchester would kindly state approximately the price of the houses, plans of which appear in the articles on the "Planning of Small Houses." I am an unprofessional reader, and do not understand the statement "cube at 1d., £90." I make this enquiry with special reference to the cost of one house built on plan No. 7.—I am, dear Sir, yours very sincerely,

W. W.

(Unprofessional Reader.)

22, Sutton Place, Hackney, N.E.  
April 30th, 1897.

[As stated in the first article on "Planning of Small Houses," the actual cost would vary from four and a half to eight times that put on the plans as "cube at 1d." It is quite impossible to estimate with any degree of accuracy without knowing local conditions, style of finishing, &c. The design No. 7, for instance, would very probably be erected by a speculative builder for less than £400, while it could not be built by contract under something between £500 or £600.—EDITOR.]

### DIMENSIONS OF A CHIMNEY SHAFT.

To the Editor of THE BUILDERS' JOURNAL.

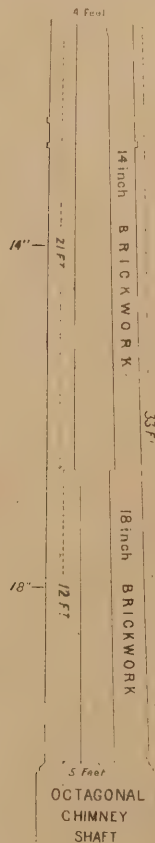
DEAR SIR,—I should be glad if you would kindly inform me as to the number of yards of 9in. brickwork there would be in an octagonal chimney shaft, the dimensions of which are given on enclosed diagram, and also give me the correct method of calculating same, and oblige,

Yours faithfully,

April 29th, 1897.

E. W.

[In reply to your enquiry re octagonal chimney shaft, it contains 65½ yd. (sup.) of 9in.



brickwork. There are two ways of arriving at this; the one generally adopted by Measuring Surveyors is to draw out plans and elevation to a large scale, say 1½ in. to 1 ft., and measure it from the drawings, taking the outside measure of four sides, and the inside of the other four sides, and, as the chimney tapers, add the sizes of the tops and bottoms of each

section together, and divide them by 2 to get at the mean; multiply what you obtain by the height: the mean girth at the bottom is 11ft. 7in., and at the top of the bottom section 10ft. 4½ in.; add these together and divide by 2, and multiply by the height, viz., 12ft. = 131ft. 9in. of 18in. brickwork. The mean size of the bottom of the upper section is 11ft. 3in., and of the top 9ft. 4in.; added together and divided by 2, and multiplied by the height, 21ft. = 216ft. 1½ in. of 14in. brickwork.

The other way is not given by any authority that we can find, for we have looked up the most eminent, but we are desirous of giving our correspondent the best information to be obtained anywhere, and have therefore worked out at great length some very intricate problems in algebra and trigonometry, with the following result: the girth of an octagon is 3.312 times its diameter; the base of the chimney you give is 5ft. outside, and 2ft. inside the mean = 3.5, as it is 33ft. high and diminishes ½ ft. in every foot of its height, and the bottom section is 12ft. high, deduct ½ ft., and you get the top of this section = 3.136ft.; add these means together, divide by 2, and you get the mean = 3.318.

3.5 bottom.

3.136 top.

2)6.636 multiply this by 3.312

3.318

3.312 and you get the

10.989 mean girth of the lower section.

12 multiply by the height, 12ft.

131.868 ft. of 18in. work.

The upper section in

the same way = 3.428 bottom.

2.791 top.

2)6.219

3.109 mean.

3.312

10.296

10.296 mean girth of upper section.  
21 ft. high.

216.216 ft. of 14in. brickwork.

2 bricks or 18in. thick. 1½ bricks or 14in. thick.

131.8

216.2

4 half bricks.

3 half bricks.

527.2 = ½ brick thick.

648.6 = ½ brick thick.

648.6

2)1175.8

9)587.9

65½ yds. sup. of 9in. brickwork (or one brick thick).—EDITOR.]

### R.I.B.A. ELECTIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Since the publication of my previous letter I have ascertained, from an Institute paper, that from May 5th, 1896, to May 3rd, 1897, there were twenty-eight meetings of the Council, and that no less than sixteen of the members each only attended two and three-sixteenth times!

All but one or two of these members are re-nominated for another year, but five of them never put in even one appearance, four only went to one meeting each, and two were only seen twice out of a possible twenty-eight times!

Some explanation is due to the members of the Institute for these extraordinary re-nominations of members who undertake duties which they are unable to carry properly into effect.

I am, Sir,

A METROPOLITAN FELLOW.

London, May 8th, 1897.

THE Prince of Wales will reopen the restored chapter-house at Canterbury, and unveil a stained-glass window in that building on May 29.

## SOCIETY MEETINGS.

**Liverpool Architectural Society.**—Mr. G. Bradbury presided at the annual meeting of the Liverpool Architectural Society held on the 3rd inst. The annual report, presented by Professor Simpson (honorary secretary), stated that the number of members on the roll was 121, as against 187 last year, and included 52 fellows, 22 associates, 29 students, and 18 honorary members. The council regretted that Mr. H. L. Beckwith had retired from the position of honorary secretary, which he had held for a period of seven years. It was hoped that the council would be able to establish a travelling studentship to be awarded at the end of each session, and also during the next session, to suitably celebrate the jubilee of the Society.—The statement of accounts presented by Mr. James Dod showed cash in hand £26 3s. 3d. on the general account, and £36 19s. 5d. on the library account. The following officers were elected for the fiftieth session:—Mr. Councillor W. E. Willink (president), Messrs. E. A. Ould and J. Woolfall (vice-presidents), Professor F. M. Simpson (honorary secretary), Mr. A. Thornely (assistant honorary secretary), Mr. James Dod (honorary treasurer), Mr. J. W. Blakely (honorary librarian), and the following as members of the council:—Messrs. H. L. Beckwith, G. Bradbury, T. E. Eccles, H. Hartley, H. A. Matear, E. A. Ould, and J. Woolfall (fellows), and J. W. Blakely and F. E. P. Edwards (associates).—Mr. George Bradbury, in a short address, remarked that as a mark of the jubilee of their Society, which was the oldest of the kind in the kingdom, a special effort should be made during the next year to increase their membership, and thereby increase the importance of their Society; whilst endeavours should also be made to increase the usefulness of the Society.

**Glasgow Architectural Association.**—At a meeting of this Association held in the rooms, 187, Pitt Street, Mr. Geo. S. Hill, vice-president, in the chair, Mr. Wm. Jas. Anderson read a paper on "The Acropolis of Athens in the Light of Recent Researches." The essayist in the first place showed the kinship of the primitive acropolis of Troy, Tiryns, Mycene, and Athens, and the indications at Athens of the pre-Homeric era, to be superseded by that of Hellenic Greece. The buildings of this period were severally considered in their purpose, the ancient temple of Athene Polias, the Parthenon of Pericles, the entrance gates of Propylaea, and the megaron of Erechtheus, and his museum or heroon. The present aspect of the buildings, their architectural details, and their former magnificence, were shown by a long number of lantern views.

**Building Societies' Association.**—The annual meeting of this Association, which was established on its present basis in 1869 for the purpose of protecting the interests and privileges of building societies, to collect for the use of subscribers all legal decisions affecting these institutions, and to watch the proceedings in Parliament in reference to them, was held on Wednesday last at the Westminster Palace Hotel. In the absence of Sir John Lubbock, M.P., the chair was taken by Mr. C. Binyon, chairman of the executive committee. In moving the adoption of the report, the chairman said the most important of the measures affecting the interests represented by the Association now before Parliament was the Land Transfer Bill. Whilst recognising that the Bill was an improvement in several respects upon any previous Government Bill dealing with the question, the committee felt strongly that any alteration of the existing law which did not insure promptitude and cheapness in land transfer would be not only of no value, but absolutely prejudicial to the interests of building societies. Legislation had had a great deal to do with the recent decrease in the business of building societies, and he was afraid that the result of the legislation in connection with building societies would be very similar to that affecting trustees' savings banks, some of the best of which throughout the kingdom had had to be closed.



**Sanitary Inspectors' Association.**—At a meeting of the Sanitary Inspectors' Association recently held at Carpenters' Hall, London Wall, a paper was read by Mr. W. H. Grigg (vice-chairman), on "The Proposed Drainage Bye-laws for the Metropolis." Mr. W. W. West (chairman of the council) occupied the chair. Mr. Grigg, in the course of his paper, which was largely of a technical character, said that the necessity for a complete code of drainage bye-laws for the metropolis was obvious to everyone, and it was difficult to understand why it had not long ago forced itself on the authorities as a matter of extreme urgency, particularly when London's central authority had had the power to make bye-laws since 1855, and had now prepared them under that Act. In commenting on the bye-laws, he pointed out several respects in which he considered they required to be amended. There was no provision made for the submission of plans, sections, and elevations of the proposed works to the local authority to be approved before commencing the works; the fall of drains was not specified; drains were not required to be true in invert and clear in bore; construction of piers for iron drains was not specified; inspection chambers were not made compulsory; there was no pen-

alty for covering up work before it was approved by officers of the local authority; the supplying of water and filling of drains by the builder was not provided for; and the construction and maintenance of urinals was left out entirely. When sanitary inspectors served notices requiring certain specified works to be performed, unsympathetic owners frequently retorted, "Well, if I do all this work now, what guarantee have I that in a year's time you will not come again and condemn it all owing to some new fad, and require something else?" And when it was borne in mind that it was only on June 28th, 1893, that the bye-laws under the Public Health (London) Act, 1891, were issued, which differed materially from those now proposed by the London County Council, it was not surprising that such complaints should be made. Continuity in methods and requirements was a most desirable thing in this matter, and unless there was some absolute proof that the existing requirements were inadequate, it was earnestly to be hoped that the change would not be insisted on. There was nothing to show whether these bye-laws were to supersede those under the Public Health (London) Act, 1891, or if they were both to exist side by side. Many necessary things were provided for in the latter which were omitted from the

new ones, and if they were to remain in force, in matters dealt with by both, they must be made to agree. That the new bye-laws had in them the elements of a great change there could be no doubt, but if they were not made to apply to repairs, &c., in old houses, a great work yet remained to be done.—A discussion followed.

**The Institution of Civil Engineers.**—The result of the ballot for the election of the council has now been declared as follows: President, Mr. J. Wolfe Barry; vice-presidents, Mr. W. H. Preece, Sir Douglas Fox, Mr. James Mansergh, and Sir William Anderson; other members of council, Mr. Horace Bell, Mr. Alex. R. Binnie, Mr. T. Forster Brown (Cardiff), Mr. Henry Deane (Sydney), Mr. W. R. Galbraith, Mr. George Graham (Glasgow), Mr. J. C. Hawkshaw, Mr. Charles Hawksley, Mr.

## THE SMOKELESS FIRE CO. LTD.,

Sole Proprietors of Marsh's Patents

FOR THE

## COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.

## BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.

## HOISTING APPLIANCES

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

## WESTON AND OTHER Pulley Blocks

in Stock, with any length of

## CHAINS.

Chain Maker on Premises for Repairs, &c.

LONDON HOIST AND CHAIN CO.  
32, Norton Folgate, E.C.

## "ECLIPSE" PATENT GLAZING.

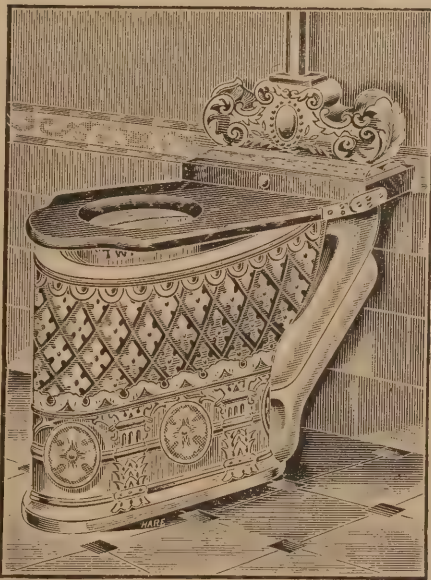
THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.

Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

MELLOWES & CO. Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
Telegraphic Addresses—"ECLIPSE, SHEFFIELD." "MELLOWES, LONDON."

GUARANTEE sent with each Basin.



Recommended & Specified by Architects & Sanitary Engineers.

Perfect Sanitation, Healthy Houses

OBTAINED BY ADOPTING THE

"TWYCLIFFE" Patent Pedestal Syphon W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.

Practically noiseless in action.

Simple in construction, reliable in action.

No complicated mechanism to get out of order.

Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.

# HOMAN & RODGERS, ENGINEERS.

ORIGINAL PATENTEES OF ALL GIRDES

FORMED OF JOISTS AND PLATES

CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS, USED IN OVER 2000 BUILDINGS.

ROOFS,

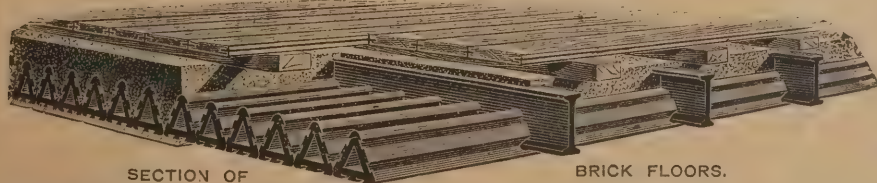
BRIDGES

PIERS,

GRANITIC

PAVING STEPS,

ASPHALTE.



SECTION OF

BRICK FLOORS.

LONDON { OFFICES: 17, GRACECHURCH STREET, E.C.  
{ WORKS: NINE ELMS LANE, S.W.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue.

MANCHESTER

{ OFFICES: 10, MARSDEN STREET.  
{ WORKS: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 687.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



G. H. Hill (Manchester), Dr. John Hopkinson, Mr. J. C. Inglis, Dr. Kennedy, Mr. John Kennedy (Montreal), Mr. George Fosbery Lyster (Liverpool), Mr. William Matthews, Sir Guilford Molesworth, Sir Andrew Noble (Newcastle), Dr. B. B. Stoney (Dublin), Mr. F. W. Webb (Crewe), Sir William White, and Sir E. Leader Williams (Manchester).

It has been arranged to hold a conference of the members of the Institution in London this year under conditions which, it is hoped, will be convenient to many who are precluded from attending the weekly meetings during the session, and may be serviceable to all by the discussion of a wider range of subjects than can be dealt with on ordinary occasions. It is intended that the business of the conference should differ from the ordinary proceedings of the Institution, papers descriptive of works executed giving place to brief statements concerning important debateable matters in engineering science and practice, introduced with a view to eliciting discussion on the questions raised. The conference is fixed for May, 25, 26, and 27, the morning of each day (from 10.30 to 1.30) being devoted to the consideration of the statements referred to, and visits of inspection to engineering works being made in the afternoon. The work of the conference will be carried out under the direction of the council, with the assistance of seven sectional committees, consisting of members of the institution representative of various localities in the United Kingdom, and identified with the several branches of engineering. The sections are:—Railways, with Sir Benjamin Baker as chairman; harbours, docks, and canals, Mr. Harrison Hayter, chairman; machinery and transmission of power, Sir Frederick Bramwell, chairman; mining and metallurgy, Mr.

T. Forster Brown, chairman; shipbuilding, Sir William H. White, chairman; waterworks, sewerage, and gasworks, Mr. Mensergh, chairman; and applications of electricity, Mr. W. H. Preece, C.B., chairman.

**Society of Engineers.**—At a recent meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, London, Mr. G. Maxwell Lawford, President, in the chair, a paper was read by Mr. Henry O'Connor (Vice-president), entitled "Automatic Gas Station Governors." The author first explained the need for the station governor in a gasworks, and pointed out that the pattern now in use and being manufactured by many firms was practically the same as that made 50 years ago. He then described the working and the method of finding the weights necessary for throwing certain pressures, and proceeded to explain the necessity of the parabolic form of cone. He then described the most notable of the suggestions made from time to time to improve the working of the governors, such as the double-cone governor, the equilibrium single-cone governor, the governor with a separate loading-bell worked at a distance from the cone bell, water-loaded governors, the double-bell and cone equilibrium governor, the throttle-valve governor, and governors with parallel side valves. The use of clockwork for the purpose of regulating the time of the loading and unloading of the bell was noticed, and also the loss due to uneven pressures. A new method of automatically loading governors according to the absolute requirements of the district was described, with details of several ways in which that might be carried out. The advantages of this system were pointed out, and a method of approximately registering the output of gas by the variations in pressure was suggested.

## FLOORING BLOCKS.



Per 100 Blocks out of sizes.	YELLOW.		PITCH PINE
	At Wharf.	ex Ship within one month.	At Wharf.
17½ x 3 x 3	12 3	11 2	16
17½ x 3 x 2	8 9	7 11	11 8
17½ x 3 x 1½	6 9	6 0	9 1



## PRIME DRY OAK & PITCH PINE FLOORING.

With Special Joint to conceal Nails—

1½ x 4½ Oak, 50/- Pitch Pine, 24/6 per square.  
1 x 4½ " 42/6 " 21/-  
Above prices include desiccating.

## VIGERS BROTHERS, TIMBER MERCHANTS.

Head Office—67, KING WILLIAM STREET, E.C.  
Mills—LOTS ROAD, CHELSEA.

Telephone No. 601 Avenue.

**GEORGE  
WRAGGE**

DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS

WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.

**METAL  
CASEMENT  
& SASHES**

## ILLUMINATION BUCKETS IN ALL COLOURS.

Commemorating the 60th year  
of Her Majesty's Reign.

SEND YOUR ORDERS EARLY

To **J. YOUNG & CO.,** Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.  
Telephone No 4712 (Hop).

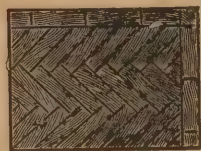


## WIRE DEVICES,

With Patent Wire Clips, to  
hold Bucket Lamps, in Crowns,  
Monograms, Letters, Feathers,  
and Window Blinds.

WRITE FOR DRAWINGS AND PRICES.

Telegrams:—"YOUNGS, KENNINGTON CROSS."



## WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)  
For Churches, Schools,  
Offices, &c.

Estimates and full particulars on ap-  
plication to

**HOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM  
JOINERY WORKS,  
Clapham Junction, S.W.

**LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

Reading Cases may be had on application  
to the Manager. Price 1s. 9d. each.

**FOR PLUMBING,  
SANITARY AND  
DRAINAGE GOODS.  
Builders' Ironmongery, &c.**

Telephone No. 77 (Hop)

DO  
YOU  
WANT  
TO BUY  
RIGHT?

**HYDE  
& CO**

**173 & 175, KENNINGTON CROSS,  
LONDON, S.E.**

DO  
YOU WANT  
SPEEDY  
DELIVERY



## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the work.

**ADDLESTONE.**—For additions, &c., to Mountain Ash and 1, Richmond-villas, Station-road, for Mr. Clark. Mr. Albert Veness, Architect, Brighton-road, Addlestone, Chertsey.

Rayner and Winckworth, Kingston 225 Mountain Ash  
406 Richmond Villa  
2918 Mountain Ash  
W. Greenfield, Weybridge 308 Richmond Villa

**ARDENSHAW.**—Alterations to St. Stephen's Central Schools. Mr. J. H. Burton, Architect, 2, Guide-lane, Hooley Hill.

Roger Willis, Ashton-under-Lyne 271 15  
James Whitehead do. 59 10  
C. Keswick do. 57 0  
J. Riddard do. 47 0  
Exors. Thos. Storer, Denton 45 0  
John Robinson, Ashton-under-Lyne 44 16  
Zachariah Pike, Hooley Hill (accepted) 36 10  
J. Evans, Ashton-under-Lyne 35 10  
J. Thornley, Hooley Hill 29 10

**BATH.**—For the extension of electric light buildings, Dorchester-street, for the Corporation. Mr. R. Hammond, Engineer. Mr. W. J. Wilcox, Architect.

Hughes and Weeks 22,730 Jacob Long and Sons 22,387  
Stephen Ambrose 2,684 Hayward and Wooster 2,327  
W. Webb 2,659

**BATTEN (Plymouth).**—For new factory for the South Coast Fish Guano and Oil Company, Limited. Mr. B. Priestley Shires, Architect, Central Exchange, Plymouth.

Coles 21,025  
Wakeham Bros. 942  
Lethbridge and Son 883  
Goad and Co. 857

**BELPER.**—For the erection of shops, Derby-road, for the Park Foundry Company. Mr. Maurice Hunter, Engineer.

Quantities by engineer:—  
General Contractor's Work, including glazing in roof, by Messrs. Mellows and Co.

H. Weldon 29,157 10 9  
Ford and Co. 9,145 0 0  
Walker & Slater 9,050 0 0  
Jos. Walker and Son 8,090 0 0  
J. F. Price 8,678 0 0  
Groom and Co. 8,570 0 0

Iron Roofs, Columns, and Girders.  
W. Jones and Co. 24,006  
Francis Morton & Co. 1,314  
Handyside and Co. 1,129

Butterley Co. 24,100  
Phoenix Foundry Co. 3,398  
Derby 3,398

**BOVEY TRACEY (Devon).**—For the erection of a dwelling-house, for Mrs. Hellier. Mr. Samuel Segar, Architect, Newton Abbot.

F. A. Stacey 2920 0  
H. Mills 873 10  
R. Teo 860 0  
G. Morris 817 9

S. Davie 2790 17  
J. Turner, Bovey Tracey 722 18

**BRENTWOOD.**—For the erection of a detached villa residence at Brentwood. Messrs. Dale and Gadsdon, Architects, 8, Union-court, Old Broad-street, E.C.

Hoare and Sons 21,350  
Rogers and Robson 1,200

Irwin 21,250  
Bromley (Kent).—For the erection of cottages and shops at Plaistow, for Sir Samuel Scott, Bart. Mr. A. J. Hardwick, Architect, 32, Ravensbourne-road, Bromley, Kent.

Quantities by Mr. W. James Pamphilon, 22, Wellington-street, Strand, W.C.

Wood 23,966  
Syme and Duncan 3,392  
Crossley and Son 3,323

Low 23,820  
Duthoit 3,448  
Graty 3,241

\* Accepted, subject to reduction.

**BUCKHURST HILL (Essex).**—For the erection of two pair semi-detached villa residences at Buckhurst Hill. Mr. Alfred Bodborough, Architect. Quantities by Mr. Walter Baffing, 7, John-street, Adelphi, W.C.

O. S. Foster 25,040  
Wells and Sons 1,985  
H. W. Taverer 4,752

Dashwood and Sons 24,523  
Davy Bros. 3,747

**RUXTON (Derbyshire).**—For the erection of a residence, "Maison Rouge," for Mr. Fred. Smallman. Messrs. W. Sugden and Son, Architects, Hanley, Staffs. Quantities by the Architects.

Groom and Co., Ltd., Bakewell 23,173

**CHATHAM.**—For Municipal Offices and Town Hall. Mr. G. E. Bond, Architect, Rochester. Quantities by the Architect.

Richard Avar 226,747  
Wallis and Sons 25,203  
J. and M. Patrick 24,173

Pryer and Sons 222,085  
Lawrance Seager 21,998  
West Bros., Rochester 20,598

\* Recommended for acceptance.

**CHELMSFORD.**—Accepted for the erection of a pair of villa residences, Primrose Hill, for Mr. F. G. Smith, Chelmsford. Mr. F. Whitmore, Architect, 17, Duke-street, Hy. Potter, Chelmsford

T. Dean 2937 0 0  
E. Kirkby 928 0 0  
Fitton & Bowness 920 0 0  
Hirst and Kinder 838 16 9  
J. Clayton 837 10 0

J. Riddard 2798 0 0  
Z. Pike 752 0 0  
Exors. of T. Storer, Denton 709 10 0

\* Accepted subject to certain alterations.

**DEVONPORT.**—For alterations, Granby Cellars, Granby Hall. Mr. B. Priestley Shires, Architect, Plymouth.

Lethbridge and Son 21,125 0  
Coles 1,110 0  
Stevenson 1,068 10  
Goad and Co. 998 0  
Wakeham Bros. 971 0  
Nicholls 937 0

Oliver 2920 10  
May 912 0  
Kerswill 894 0  
Palmer 879 0  
Blake, Plymouth 833 0

\* Provisionally accepted.

**FARNHAM.**—For the erection of casual wards for the Union Guardians. Mr. S. Stapley, Architect, West-street, Farnham.

Building Co. 23,180  
Kemp 1,967  
Garland 1,910

Tempest and Co. 21,860  
Goddard & Sons, Farnham (accepted) 1,745

**GRIMSBY.**—For the construction of streets, Littlefield Estate, for the Corporation and Enrolled Freeman. Mr. A. E. Skill, C.E., 7, Macaulay-terrace, Great Grimsby.

C. Simons 2342 7 4  
Hewins and Good-hand 248 6 0

L. Davison 2340 0 0  
[All of Grimsby.]

**ILFORD.**—New banking premises, for the London and County Banking Company, Limited. Messrs. Cheston and Perkin, Architects. Quantities by Mr. W. Courtney Fagg.

Hammond and Son 26,348  
Dovings and Davis 6,624  
W. Watson 6,580  
Lawrence and Sons 6,561

W. Johnson & Co., Ltd. 26,498  
Brown, Son, and Blomfield 6,898  
Perry and Co. 6,259

\* Accepted.

**IRTHLINGBOROUGH.**—For erecting villa residence at Irlingborough, for Mr. W. Shortland. Mr. H. Admitt, Architect, High-street, Rusden.

A. Trayner 21,100  
T. Willmot 1,073  
T. and C. Berrell 1,065  
Whittington & Tomlin 1,003

S. Marriott 21,040  
S. Abbott, Finedon 1,035  
W. Coats and Son 1,028  
Hacksley Bros. 1,025

\* Accepted.

**LONDON.**—For alterations to No. 6, Warwick-street, Belgravia, S.W., for Mr. A. J. Palmer. Mr. A. Howard, Surveyor, The Outer Temple, Strand.

Leader 2325  
E. A. Smith 275

R. Wadsworth, Belgravia 2360

\* Accepted.

**LONDON.**—For erecting the Grand Jubilee Pavilion in St. Paul's Churchyard, for Mr. S. N. Maskelyne. Mr. J. G. Buckle, Architect. Quantities supplied:—

William Johnson & Co. 24,023  
F. G. Minter 3,231

John Greenwood 23,274

\* Accepted.

**LONDON.**—For the erection of eight houses, Newlyn-road, Tottenham. Mr. E. Howard, Architect.

W. Hawley, Philip-lane, Tottenham 22,720

**LONDON.**—For alterations at "The Earl Russell" public-house, Finsbury Park, London. Mr. H. M. Herbert Riches, Architect, 3, Crooked-lane, King William-street, London, E.C.

A. Porter 21,188  
G. E. Todd 1,169

J. T. Robey 21,017  
P. Hart (accepted) 956

**LONDON.**—Accepted for the erection of lavatories at Albion House, 326, City-road, for the Central Finsbury Liberal and Radical Club.

J. Mitson, Brixton 2103 8

**LONDON.**—For new offices, factory, &c., 89, Worship-street, E.C. George Hornblower, Architect, 20, Fitzroy-street, W.

Holloway Bros. 211,800  
N. Lidstone 10,565  
F. Gough and Co. 10,494  
John Marsland 9,916  
J. W. Falkner & Sons 9,900

McCormick and Sons 20,888  
J. L. Grover and Sons 9,870  
Holland and Hannen 9,790  
Wm. Shurmer 9,669  
Kilby and Gayford 9,436

\* Accepted.

**MALDON (Essex).**—For the erection of two pairs of cottages, Heybridge Basin, for Mr. Chaney. Mr. F. M. Beaumont, Architect, Maldon.

Ernest West 2800  
Thomas Wilding, Maldon 2800

\* Accepted for one pair of cottages for 2100

**MIDDLEBROUGH.**—For additions, &c., to shop premises, Albert-road, for Mr. Holmes. Mr. W. G. Roberts, Architect, 61, Albert-road, Middlebrough.

Full Tender.  
Hudson Bros., Middlebrough 2196 0

Perks and Son 287 0  
Allison Bros. 295 10

D. Doughty 276 5  
Perks and Son 284 10  
Baker Bros. 235 9  
Lambert and Son 34 0

Walton & Garthwaite 226 10  
\* Accepted.

**PENRITH.**—For the construction of sewerage works, Threlkeld, for the Rural District Council of Penrith. Mr. C. A. Sandford Fawcett, Engineer, 1, Victoria-street, Westminster.

J. Graham, Lazonby, R.S.O., Cumberland 2487

**PLYMOUTH.**—For rebuilding the "Noah's Ark" inn, Saltash-street. Mr. B. P. Shires, Architect, Central Exchange, Plymouth.

Jno. Goad and Co. 24,500  
Laphorne and Co. 4,714  
Trevena 4,221  
Palmer 4,120  
Andrews 4,100

Blake 24,080  
Kerswill 3,389  
Coles, A. N., Stone-house 3,795  
\* Provisionally accepted.

Extra decorative work 2500

**PURLEY.**—For the erection of a detached villa residence and billiard-room at Purley. Messrs. Dale and Gadsdon, Architects, 8, Union-court, Old Broad-street, E.C.

Cubitt and Co. 25,800  
Hoare and Sons 5,354  
West 5,134

Marriage 25,075  
Wallis 4,959  
Bulled and Co. 4,084

\* Accepted.

**REDRUTH.**—For the erection of laboratory, &c., for the Committee of the Science and Art Schools. Mr. S. Hill, Architect, Redruth.

Masonry.  
W. H. Gray 2349 10  
R. Jacob 282 10

S. Head, Redruth (accepted) 2251 18

**REDRUTH.**—For the erection of the first section of the infirmary buildings at the workhouse, for the Union Guardians. Mr. Sampson Hill, Architect, Redruth. Quantities by Architect.

Moyle & Mitchell 22,547 0 0  
Jno. Odgers 2,794 0 0  
A. Carkeet 2,793 0 0  
Opie and Roberts 2,638 0 0

Opie and Hodge, Redruth 22,666 0 0  
White & Thomas, Crowan (with-drawn) 2,456 15 8

\* Accepted.

[Architect's estimate, 22,600.]

# McNEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.) McNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. McNEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

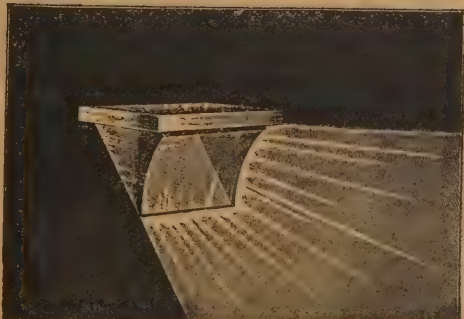
## WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL FOR TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



### "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation falling on anything which happens to be below.

### WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

WILSON'S IMPROVED PATENT  
HORIZONTAL FLOOR & ROOF LIGHTS



**STONEHOUSE (Plymouth).**—Accepted for horsing seven 300-gallon spirit vats and twelve 60-gallon spirit vats, wine bins, office, &c., at the West India Hotel. Mr. B. Priestley Shires, Architect, Central Exchange, Plymouth. £146  
Jno. Goad and Co., Plymouth

**STRATFORD.**—For new business premises, Stratford Broadway, for Mr. G. H. Levey. Mr. George E. Bond, Architect, Rochester. £8,108  
Hearle and Farrow 7,297  
Perry and Co. 6,960  
C. E. Skinner. ford\* Accepted. £6,956

**SWILLAND near IPSWICH.**—Accepted for rebuilding the tower, Swilland Church. Mr. J. S. Corder, Architect, Tower Street, Ipswich. £270  
English, Coddensham

**TONBRIDGE (Kent).**—For the execution of street works, Barden- and Northcote-roads, &c., for the Urban District Council. Mr. W. L. Bradley, Engineer, 83, High-street, Tonbridge. £230 0 0  
G. Brotherwood £311 3 5  
Chittenden and Simmons 327 2 11  
W. H. Wheeler, Sun-ner-street, S.E.\* 290 14 2  
\*Accepted.

**Northcote-road.**  
G. Brotherwood £160 9 7  
Chittenden and Simmons 160 0 0  
W. F. Wheeler £153 9 8  
[Engineer's estimate, £89 9s. 10d.]  
[To be made up by Council's own staff.]

**TUNBRIDGE WELLS.**—For the erection of swimming and slipper baths, for the Corporation. Mr. T. E. W. Mellor, C.E., Town Hall, Tunbridge Wells. Quantities by Mr. C. Norton, Tunbridge Wells. £8,442  
Davis and Leaney 8,083  
Longley & Co., Craw-Award. ley\* 27,985  
\*Accepted.

**WAKEFIELD.**—For the erection of dwelling-house, Stanley-road, for Mr. David Stephenson, jun. Mr. W. Wrigley, Architect, 10, Wood-street, Wakefield. Quantities by Architect.  
Brickwork and Stonework—B. Lockwood, Westgate Common, Wakefield 17 6 0  
Slating—J. Illingworth, Bank-street 17 17 6  
Plastering—T. C. Tattersall, Trinity Church Gates 23 14 8  
Joinery—J. Lazenby, Eastmoor, Wakefield 72 17 0  
Plumbing and Gasfitting—F. E. Mosley, Northgate 47 0 0  
Painting—S. Rayner and Son, Southgate 5 0 0  
£342 9 2

**WITHAM (Essex).**—For the erection of an infirmary at South Metropolitan District School, for the managers. Mr. F. Whitmore, Architect, Chelmsford. Quantities by Mr. J. L. Parmenter, Ipswich. £3,975  
Everett and Son 3,957  
Geo. Grimwood and Sons 3,857  
Silas Parmenter 3,842  
Robt. Girding 3,789  
J. B. Smith and Sons. ford\* 3,700  
\*Accepted.

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required. For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

Price 3s. 6d.  
**GLOSSARY OF TECHNICAL TERMS** used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I. Contains explanations of over 2000 terms.  
London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**WOOD BLOCK FLOORING.**  
**MASTIC** for laying above supplied in any quantity.  
W. BRIGGS, Chemical Works, DUNDEE,  
SOLE MAKER OF  
"Tenax" Building Rock Compositior.  
For Wall Cavities.

**PILKINGTON'S**  
WORKS: **TILES.**  
CLIFTON JUNCTION, NEAR MANCHESTER.  
MANUFACTURERS OF HIGH CLASS TILES.  
For Floors, Halls, Hearths, Grates and Furnitv-e.  
EVERY VARIETY OF TILE WORK FOR  
CHURCHES, PUBLIC BUILDINGS AND  
PRIVATE RESIDENCES.  
London Show Rooms: Lyric Chambers, 45, Whitcomb Street W.C.  
Manchester Show Rooms 37, Cross Street

A few copies of Vol. IV. may still be had on application to the Manager, price 5s. each.

**R. I. B. A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**THE LONDON (TELEPHONE {Holborn, No. 1011.})  
DRAWING & TRACING OFFICE,**  
98, Gray's Inn Road, Holborn, W.C.  
(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques crossed. The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.  
Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as  
**WORKING DRAWINGS, TRACINGS,  
PERSPECTIVES, SURVEYS,  
COMPETITION DRAWINGS,  
Black Line PHOTO-COPIES and Blueprints.  
Quantities, Specifications LITHOGRAPHED.  
MODELS, DIAGRAMS, &c.**  
Estimates by return of post on receipt of full particulars to the MANAGER.

**COUNTY BOROUGH of BARROW-IN-FURNESS.**  
CHIEF ASSISTANT.  
The Health Committee are desirous of receiving APPLICATIONS from persons qualified to carry out the duties of CHIEF ASSISTANT in the office of the Borough Engineer and Surveyor.  
Salary £150 per annum.  
Further particulars may be obtained on application to the undersigned.  
Candidates' ages must not be less than 24, nor more than 32.  
Canvassing any Member of the Corporation will disqualify a candidate.  
Candidates must have had previous experience in municipal work, and preference will be given to those who have obtained either the Certificate of Competency granted by the Incorporated Association of Municipal and County Engineers, or who have passed the professional examination of the Institute of Surveyors.  
Applications must be sent to this office not later than the 17th inst., in the candidate's own handwriting, accompanied by copies of not more than three testimonials of recent date, addressed to the undersigned, and endorsed "Chief Assistant."  
W. H. FOX,  
Assoc. M. Inst. C.E.,  
Borough Engineer and Surveyor,  
Town Hall, Barrow-in-Furness,  
May 5th, 1897.

**ASSISTANT WANTED.** Competent to prepare drawings from sketches, construction and details. Some knowledge specifications and quantities desirable.—Apply, with salary and full particulars, GEO. ELKINGTON and SON, Architects, 95, Cannon-street, E.C.

**BOROUGH of ILKESTON.**  
WORKING FOREMAN WANTED.  
The General Works Committee are prepared to receive APPLICATIONS from men under 40 years of age, qualified to undertake the duties of WORKING FOREMAN.  
Wages 30s. per week.  
Applications in the handwriting of the candidate, giving full particulars as to previous experience, with three testimonials of recent date, to be delivered to the undersigned before FIVE o'clock in the afternoon of THURSDAY, the 13th inst.  
HENRY JAS. KILFORD,  
Town Hall, Ilkeston,  
Borough Surveyor.  
May 3rd, 1897.

**APPOINTMENTS WANTED.**  
The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**YOUNG ARCHITECT, A.R.I.B.A.,**  
DESIRES TO ASSIST others in the PREPARATION OF DRAWINGS at his own office.  
G. SCORER, 28, Newman-street, W.

**SURVEYOR (24) desires ENGAGEMENT** in Engineer's office. Experience in surveys (land and town), levels, and sewerage works. References and testimonials.—B. A. J., care of Mr. Walker, Poulton-le-Fylde, Lancs.

**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGGERDINE WORKS, WITHINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards  
FLOOR TILES  
in Stock.  
Quick Supply!  
Best Quality!  
Low Price!



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.  
**CAMERAS AND SHUTTERS.**  
THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.  
Illustrated Catalogue Free.



# Surveying and Sanitary SUPPLEMENT.

MAY 12TH, 1897.

## WORKHOUSE PLANNING.

(Continued from page xxvi.)

By GEORGE H. BIBBY, F.R.I.B.A.

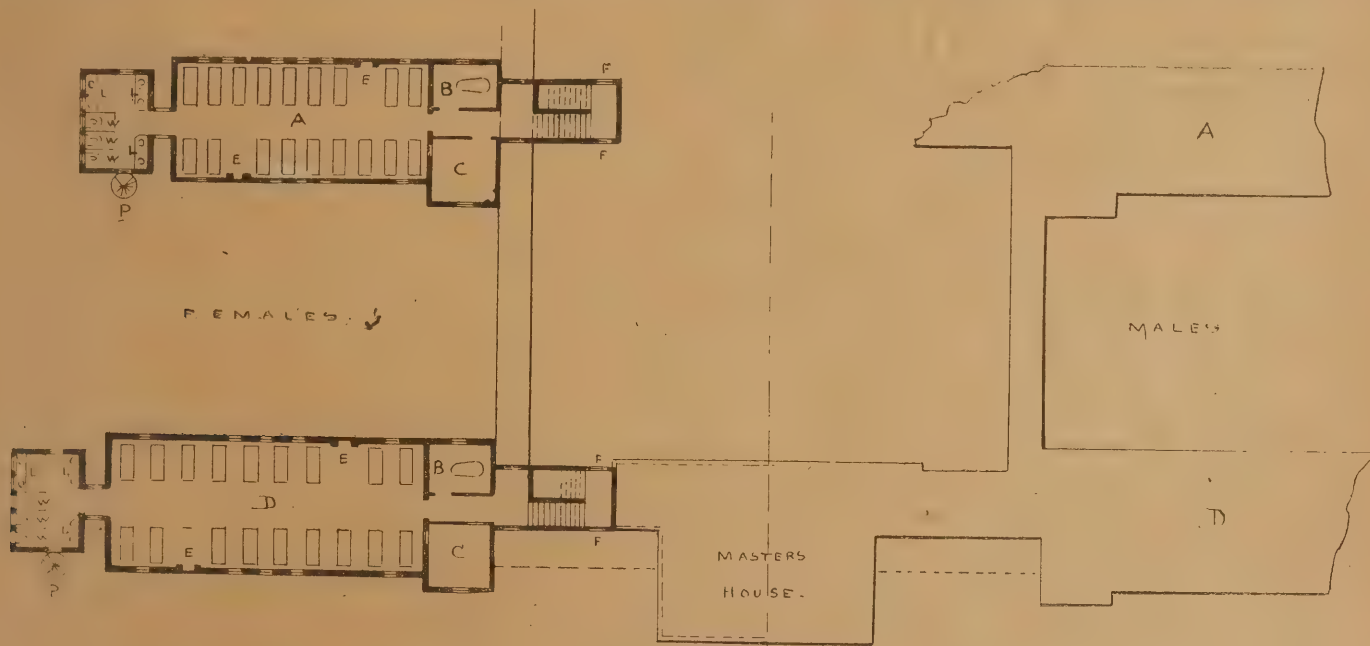
### No. IV.—MAIN BUILDINGS.

SOME of the requirements of the Local Government Board, with regard to the points to be attended to in the construction of workhouse buildings, have very recently been revised, but only to a slight extent as regards the main buildings. The suggestions of the Board remain as they have stood for some

health, whether able-bodied or aged, and residential accommodation for the master and matron; also the main dining hall, general stores, kitchen sculleries, bakery, and other administrative portions. A detached building for the master and matron is not approved, as it has usually been considered important that their apartments should form a central portion of the administrative buildings.

It is requisite where there are large numbers of inmates that there should be arrangements made for the sub-division into classes, with special regard to the antecedents, character, and habits of the paupers. This is important in large workhouses, especially for the pur-

"When any two persons, being husband and wife, shall be admitted into any workhouse, and either of them shall be infirm, sick, or disabled by any injury, or above the age of sixty years, it shall be lawful for the guardians of the union or parish to which such workhouse shall belong, to permit, in their discretion, such husband and wife to live together, and every such case shall be reported forthwith to the Local Government Board." In compliance with these Acts it is therefore necessary that the workhouse Architect should provide upon his plans for a few apartments having each a superficial area of not less than 100ft, preferably with a fireplace, and with



~ Fig. 5. ~

years, except that the following paragraph is now omitted: "In large workhouses where there are considerable numbers of inmates in health, the wards for that class may be made 36ft. wide and the beds be arranged in four rows, a dwarf partition, about 4ft. high and about 8in. off the floor, being fixed between the two rows of beds in the middle of the ward." I mention this alteration purposely at this juncture to illustrate the necessity for obtaining the most recent information existing of any variations in the regulations of the Local Government Board, without which knowledge much delay and loss might arise by reason of disapproved plans.

The main building must contain the necessary accommodation for the adult inmates in

poses of discipline and good management; and it is obviously fair that unfortunate persons of good character should not be compelled to associate more than is absolutely necessary with the vicious and offensive.

The Act 10 and 11 Vict., cap. 109, sec. 23, provides that "when any two persons, being husband and wife, both of whom shall be above the age of sixty years, shall be received into any workhouse, in pursuance of the provisions of Act 4 and 5 Will. IV., c. 76, or other Act, or of any rule, order, or regulation of the Commissions appointed by the authority of this Act, such two persons shall not be compelled to live separate and apart from each other in such workhouse." Further than this, the 39 and 40 Vict. cap 61, sec. 10, provides,

good ventilation and lighting. The position of these on the general plan of the workhouse may be central between the buildings for males and females, and, where there are many married couples so housed, some separate day-room accommodation might be added, otherwise the husbands and wives would, during the evenings and when not working, occupy the day-rooms appropriated to males or females respectively—a large dormitory separated into cubicals by screens not reaching to the ceilings is undesirable for married couples in workhouses.

I have before shown that certain alterations have been made recently with regard to the regulations as to widths of wards for inmates in health; as matters stand at present the



minimum requisite amount of space per bed for adult inmates in health is:

	Wall Space, irrespective of that occupied by doors and fireplaces.	Floor Space.	Cubic Space.
	Feet.	Feet.	Feet.
In dormitories.....	4	36	360
In dormitories for women with infants.	5	50	500
In dormitories occu- pied by infirm in- mates day and night.	5	50	500

In Fig. 5 is given an illustration of a simple arrangement for two dormitories, each for eighteen inmates, from which can be seen at a glance the relative areas required; in Fig. 5, at A, is a ward dormitory for eighteen able-bodied adults, each having a wall-space of 4ft. only, a floor-space of 36ft., and (as the apartment would be 10ft. in height) a cubic-space of 360ft., the width of this dormitory would be 18ft.; C is an apartment for an official, which, however, could be used as a ward-kitchen, should it be necessary, temporarily or otherwise, to convert this dormitory to hospital uses (in which case, of course, many beds would have to be removed to allow sufficient cubic space for sick inmates); in the present form, however, it is intended for able-bodied adults in health, and it cannot be said that the minimum areas and cubic contents shown, although, in accordance with official regulations, are quite so liberal as might be desired.

A bath-room is provided at B, and water-closets and lavatories in an annexe at L and W, from this annexe, at P, would be a circular iron panic or fire-escape staircase, which would be approached only by a door arranged to sound an alarm when used; the main staircase would be of fire-resisting materials in short flights of steps, and with ventilating windows at F to prevent foul air from rising to the upper floors from those below.

An area equal to the space of two beds is lost in this dormitory, in order to allow wall spaces for the two fireplaces.

The ward at D on Fig. 5 would, as regards area and cubic contents, be sufficient as dormitory accommodation for women with infants, or as dormitories occupied by aged or infirm inmates day and night; in this ward 5ft. of wall space is allowed to each bed, 50ft. of floor space and 500ft. cubical space, exclusive of the spaces opposite the two fireplaces, each of which is equal to that given to one bed, with a wall space of 5ft.—the width of ward D is 20ft.; in other respects the arrangements would be similar to those shown for ward A. In the case of old workhouses, where alterations or extensions may be made, and where the existing means of ventilation are difficult to arrange, such dimensions and areas as are above given would not be sufficient.

The cubic space allowed for such rooms in the metropolis has been more liberal. So far back as 29th September, 1870, the Poor Law Board required that infirm persons, occupying the same room day and night, should each be allowed 700 cubic feet of space in their dormitories; infirm persons, able to leave their dormitories during the day, 500 cubic feet; and healthy persons, 300 cubic feet. For the last two classes day-room accommodation was also demanded.

The day-rooms for the inmates in health must be arranged at the rate of 15ft. of floor space for every inmate in their dormitories; work-room accommodation should not count as day-room space; the windows of day-rooms and dormitories should face each other, so as to obtain cross-ventilation.

When practicable it is frequently advisable to provide accommodation for the aged upon the ground floor, where verandahs, bay windows, and easy access to the airing courts would add to their comfort and that of the officials.

In large workhouses a greater variety of

occupations for the paupers are practicable, and more rooms are necessary for the purpose of separating the workers; the work done is oakum-picking, stone-breaking, wood-chopping and sawing, tailoring, shoemaking, painting and carpentry for the males; and laundry-work, sewing, cleaning, &c. for the females. The workrooms should, if possible, have a southerly aspect, and be well ventilated, warmed, and lighted.

The washhouse and laundry for a large workhouse forms a very important item; it should be a detached one-story building, with an open roof and Louvre ventilators therein: proper means for keeping the floor dry, and for the protection of the feet of the women while standing at the wash-tubs, should be provided; also suitable drying closets; as a rule, it will be found advisable to provide for both hand and machine-washing, as there are usually a number of able-bodied women for whom such occupation is a convenient employment, while on the other hand machine washing is desirable in many instances and for foul washing. In planning workhouse laundries it will be observed that the alternatives of hand-washing and machine-washing may influence Architects considerably in deciding upon the areas of the laundry buildings; further, some machines are much less economical than others as regards the space they would occupy. Machines are made which almost form washhouses in themselves, and there can be no doubt that laundry machinery would be made much more use of in workhouses were it not desirable to find employment at the wash-troughs for the female paupers.

In connection with large workhouses, where isolated hospitals for fever and smallpox patients exist, a special laundry of small extent should be provided in proximity therewith. This may consist of three or four apartments, including a disinfecting chamber, a reception room, washhouse, laundry, and drying closets, &c.

There should, in the general laundry, be provided about five 10ft. drying-horses to every 100 patients. These usually occupy a considerable area, as there must be ample space, not only for drawing out the horses, but also for depositing baskets, trucks, &c.

In the construction of a laundry for a workhouse, the superficial space to be allowed for each inmate should not be less than 5ft.; therefore, for a workhouse for 1000 inmates, there would be required an area of 5000ft., which would include a portion, probably of about 250ft. area, for the foul washhouse, but be exclusive of the laundry for the fever hospital; in large institutions a separate laundry might be added for the officials.

The walls of a workhouse laundry should, to a height of 5ft. or thereabouts, be lined with white glazed bricks or tiles; the apartments should be light and well ventilated. Some laundries are only lighted from the roof, but it would appear to be much more desirable that there should, in addition, be a fair supply of windows in the side and end walls, the washhouse especially should be constructed so as to allow the washing-troughs to face the windows, not only for purposes of light, but also to secure for the female paupers employed therein as much cheerfulness as may be.

In the foul and fever washhouses, washing machines would be used rather than hand labour, and steam power would frequently be advantageous, the belting, &c., being driven from below the floor level rather than from shafting overhead, although circumstances may render the latter arrangement more convenient sometimes.

The boilers might be used for all purposes connected with the engines, hot water and steam supply, electric lighting, &c., as well as for laundry purposes, and it may be desirable also to make such arrangements as would utilise the exhaust steam from the engines, especially for heating purposes.

There should for all laundries always be an ample supply of absolutely pure soft water. In some districts the water, though soft, may be strongly impregnated with organic matters, or it may be hard by reason of its having come in contact with, or passed through, mineral strata. By filtering either of the

above described waters, these objectionable qualities can be taken from them, leaving the liquid apparently perfectly clear. Should it still remain hard, caustic soda is sometimes added in the proportion of 2oz. to each 100 gallons of water. The cisterns in which these mixtures are made should have an outlet at the bottom for the escape of the mud, &c., when necessary, and the pipe for drawing off the water should be at the height of 3in. or 4in. from the bottom, so that the opening may not be obstructed by the sediment. The question as to whether or not these cisterns would be required, and their size, is one that may influence the planning of the laundries, and should be considered at the outset by the Architect.

It is my intention to give a detailed statement upon the whole subject of laundries. It is too extensive to be dealt with in this series of papers. The Local Government Board have recently withdrawn a certain section of the points requiring attention in workhouse construction, which stated that a *training wash-house and laundry* should be provided for the girls. The institutions for boys and girls are best kept apart from workhouse surroundings, together with the schools laundry.

The general dining-hall, which is often used as a chapel, should be on the ground floor, and be well lighted, warmed, and ventilated, and convenient of access for all classes of inmates. The ventilation should provide for the complete and rapid removal of vitiated air, and the Local Government require that a minimum floor space of 6ft. should be allowed in it for each person. There should be a washing-up scullery adjoining the dining-hall, and, if convenient, a serving or cutting-up room. Both the kitchen and scullery should be conveniently near to the dining-hall, and must be one-story buildings with means of ventilation in the roof space. The apparatus for cooking in workhouses may be worked either by gas, steam, or ordinary fires, or by these in combination, and all boilers and other parts requiring periodical attention should be in duplicate, and if baking-ovens for bread be used these also should be at least two in number.

The airing courts for the aged must be enclosed with dwarf walls and palisades where classification renders this advisable. They should be paved with a material such as asphalt or tar-paving, but not with a sharp, cutting substance that would cut the inmates' shoes. A few seats with arm divisions are requisite. The walls for the airing courts for the able-bodied may be about 7ft. in height (not more), so as to avoid interference with light and air.

In a moderately sized workhouse, one ward on each side of the institution would be sufficient for the accommodation of refractory patients. These wards are required to be not less than about 10ft. by 6ft., or with 60ft. or more of area. They must have boarded floors, and be sufficiently lighted and ventilated, and be isolated from the inmates of other portions of the workhouse. They must be furnished with suitable seats and sanitary accommodation, and be provided with means of inspection from without, and be within a reasonable distance of an official's apartment or office.

The general position of the various main buildings of a workhouse will be shown in a complete plan of all portions to be given later.

(To be continued.)

At a meeting of the Cardiff Waterworks Committee, Mr. J. A. B. Williams, the Engineer for the new works, reported upon the progress which was being made with reservoir No. 1 in the Taff Vawr Valley. He hoped to get the work completed by September to catch the winter rains. The chief work to be done was the pitching of the embankment, which was being carried on as quickly as possible. There was, however, plenty of work for more men, and he suggested the advisability of securing the services of some of the Penrhyn quarrymen. — The committee instructed Mr. Williams to proceed with the work as expeditiously as possible, and the question of engaging more men was left to his discretion.



# Surveying and Sanitary Notes.

THE Wath Council has appointed Mr. H. C. Poole, assistant to the Rotherham Rural Council, surveyor, at a salary of £120 a year.

At the Town Hall, Bootle, a Local Government Board inquiry has been held by Mr. Rienzi G. Watton concerning the application of the Bootle Town Council for sanction to borrow £2834, required for carrying out works of street improvement. The proposal of the Council is to lay granite sets with a concrete foundation in Carolina Street and Bedford Place, and place Haslingden sets instead of boulders on the north side of Merton Road, these improvements having been rendered necessary by the large amount of heavy traffic at present passing over the roads. The application was not opposed.

MR. JOSEPH CORBETT, Borough Engineer of Salford, in reading a paper before the Liverpool Engineering Society on "Sewage Sludge Removal and Shipment," said they had in Salford, as in most old towns, a great number of ancient, badly-constructed sewers, with deficient falls, where silt accumulated continually under ordinary conditions, and where the scouring effects of storm water were insufficient to clear away the aggregations of silt. The sumps they had in use must be condemned on sanitary grounds as being a kind of cesspool, where foul gases were evolved; but at any rate they were not so bad as sewers choked with silt, and if frequently emptied were not seriously objectionable. So heap and effective was the shipment system as compared with any alternative available in their inland towns that he felt sure we should see within a few years many sludge steamers passing out from the various ports throughout the country; and probably also hopper steamers carrying excavated earth and other offensive refuse, for which it was now difficult in many places to find "tips." As this

system increased in extent it might be requisite to order the steamers to proceed to deeper water than at present, but that would not greatly enhance the cost. He therefore came to the conclusion that whatever future improvements might be made in the modes of removing sewer silt and tank sludge, we had now in all probability reached the best and most economical means for its final disposal by shipping it to the deep sea.

An acute stage has now been reached, says the Manchester Guardian, in connection with the long protracted dispute between Bo'ness Local Authority and the Local Government Board regarding Mr. William S. Burr, one of the sanitary inspectors of the burgh. The Local Authority, dissatisfied with the action of the Local Government Board in refusing to dismiss Mr. Burr from office, have now appealed to the Secretary for Scotland, and submitted to him the whole facts of the case since the dispute originated, more than three years ago. The Local Authority recently called upon Mr. Burr to cease interfering in any way in the sanitary affairs of the burgh, and that any infringement of this instruction would be reported to the Local Government Board. Bills have also been posted in the burgh asking the ratepayers to pay no heed to any instructions given by Mr. Burr. Notwithstanding, Mr. Burr continues to do sanitary work. As the Local Authority have a decree against Mr. Burr for £220 (being the amount of their legal expenses incurred in a recent action by Mr. Burr in the Court of Session, in which the Commissioners were successful), they pay him no salary. In a letter to the Local Authority, Mr. Malcolm McNeil, secretary to the Local Government Board, writes: "The Board have considered the position of the sanitary arrangements in Bo'ness with the fullest appreciation of the difficulties which confront the Local Authority. The following is their view of the situation: While it is not impossible that Mr. Burr may have been ill-advised in his dealings with the Local Authority; the Board are unable to recognise in his proceedings any indication of his inefficiency as an official, and they cannot therefore remove him from office."

THE report of the Medical Officer of Health to the Oldbury District Council for the year ended December 31st, 1896, states that the new scheme of sewage treatment at the sewage outfall works was now all but completed, and in a week or two it would be put into operation. It was constructed on a sufficiently large scale to enable the council to deal with the extra sewage that would be received from the Warley scheme. It was a large additional undertaking, and a difficult one to effect satisfactorily.

THE Worcestershire Council recently held an enquiry at Evesham respecting the proposal to restore the navigation works on the Upper Avon.—Mr. Holdberrow, an engineer who had surveyed the Upper Avon, gave particulars of his scheme, the cost of which for that part of the river he estimated at £8073.—For the opposition, Mr. Parfitt urged that the estimate of the cost of the scheme was absurdly low, that there was no possibility of the works paying, and that the scheme was merely brought forward for the sake of the pleasure-boat traffic of the people of Stratford and Evesham. Moreover, the occupiers of land on the riverside would suffer serious injury by the floods which the restoration of the works would involve.—Mr. Lionel B. Wells, engineer to the River Weaver Navigation, gave a detailed estimate of the cost of making the Upper Avon navigable for trading purposes. He considered that the cost of rebuilding the nine locks and weirs would not be less than £18,000. Dredging at the approaches of the locks only would cost from £500 to £1000. If, as was proposed, there was steam traffic, it would be necessary to protect the banks, and that would not cost less than £6000. To make proper hauling paths on each side would cost, he should think, £10,000, and then there was the question of making swing-bridges at Binton and Bidford, where the present bridges were very low.—Mr. Willis Bund, the chairman, said it seemed to him on various grounds the details of the scheme would have to be very seriously reconsidered before they would feel inclined, on behalf of the ratepayers of the county, to propose any guarantee on their behalf.

## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
14	Rotherham—Erection of Swimming Bath...	Baths Committee	Town Clerk's Office, Howard-street, Rotherham.
14	Batley—Additions, &c., National School		Holton and Fox, Westgate, Dewsbury.
14	Halifax—Fitting and Grey Room, &c.		R. and E. E. Horsfall, 15, George-street, Halifax.
14	Celbridge, Ireland—Baths, &c., Workhouse		L. A. MacDonnell, 1, Clare-street, Dublin.
14	Stone, Staffs.—Erection of a Manse	Guardians	F. H. Fleeming, Darlington-street, Wolverhampton.
14	Rotherham—Erection of Swimming Bath, Market-st.	Congregational Church	H. H. Hickmott, Council Hall, Rotherham.
15	Haring—Enlargement of Schools	Corporation	C. Taylor, South Harting.
15	Bridgend, Glamorgan—New Stage, &c.	School Committee	Lambert and Rees, Architects, Bridgend.
15	Clayton-le-Moors, Lancs.—Erection of Thirteen Houses	Committee of the Town Hall Trust	Co-operative Society, Clayton-le-Moors.
15	Alveston, Glos.—Erection of Parish Hall, &c.	Co-operative Society	F. Bligh Bond, Alliance-chambers, Corn-street, Bristol.
15	Culter, Banffshire—Pointing and Painting 13 Cottages		Weavers' Office, 30, Bacup-road, Cloughfold.
15	Denton, Lancs.—Erection of Dwelling-house	Alex. Runcie	Alex. Runcie, Buckle.
15	Probus, Cornwall—Construction of Wall, 120 yards	Urban District Council	Lomax and Lomax, Fold-street, Bolton.
15	Rowley Regis—Building a range of Buildings	Nicholas Pearce	Farmhouse, Little Trewingia, Probus.
15	Firvale—Erection of Sale Shops, Stores, &c.	Co-operative Society	J. W. Cornwell, Bullfield Farm, Springfield-la., Rowley Regis.
15	Beeston—Alterations and Additions to Schools		H. Webster, 86, Queen-street, Sheffield.
15	Colton—Erection of Mission Church		Richard Wood, Commerce-chambers, 3, Park-lane, Leeds.
17	Manningham—Erection of School, Slott Hill		Mr. Cobb's Office, 19, Blake-street, York.
17	Guiseley, near Leeds—Erection of Stabling for Twelve Horses, &c.	H. H. Hall and Co.	E. Simpson, 12, Cumliffe-terrace, Manningham.
17	Roundhay—Erection of Villa		H. Chippindale, Architect, Guiseley.
17	Cardiff—Erection of Library	Charles Denton	C. Denton, 99, Dewsbury-road, Leeds.
17	Trowbridge—Recreation Rooms at Asylum	Corporation	W. H. Dashwood Caple, 1, St. John's-square, Cardiff.
17	Cardiff—Completion of Church	Wilts County Asylum Governors	County Offices, Trowbridge.
17	Cromer, Norfolk—Boiler and Exhauster House	Rev. J. Baker	G. E. Halliday, 14, High-street, Cardiff.
17	Crandall, Hants—New Infirmary	Gas and Coke Company, Limited	Company's Office, Cromer.
17	Horncastle, Lincs.—Repair of Five Bridges	Farnham and Hartley Wintney School District	A. Ansell, 63, Finsbury-pavement, E.C.
17	Raloo, Larnie, Ireland—Additions to Church	Rural District Council	J. E. Chatterton, Clerk, Horncastle.
17	Troedyrhiw, Wales—Erection of Schoolroom, &c.	Raloo Presbyterian Church	Rev. E. Gillilan, Raloo Manse, Larnie.
17	Wimbledon—Underground Conveniences, Broadway	Urban District Council	Arthur Daniel, 67, Cardiff-road, Troedyrhiw.
18	Bucharest—Industrial School, Jassy	Urban District Council	Council Offices, Broadway, Wimbledon.
18	Buenos Ayres—New Central Railway Station		A. H. Mountain, Surveyor to the Council, Withington.
18	Dezives, Wilts.—Erection of Recreation-room, Asylum	Guardians	Roumanian Ministry of Agriculture, Bucharest.
18	Grays, Essex—Erection of Portion of School	Grays and Thurrock School Board	State Government, Buenos Ayres.
18	Halifax—Alterations, &c., to Shaw Lodge		County Offices, Trowbridge.
18	Holdsworth, Yorks.—Erection of Barn, &c.		C. M. Shiner, 2, Walbrook, E.C.
18	Huntly, Aberdeen—Erection of Hospital Wing	Holdsworth House Farm	W. Clement Williams, 29, Southgate, Halifax.
18	London, S.E.—Public Conveniences, Brockley		Medley Hall, 29, Northgate, Halifax.
18	Charlton—Erecting Club		Scott's Hospital, Huntly.
19	Middleton—Raising Roof of Retort House	London County Council	Architect's Department, Spring-gardens, S.W.
19	Brynmanan, Wales—New Congregational Chapel	Conservative Club	J. Rowland, 24, The Village, Old Charlton.
19	Highley, near Bridgnorth—Erection of School	Corporation	T. Duxbury, Gas Manager, Middleton.
19	London, E.C.—New Underground Conveniences	School Board	John Harris, Penylant House, Brynmanan (R.S.O.)
20	London, S.E.—Erecting Laundry, Repairing, &c.	Shoreditch Vestry	R. Scrivener and Sons, Howard-place, Hanley.
20	Essex, Yorks.—Additions and Alterations, &c., Police-station, &c.	Guardians of St. Olave's Union	J. Rash Dixon, Town Hall, Old-street, E.C.
		Standing Joint Committee of East Riding	Newman and Newman, 31, Tooley-street, S.E.
			County Surveyor, Beverley.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—(Continued).</b>			
May 22	Corsham, Wilts.—Erection of Church	Exeter Church Extension Committee	H. Brakspear, Corsham, Wilts.
" 24	Beeston—Building Three Trough Houses	Lancashire and Yorkshire Railway	Carters, Punch Bowl Inn, Beeston, Leeds.
" 25	Blackburn—Extension of Goods Yard, &c.	Corporation	Engineer's Office, Hunt's Bank, Manchester.
" 25	Brighouse—Erection of Press-house, Chimney Shaft, &c.	Town Council	A. M. Fowler, 1, St. Peter's-square, Manchester.
" 25	West Ham—Erection of Boiler Houses, Electric Lighting Buildings, &c.	Commissioners of H.M. Works	L. Angell, Town Hall, Stratford, E.
" 26	Gateshead—Erection of Post-office	Guardians of Prestwich Union	The Secretary, 12, Whitehall-place, S.W.
" 27	Crumpsall, Manchester—Erection of Wards, Workhouse	Urban District Council	W. Telford, Gunson, and Son, 10, Marsden-st., Manchester.
" 31	Levenshulme—Erection of Council Offices, Stables, &c.	Church Institute	J. Jepson, Union-road, Stockport.
No date.	Burnley—Assembly Room, &c.	S. Rhodes	Thos. Bell, Architect, Burnley.
"	Hawsker, Whitby—House, Stables, &c.	Industrial Co-operative Society	J. J. Milligan, Architect, 77, Baxtersgate, Whitby.
"	Middleton, Lancs.—Store Building, Higher Wood-street	W. Wilson	F. W. Dixon, Architect, Trevelyan-buildings, Manchester.
"	Pelton Fell, Durham—Business Premises	Prestwich Conservative Club Building Co., Limited	F. Bowman, Architect, 52, Westgate-road, Newcastle.
"	Heaton Park, near Manchester—Club House		P. D. Lodge, Architect, 5, Cross-street, Manchester.
"	Sleetburn, Durham—Additions to Chapel		Plummer and Burrell, Architects, Market-place, Durham.
"	Manningham—Two Houses, &c., Lilycroft and West-field-roads		Fairbank and Wall, Architects, Craven Bank-chambers, Bradford.
<b>ENGINEERING—</b>			
May 14	Carlow, Ireland—Supplying and Fitting Range	District Lunatic Asylum	Clerk's Office, Carlow.
" 15	Clitheroe—Supply and Erection of two Purifiers	Gas Committee	R. Barrett, Manager, Gasworks, Clitheroe.
" 15	Dartmouth—Construction of two Flushing Tanks	Urban District Council	T. O. Veale, Surveyor, Dartmouth.
" 15	Sutton Harbour, Plymouth—Construction of Stone Quay, &c.	Sutton Harbour Improvement Company	H. Masterton, 1, Buckland-street, Plymouth.
" 15	Vienna—Supply of Machinery for three Water Stations	Urban District Council	Austrian State Railway Ministry, Vienna.
" 17	Hinckley—Gas Apparatus	Gas and Coke Company	Geo. Helps, Gasworks, Hinckley.
" 17	Cromer—Boiler House, &c.	Waterworks Company	P. Griffith, 55, Parliament-street, S.W.
" 17	Horsforth—Extension of Filters, &c.	Co-operative Society	H. A. Johnson, The Exchange, Bradford.
" 17	Banbury—Supply and Erection of Machinery for Dairy	Corporation	Architect's Department, 1, Balloon-street, Manchester.
" 18	Liverpool—Supply and Erection of two Furnace Cells	Swansea Harbour Trustees	City Engineer's Office, Municipal-buildings, Dale-street, Liverpool.
" 18	Swansea—Construction of Dock Entrance	Urban District Council	A. O. Schenk, Harbour Offices, Swansea.
" 19	Watford—(1) Extension of Engine-house, &c.; (2) Providing and Erecting Machinery	Sewage Committee	Council's Office, 14, High-street, Watford.
" 21	Bury, Lancs.—Supply and Erection of Eight-Cell Destructor, &c.	Sewage Committee	J. Cartwright, Borough Engineer, Bury.
" 21	Bury, Lancs.—Supply, Delivery, and Erection of Sludge Presses	Sewage Board	J. Cartwright, Borough Engineer, Bury.
" 22	Haslingden—Sludge-Pressing Machinery	Asylum Commissioners	H. Leonard Hinnell, 41, Corporation-street, Manchester.
" 21	Portrane, Co. Dublin—Heating, Ventilating, &c.	Urban District Council	G. C. Ashlin, 7, Dawson-street, Dublin.
" 26	Featherstone—Execution of Sewage Works	Guardians	G. and F. W. Hodson, Engineers, Loughborough.
" 28	Donegal—Construction of Reservoirs, &c.	Council	J. L. Devenisty-Meares, Town Hall, Newry.
" 29	Wakefield—Construction and Erection of Precipitating Tanks, &c.	Urban Council	R. Porter, Town Hall, Wakefield.
" 29	Wakefield—Supply and Erection of Pumping Engine, &c.	Urban Council	R. Porter, Town Hall, Wakefield.
" 36	Hebden Bridge—Construction of Two Cast-iron Culverts	Urban Council	John Newton and Son, 17, Cooper-street, Manchester.
June 1	Ashby-de-la-Zouch—Waterworks	Urban Council	G. and F. W. Hodson, Engineers, Loughborough.
<b>IRON AND STEEL—</b>			
May 15	Christiania—Supply of 1400 Cast-iron Pipes	Christiania Gasworks	Christiania Gasworks Office.
" 18	Heywood—Supply of 600 yards of Six Cast-iron Pipes	Gas Committee	W. Whatmough, Gas Manager, Heywood.
" 21	London, E.C.—Railings, &c.	Shoreditch Vestry	J. Rush Dixon, Town Hall, Old-street, E.C.
" 20	Manchester—Boundary Walls, Wrought-iron Railings, &c.	Parks Committee	City Surveyor, Town Hall, Manchester.
" 25	London, W.—Supply of about 280 tons of Steel Girders	Great Western Railway Company	Office of the Engineer at Paddington Station.
<b>PAINTING—</b>			
May 15	Hull—Painting	Guardians	R. G. Smith, 1, Cogan-chambers, Bowalley-lane, Hull.
" 17	Macclesfield—Painting, Parkside Asylum	Parks Committee	W. Lees, Parkside Asylum, Macclesfield.
" 17	Stockport—Painting of Iron Railings, &c.	Markets Committee	John Atkinson, St. Peter's-gate, Stockport.
" 18	Shrewsbury—Painting, General Market	Guardians	W. Chapple Eddowes Guildhall, Shrewsbury.
" 19	Manchester—Whitewashing	H.M. Office of Works	Poor Law Offices, New Bridge-street, Manchester.
No date.	Woolwich—Painting and Whitewashing		Royal Engineers' Office, Mill-lane, Woolwich.
<b>ROADS—</b>			
May 14	Stockport—Manual and Team Labour, and Materials, &c.	General Purposes Committee	John Atkinson, St. Peter's-gate, Stockport.
" 14	Preston—Paving, &c.	Corporation	Borough Engineer, Town Hall, Preston.
" 14	Buxton—Making-up of New Road	Corporation	W. H. Grieves, Town Surveyor, Buxton.
" 15	Penistone, Yorks.—Construction of Road, &c.	Green Land Society	H. J. Brettoner, Ward-street, Penistone.
" 15	Plymouth—Supply of Granite Setts, Channels, &c.	Harbour Commissioners	James Paton, Municipal Offices, Plymouth.
" 17	Belfast—Supply of about 2700 tons of Setts	Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
" 17	Kingstown, Ireland—Sewering, Laying Water and Gas Mains, &c.	Town Council	J. Donnelly, Town Hall, Kingstown.
" 17	Saffron Walden, Essex—Tar Paving, High-street	Urban District Council	G. W. Lacey, Borough Surveyor, Saffron Walden.
" 18	Spennymoor—Footpaths	Urban District Council	G. W. Rogers, Silver-street, Spennymoor.
" 18	Frimley—Supplying and Laying Kerbing	Union	W. J. Hodgson, Council Offices, Camberley.
" 19	West Ham—Granite Spalls	District Council	Offices, Union-road, Leytonstone, E.
" 19	Heaton Norris—Welsh Granite Paving Setts	Town Council	Council Offices, 79, Heaton Moor-road, Stockport.
" 22	Batley—Levelling, Paving, Flagging, &c.	Weaver Navigation Trustees	O. J. Kirby, Market-place, Batley.
" 24	Northwich—Construction of Roads	Corporation	Weaver Office, Northwich.
" 25	Dartmouth—Paving, Kerbing, &c.	Joint Committee of the L. and N.W. and G.W. Railway Companies.	T. O. Veale, Borough Surveyor, Dartmouth.
" 29	Bebington, Cheshire—Road Diversion	Urban District Council	Office of the Joint Engineer, Birkenhead.
June 1	Urmston—Paving, Flagging, and Draining Works		C. C. Hooley, Council Offices, Urmston.
<b>SANITARY—</b>			
May 14	Hurst, near Ashton-under-Lyne—Removal of Nightsoil	Urban District Council	Surveyor, Council Office, King-street, Hurst.
" 15	Barnard Castle—Sewers, &c.	Rural District Council	R. Robinson, 6, Dixon-terrace, Darlington.
" 15	London, W.—Wood Paving Blocks	St. Marylebone Vestry	Court House, Marylebone-lane, W.
" 17	Birmingham—Sewer, &c., King's Norton	Corporation	E. Pritchard, 37, Waterloo-street, Birmingham.
" 17	Swindon—Construction of 6in. Sewer (about 1100 yards)	Water Board	Engineer, Newport-street, Swindon.
" 17	Walsall—Scavenging, 1 year, Aldridge	Rural District Council	A. H. Lewis, 1, Leicester-street, Walsall.
" 18	Bromley, Kent—Drainage Works	Urban District Council	Surveyor, District Council Offices, Bromley.
" 18	Bromsgrove—House Connections	Rural District Council	W. Fiddian, Town Hall Offices, Stourbridge.
" 18	Aspull—Removal of Nightsoil, 1 Year	District Council	Chairman of the Council, White Hall, Aspull.
" 19	Abram—Iron Fire Sewers, &c.	Urban District Council	Heaton, Ralph, and Heaton, Engineers, Wigan.
" 19	Mitcham—Construction of Sewer	Rural District Council	Surveyor, Vestry Hall, Mitcham.
" 19	Rochester—Wood Paving (170 superficial yards)	Corporation	City Surveyor, Guildhall, Rochester.
" 21	Bury—Sewage Disposal Works	Corporation	J. Cartwright, Borough Engineer, Bury.
July 31	Oporto, Portugal—Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.
May 15	Lancaster—Wood Blocks (1950 square yards)	Streets Committee	J. Cook, Town Hall, Lancaster.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
May 15	Tonbridge, Kent—Technical Institute and Free Library	£31 10s., £21, £10 10s.	Urban District Council.
June 5	Sheffield—Plans for Proposed New School	£15, £10	Sheffield School Board.
" 16	Morecambe—Designs for Hotel	£100, £50, £23, £15	Baxter and Abbott, Back-crescent, Morecambe.
July 31	Boothle—Designs for Technical School	50, 30, 20 guineas	Corporation.



# THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD WITH SURVEYING AND SANITARY SUPPLEMENTS

## A National Monument?

In the present (the Royal Academy Number) of The Architectural Review, by two different writers, there are the germs of a scheme which might well be developed into the most notable and enduring part of the forthcoming rejoicings in June. Mr. Beresford Pite, on page 308 of his admirable and masterly essay on "Design in Drawings" (which, by the way, is pregnant with words of wisdom, and contains rare and original thoughts on a most delightful subject, and is quite a pleasure to read as a literary effort, quite apart from its value otherwise), says "a sad significance attaches to the fact that this year, celebrating as we do an unexampled era of national peace and happiness, we find ourselves incapable of suggesting or promoting any monument or offering of gratitude to posterity as a glorious heritage from a glorious age." These words, we think, suggest an idea which might be taken up with the enthusiasm born of a love of country, and characteristic of a great and warm-hearted people, anxious to give expression to their gratitude for the blessings showered upon them throughout a wise and beneficent reign. That, at least, is the ideal view of it, it remains to be seen whether the love and enthusiasm will be equal to an occasion the like of which is rare in the history of the world. If it is to be done at all it should be done well, that goes without saying. The scheme, whatever it embraces, must be *Imperial*. No one but the greatest National Artists should be employed upon it. That we have such men, here in England to-day, who are capable, together, of producing such a work, a work worthy of the nation's pride and power, happily requires no proof. If the genius and power displayed in this year's Royal Academy Exhibition could be gathered together into one fine building, what a wealth of work we should have. The only thing in doubt, unhappily, is the question of our Statesmanship. Can those in power have their attention diverted for once in a long while from questions with which we are all familiar, and some of us very tired, to a consideration of the possibilities of such an idea which we are about to suggest? Can they not be persuaded that their great abilities might well be brought to bear on a subject really worthy of them, upon an occasion rare in the history of mankind, and towards the realisation of a scheme which ultimately might be comparable to the mighty works of the Middle Ages or to that of the Greeks of old? Such an end as this, the raising of an enduring monument to England's greatness, a symbol of her gratitude, of her whole-hearted recognition, of the privileges enjoyed during this sixty years reign of wisdom and strength; is not that an end worthy of the country's greatest effort in Art at the close of the nineteenth century? Mr. Beresford Pite has made the righteous complaint; Mr. Wilson, in his article in the same number of the Review, curiously enough makes exactly the right suggestion, which we in turn say would be fittingly dedicated to the purpose we have just described. We appeal to our readers to study that beautiful word picture on page 278, of an apparently impossible building which we believe might be made possible by the timely co-operation of our Artists and Statesmen. We hope some of the latter may be persuaded to read that

picture by Mr. Wilson aright and be the means of bringing it "within the range of practical politics." It is a better and nobler aim than many now engaging their attention, and one which would bring to them an abiding name in history as unselfish servants of their country and Queen.

## George Gilbert Scott the Younger.

ALMOST unheeded, wholly ignored, of course, by the daily Press—the latter is more concerned with the doings of trivial Members of Parliament—there passed away last week from our

Gilbert Scott must be great indeed, passing all others on earth. That and the whole-hearted admiration of his friends was his in full measure, and those who knew him best say he desired and worked for nothing more. No man in England this century has done finer work, and yet among the generality of Architects no man is less known, except as bearing the same name as his popular father. To most people it would come as a surprise to be told that George Gilbert Scott the younger, apart altogether from his merits as an Architect, was a literary genius of the highest order, who, in addition to a brilliant University career (being senior



ALL SAINTS CHURCH, WEST DULWICH. G. H. FELLOWES PRYNNE, ARCHITECT.

midst one of the greatest Architects, if not the greatest, of our day and generation. The loss of a great Artist, it is true, is sometimes recognised by the external appearance of a nation's grief, which reflects, doubtless, to some degree popular feeling. Evidence of this has not been wanting, but it is often due more to a sense of his position as a public man than to a true appreciation of his genius. The man who is an Artist first, before all things, must be content to live and die comparatively unknown, except to his brother Artists; his work must be to him his only reward. The pleasure of seeing a former vision wholly realised, his task well done, that reward to such a man as the late George

of his Tripos, and afterward elected Fellow of Jesus), has written one of the most masterly essays on "The History of English Church Architecture" ever penned in the English language. It is already, and deservedly so, a classic work on Art, but, unhappily for men, almost as unknown as his buildings. And yet these latter are fairly numerous and important—important, we mean, in another than an Artistic sense. The Church at Norwich, for example, which he designed and nearly finished for the Duke of Norfolk, attains almost to the rank of a Cathedral, whilst his great Church of St. Mark's at Melverton, near Leamington, is one of the largest parish Churches in the county. This latter is a

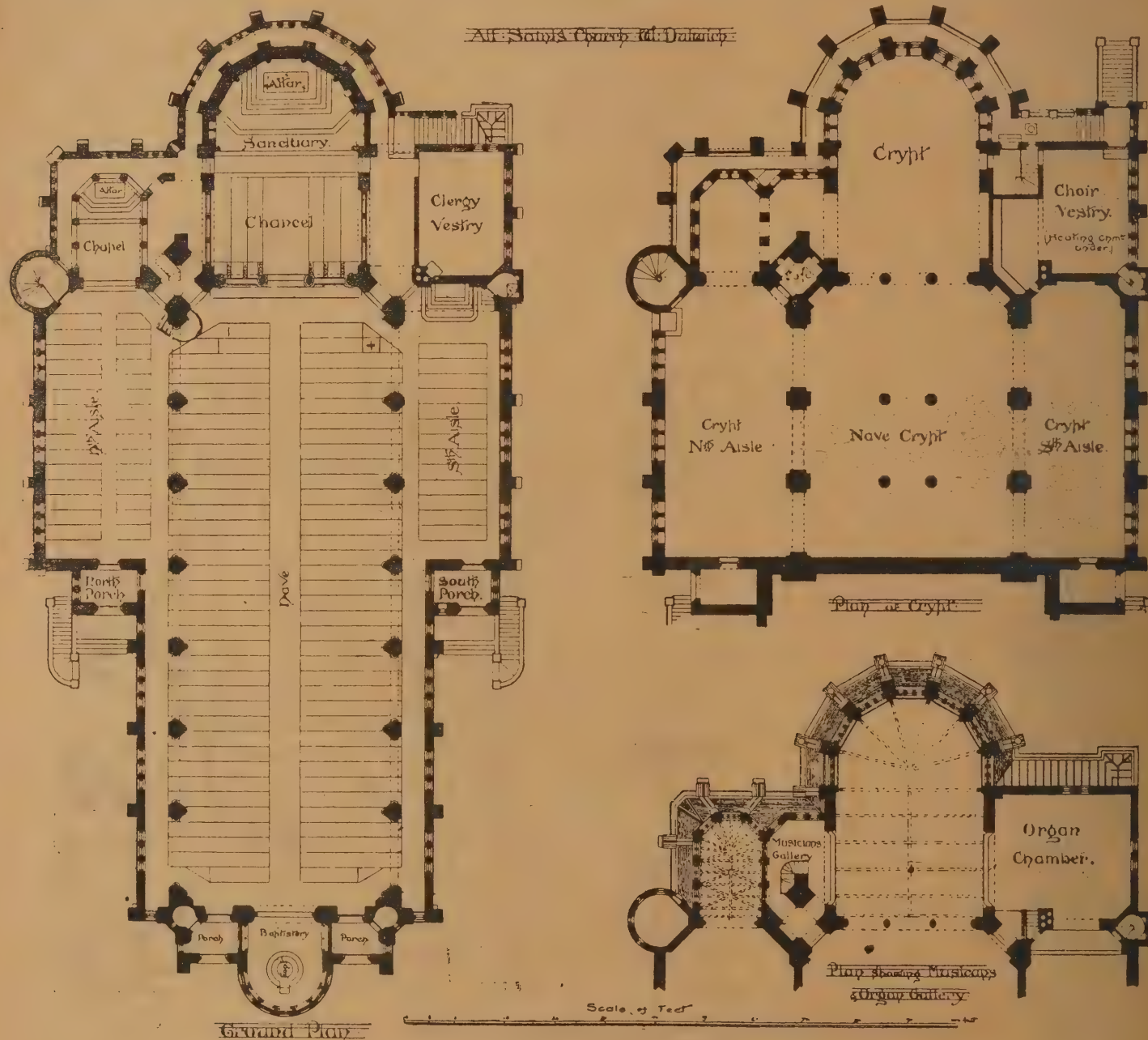


masterpiece of Art, and probably the greatest work (saving that at Norwich) he produced in England. It is a modern Church built—you can imagine—just as an old master would have done it under present-day conditions. Scott, entirely in the spirit of the men of old, seems to have gripped hands with the fellow Artists of every age, and to have wrung from them the secrets of their power which are good for all time. We have said Scott was one of the greatest Architects of our days. Writing now with the memories of the Church of St. Agnes, Kennington Park, or of that other beautiful Church he did in Southwark,

interest that we have at present an appreciation of the "Art of George Gilbert Scott, the Younger" in course of preparation for the pages of *The Architectural Review*, and, although it is perfectly true that no illustrations or writings, however ably done—and we propose commissioning the best Artists and writers of the day to deal with the subject—can ever do entire justice to it, we can, nevertheless, promise that Scott's work shall be treated as it has never been treated before; and, we hope, in a manner worthy of the work. A special announcement concerning it will be made shortly. Meantime we should like to

#### THE AMATEUR ART EXHIBITION.

THE annual Amateur Art Exhibition at 105, Piccadilly, includes a large number of water-colours, specimens of Art needlework, of wood carving, and of artistic work of all kinds. The loan collection, which is exhibited in another room, contains much that is of great interest. A large number of portraits by Count D'Orsay and A. E. Chalon, R.A., have been collected. Among the works by the former artist are the interesting pencil portraits of Dickens, Thackeray, Theodore Hook, Lord Lyndhurst, and other celebrities who flourished in the early part of the Queen's



G. H. FELLOWES PRYNNE, ARCHITECT.

St. Mark's at Leamington, or of that triumph of Architectural Art at Norwich, we no longer hesitate to say that in the production of works such as these he had and has no peer; they are matchless in their beauty and strength and power—incomparable in their reticence of design, and in their Greek-like severity and loveliness of detail. To those who think this talk extreme, let them pay an early visit to any one of the Churches we have named and say where amongst the new or old is work like this to be seen. To those who know and love it—and they, we are afraid, are few—no words are necessary, and the memories of the work appeal in a way no description can. Our readers will, we are sure, learn with

record with pleasure that, amongst all the professional papers, the *British Architect* is the only one that has realised with a true sense of proportion the loss that Architecture has suffered by Scott's death. Other journals think it sufficient to dismiss it with an unsympathetic paragraph, whilst one paper, supposed, until recently, to represent English building, and which used to be looked up to as the authority upon all matters Architectural, passes the event by in complete silence, without even a line of regret or remark. Not, however, that such things matter, for Scott has lit for us and for posterity a lamp of beauty whose light will never fade.

reign. The life-size oil painting of the Queen on horseback is also on view, and the small portrait of Jenny Lind in the character of Norma, which was executed from memory. The statuette of Napoleon by the same artist has been lent by Miss Gurwood. More than fifty works by Chalon are in the exhibition, including portraits of the Queen and the Duchess of Kent, which have been lent by Her Majesty. Fine collections of old English enamels, consisting of quaint little snuff-boxes, étuis, candlesticks, tea-caddies, and other trifles, have been lent by Mr. C. S. Kennedy and Mr. H. R. Fuller, M.D. A case of jewellery contains a number of examples of marcasite necklets and brooches and other ornaments which were once very fashionable.



## Men Who Build.

No. 50.

MR. GEORGE H. FELLOWES PRYNNE.

It is regrettable, but it is none the less true, that to a considerable number of men practising as Architects their profession is their calamity. Thus, in the writer's limited circle of friends, at least four of them are Architects by misadventure. One owes his profession to the fact that his father would not have him "idling about" at home; another became an Architect because he failed for the army; another, because he was the family idiot; and the last because he was deaf, but, it was hoped, not too deaf to draw. No doubt parallel cases might be quoted in other professions, but the anomaly is most common in the practice of Architecture, because, as a profession, its doors stand open, and may be directly entered without those qualifications which embarrass the aspirants to the practice of law and medicine. We all know, too, of those fatuous considerations which pass as plausible reasons for a son being passed from school to an Architect's office. To be "fond of drawing"—to show, for example, capability at hatching horses' heads in chalk, from lithographed copies, with beautiful high lights on the harness done in Chinese white, is popularly a prime qualification for the profession; and the sentiment that attaches in the world at large, naturally enough, to the name of Sir Gilbert Scott, with his knighthood, and his high ascetic associations, and his tomb in Westminster Abbey, has hunted many a young

fellow to the practice of Architecture who better by far had adopted the red coat of his ancestors, or contributed to British enterprise in the Colonies.

Mr. Fellowes Prynne is, however, a notorious exception to any such generalisations. He is quite the other side of the picture. To be passed, as it were, from hand to hand from the school bench to the Architect's stool, has been none of his lot; he has come to his profession, and attained to the position he now holds, from a life in diagonal anthesis to the sentiments of domesticity and Art, and he owes to nothing but his own Artistic convictions, and the inconsistent cultivation and development of his talents in the face of difficulties which very few Architects are called upon to experience.

Mr. Fellowes Prynne, then, who is a Devonshire man, was born in 1853 and educated at St. Mary's College, Harlow; Chardstock College; and Eastman's Royal Naval Academy, Southsea. On leaving school it was his ambition to follow in the steps of his father, who was Vicar of St. Peter's, Plymouth, and take orders; but being disappointed of this hope, at the age of eighteen, he availed himself of an opportunity of joining with a relative in working a farm in the Western States of America. The Western States of America were, in those days—twenty-six years ago—still that literal "wild West" which is now only to be met with decoratively treated by circus troupes, and in the pages of some American writers. The actuality was grim enough. The life of severe physical labour in clearing forest, breaking the virgin prairie, and farming cattle and horses in a temperature that varied between 40 degrees below zero and 100 degrees in the shade; was made

the more arduous and intolerable by rough and brutal surroundings. In those days every man had his bowie knife or his revolver always at hand in his belt, and had to know how to use them. After being himself shot



and put to the torture under the primitive surgical aid that was alone available, and having among other adventures suffered from a shock of lightning, which shattered the barn and the bed in which he was sleeping, and killed a horse in the stable below him; and realising, after nearly two years experience, that a bare living was the best such a country could afford the farmer, Mr. Prynne decided to give up ploughing, and turn his attention elsewhere, and it was with the determination not to return home back to his family "unsuccessful" that he journeyed to S. Catherine's in Canada, and failing employment there, afterwards to Toronto, where he worked in a small Architect's office, and subsequently got an engagement in the office of Mr. R. C. Wyndyer, the best known Architect in the town.

Mr. Prynne was directed in his choice by an old fondness for drawing, a subject in which he had taken prizes in his school days, and by a taste and fancy for Gothic Architecture, roused years before when as a boy he had read in Parker's and Richman's books which chanced his way. Nor was Mr. Prynne altogether ignorant of the reality of practical building, and of some of the ruder methods of construction. His American experiences had included the building of log huts and barns, and even of a rude sort of house constructed of bricks and wood.

In connection with these years of his life, Mr. Prynne always remembers the kindness of Mr. Wyndyer, and the sympathy with which he directed and helped his studies, to this end placing his library and his drawings freely accessible to the young man. Nevertheless it was necessity that stood his hard taskmaster. He had to work for his life, and without any equivocation of the term, for his engagement was that he should work for what he was worth, and it may be imagined that the English schoolboy, fresh from a two years' apprenticeship in the wilds, was worth very little in an Architect's office. During this period Mr. Prynne was perforce an ardent student of Gwilt's encyclopedia, and here we have one of those touches that makes the whole profession kin. In distant Canada, more distant then than now, he enfolded himself in Gwilt in desperation—steeped himself in him; while at home every rightly balanced student was also regularly taking his Gwilt bath before going to bed. So conscientious were his efforts, that after some two and a half years Mr. Prynne won for



ALL SAINTS CHURCH, WEST DULWICH. INTERIOR. G. H. FELLOWES PRYNNE, ARCHITECT.



himself a senior position in the Canadian Architect's office; but this was his last post under Mr. Wyndyer, for very shortly after he was glad to accept an offer made by George Edmund Street of a place in his office. It is of interest that it was Mr. Prynne's father who entrusted Mr. Street with that first opportunity in Church building which started him on his brilliant career; upon its completion, three other commissions for churches fell at once to the young Architect.

Mr. Prynne arrived in London in 1875, and was in Mr. Street's office for two years, afterwards widening his experience by assisting, among others, Mr. R. J. Withers and Mr. Alfred Waterhouse, and he also went through

Mr. Prynne has followed this strong bent of his for ecclesiastical work almost to the exclusion of all other classes of buildings, and he has designed very little even of domestic work. That field of architectural practice wherein the so-called "Specialist" most often looks to find him his bread and cheese in his early days, and from which he is not so eager to escape even when fortune smiles upon him, has been almost ignored by Mr. Prynne. Mr. Prynne is indeed a "Church Architect" in a very much more literal interpretation of the phrase than is usually implied from it, and it is for this reason that the plans and drawings that accompany this article illustrate, with hardly an exception, his Ecclesiastical buildings.

must chiefly remark his wide recourse to the decorative qualities of brickwork, and to effects produced by using it in conjunction with stone; and in face of the attention Mr. Street gave to this subject, and the reliance he placed on the decorative possibilities of this material which he knew how to use so well, one can only suppose that it was in the Architect's office rather than in Italy that Mr. Prynne learned this difficult art of designing richly in brickwork. These remarks apply in chief to his interiors; but in his exteriors Mr. Prynne uses brick with confidence, and dares effects with it which we do not associate with the work of any other Architect. Thus, in the east end of the Dulwich Church this material has been



ST. PETER'S CHURCH, STAINES. BUILT FOR SIR EDWARD CLARKE. G. H. FELLOWES PRYNNE, ARCHITECT.

his term of studentship in the Royal Academy Schools. In these days he read deep in Ruskin, as he is always glad to remember. It was not till 1880, after having travelled in France, Germany, and Italy, where Churches chiefly called for his regard, that Mr. Prynne finally ventured to turn his whole attention to private practice. His first commission was, as he would wish also his last to be, a Church, and consisted in the rebuilding of no other than his father's old Plymouth Church of St. Peter's. Of this, the sanctuary was the work of Mr. Street, and now stands, the rest of the building is Mr. Prynne's design. Since that time he has done a great deal of work in restoration, rebuilding, and the raising of new churches, as will be seen from the list of some of his more important works which we give below. Indeed,

If in viewing these several designs we try to trace the various influences that have combined to form Mr. Prynne's style, we must see that their chief characteristics are personal to himself alone. These distinctive qualities are to be remarked particularly in his well-known Church of All Saints', Dulwich, and in the new Church, Elland, the design for which is now published for the first time. If we were to hazard a guess we would venture that the Architecture that has most appealed to Mr. Prynne has been the Cathedrals of Normandy and the characteristic Gothic of the *Re-de-France*. In comparing his designs with those of Mr. Street, whose office he entered at a susceptible age, and at the receptive period of his return home to a land of Gothic tradition after his New World experiences, we

made without effort to convey some such an impression as we associate with an early French Cathedral.

The most characteristic feature in Mr. Prynne's designs—a feature which we believe is identified with his work—the traceried chancel arch which occurs in so many of his churches, was perhaps the result of the importance with which Mr. Street always regarded his chancel screens, and the amount of attention he gave to his original designing of them; and the forms which Mr. Prynne affects are no doubt an evolution from those of Mr. Street: indeed, one might almost think a reaction on them, for the light, open, lofty designs illustrated in these pages are conceived in a feeling diagonally opposed to that to which we owe the low heavy arcading, and the solid



## St. Peter's Church, Staines.

## Ground Plan.

Scale:



carved Gothic pediments which we associate with the elder Architect. Although his characteristic treatment of the chancel arch originated, and was elaborated entirely from Mr. Prynne's own artistic convictions, he has since discovered that in Essex there are two Churches which have remains of just such a similar decoration, so that this unusual feature of Mr. Prynne's has the authority of tradition. In the interior view of St. Peter's Church, Staines, will be seen a combination of the rood beam with this tracery. This idea Mr. Prynne is developing elsewhere, and if the design be compared with that in the Dulwich Church, it will be seen to be a very distinct improvement on it. The design at St. Peter's has a meaning and importance that is lacking in that at All Saints, and we think that this absence of a distinct intention in a feature which originally had a great deal of meaning, gives the Dulwich design a blankness, and prevents it from being the success it should be.

In the perspective view of the new Church at Elland, which is one of Mr. Prynne's latest designs, the Church being only now building, it will be seen that the Architect has adhered in his plan very closely to that of his well-known Dulwich Church. The ambulatory has indeed been sacrificed to the needs of an English chancel, and the unusual diagonal tower of Dulwich has been omitted, but in other respects the two plans are identical in their governing principles. In the elevations, however, we see at Elland an inspiration from English Gothic, as distinct from the French feeling of the All Saints. Mr. Prynne has, however, held to his pseudo crypt in the new Church, being in this, it would seem, happily favoured by the fall of his site, and he has thus retained an imposing loftiness which compares with that of the Dulwich Church. The following is a list of some of Mr. Prynne's original church designs as distinct from his numerous restorations:—St. Peter's, Budleigh Salterton; St. Peter's, Staines; St. Peter's, Streatham (West End); St. John the Baptist, Horrabridge, Devon; All Saints, Westham, Weymouth; All Saints, West Dulwich; All Hallows, Kea, Cornwall; St. Paul's, Morley. Some now building:—Holy Trinity, Roehampton; St. Saviour's, Ealing. New Church, Elland, Yorkshire; St. John's Church, Sidcup, (new nave); New Church, Battersea.

## RELIC OF OLD NEWCASTLE.

THE proposed scheme of alteration to the Newcastle Exchange was explained to the members a few days ago. Nothing has as yet been definitely decided, but the very idea of

further altering a building that has already seen many changes from, and additions to its original structure suggests many interesting reminiscences. On an ancient plan of Newcastle, by Speed, only one public building is marked on the Sandhill, viz., the old and now demolished Maison de Dieu. Later a proper building was erected for the purpose, and was described by Leland, who visited Newcastle probably in the thirties of the sixteenth century, as "a square haul place for the towne." It was situated on the south side of the Sandhill, and, according to Bourne, was built by the opulent and generous Roger Thornton, who had previously built the Maison de Dieu, to which it was adjacent. But the building was pulled down in 1655, and the present Exchange (or at least a great part of it) was finished in 1658, having attached to it a suite of courts and offices. Robert Trollop, of York, Architect, covenanted with the Corporation, on whose property it stands, to build it for £2000, but Bourne states that he was informed that it cost over £10,000, of which Alderman Weyman gave £1200 by will, the Corporation contributing the rest. Mr. Trollop was presented with the franchise of the Corporation for the skill and ability he displayed in erecting the Exchange, and when he died (being buried in Gateshead Churchyard) the following epitaph was composed concerning him:—

"Here lies Robert Trollop,  
Who made yon stones roll up;  
When death took his soul up,  
His body filled this hole up."

The style of Architecture adopted for the building was a curious mixture of Gothic and Italian, which, in the original state of the



ST. PETER'S CHURCH, STAINES. INTERIOR.

The Annie McDonald has arrived in London with 100 loads of Jarrahdale Jarrah aboard, to the order of McLean Bros. and Rigg, Limited, 1, Fenchurch Avenue, London, E.C.

The building at the entrance to the Maitland, near Inveraray, called the riding school, is being restored, and fitted up as a hall to take the place of the present Castle pavilion.



building, is described as having been very beautiful, though in these days, with our better taste in matters architectural, we should perhaps have thought it incongruous. In the Guildhall are still to be seen some arches and pillars of the original style of the building, but the pillars and arches downstairs had later to be encased in rectangular masonry owing to the signs they exhibited of giving way. The Guildhall was a noble room 92ft. long and 30ft. broad, the floor being laid with chequered marble, and the ceiling adorned with paintings. The windows were all on the south side, and it is noteworthy that so far back as in Mackenzie's time it was suggested that a great improvement would be effected by building up the windows and lighting the place by large domes in the roof. The entrance to the hall was by two flights of steps, each of which ran under an arch from the east and west, and were, on the side next to the Sandhill,

#### ADORNED AND PROTECTED BY BALUSTRADES

such as still exist in the north gallery of the Guildhall. In 1740 the Guildhall received serious damage through the outrages of the mob, in the alarming riot of that year, and in 1791 the west end was damaged by fire. The Council, five years later, determined to repair and modernise the north front, which was taken down, with the old steeple and staircase, and a new front was erected, the pillars in the Exchange and in front of the Court-house being then cased with freestone, and the old windows with stone mullions were replaced with modern sashed windows. In 1809 the south front was treated in corresponding style, and the south side of the Exchange was walled off by the inner range of pillars to accommodate the new subscription news-room. At the east end of the Exchange formerly stood the Maison de Dieu, built in 1412 by Roger Thornton, previous to the erection of the Exchange, and over this was the Merchant Adventurers' Court, but this building with age had grown almost useless, and the hall above became insecure, so that in 1823 it was pulled down, a handsome and classical edifice being erected on the site by the late Mr. John Dobson, the Architect of modern Newcastle. In digging for the foundations, the bottom of the town wall was discovered about 12ft. below the surface and removed. The east part of this beautiful building was semi-circular, and was supported by eight Doric columns, the basement, which was otherwise open at the sides, being converted into a fish market. This splendid market, besides being at that time one of the most splendid

#### ARCHITECTURAL FEATURES OF THE TOWN

—for it was built before the handsome streets were made in the centre of the town—cleared the Sandhill of the lumbering fish-stalls, and widened the entrance to the Quay, which before had been inconveniently narrow. The question has naturally been suggested whether it is altogether indispensable to have the Exchange down on the Quayside; but in answer to this it is pointed out that, while and so long as the coal trade is located on the Quayside and "down street," there the merchants and shipbrokers must remain, and where they are there must be the Exchange. It may yet be shown, however, that Grainger and Dobson were only some 50 or 60 years or so ahead of their time when they proposed to remove the Exchange to the top of Grey Street, and built the magnificent block of the Central Exchange Buildings. The grand staircase to the Merchants' Court was entered from the east piazza of the Exchange, and at the bottom and top were Corporation offices, for the present Town Hall had not then been built, and the Council used to meet in the building, where its chamber still exists pretty much as it used to be, and in which its offices used to be. This Mayor's Chamber is now proposed to be used for the home of the Chamber of Commerce. The staircase was the spot from which John Wesley addressed the crowd from whose violence he was rescued by the courage of a sympathetic fish-wife. The Merchants' Court is a fine square hall on the same floor as the Guildhall, with which communication is obtained through a very

ornate doorway, and is directly above where the old Fish Market was. It has a rich, antique interior, embellished with fine carvings, while the walls bear the coats of arms of famous members of the Guild. Above the fine fireplace are two carvings representing Solomon's judgment and the miraculous draught of fishes, these designs being symbolical of justice and plenty. On the same floor is the old chamber of the Council, with the Mayor's chair and the benches of the aldermen and councillors. This is

#### A MOST QUAIN AND INTERESTING APARTMENT.

Underneath, on the ground floor, is the Exchange, in the vestibule of which is the statue of Charles II., the "Merry Monarch," which it is proposed to move upstairs to the first floor, into what is now the Guildhall; and the suggestion is to throw open the door of the Merchants' Court, thus giving a space for the new Exchange not quite so large as that of the hall beneath, but possessing advantages in the shape of better light and superior facilities for ventilation, in respect of both of which the ground floor is sadly deficient and almost impossible of improvement. The building is Corporation property, and the consent of the City Council would have to be obtained for any steps of the nature proposed. Within the last thirty years several attempts have been made to get improvements effected in the present Exchange, but they have come to nothing. Some years ago there was a scheme to gut the entire building, and build a new Exchange in one large hall from

#### EDINBURGH ARCHITECTURAL ASSOCIATION.

##### PRESIDENT'S ADDRESS.

AT the meeting held on May 12th, Dr. Roward Anderson said: "In the few remarks I have to make before resigning my office of President, I do not feel I can do better than recapitulate, and, if possible, emphasise, some of the questions I have dealt with from this chair—firstly, because if I have anything to say to you, it is better that I confine myself to such subjects as I have thought about; and, secondly, because I consider such questions as I have dealt with are of importance, and should be discussed from time to time by our Association, as an aid to forming public opinion on matters that every community must deal with periodically. When I took office two years ago, one of the questions prominently before the Profession was that of education, combined with efforts to make our occupation a close one. I explained my views fully to you, and I have heard nothing on the other side since to lead me to think differently. At the bottom of this controversy lies a misconception of the nature of our business, as compared with the professions of Divinity, Law, and Medicine. The divine has to subscribe to a creed, his historical and philosophical knowledge of which must be tested. The lawyer has to administer the laws of the country according to the fixed principles and form of those laws, and his qualifying knowledge of such must be

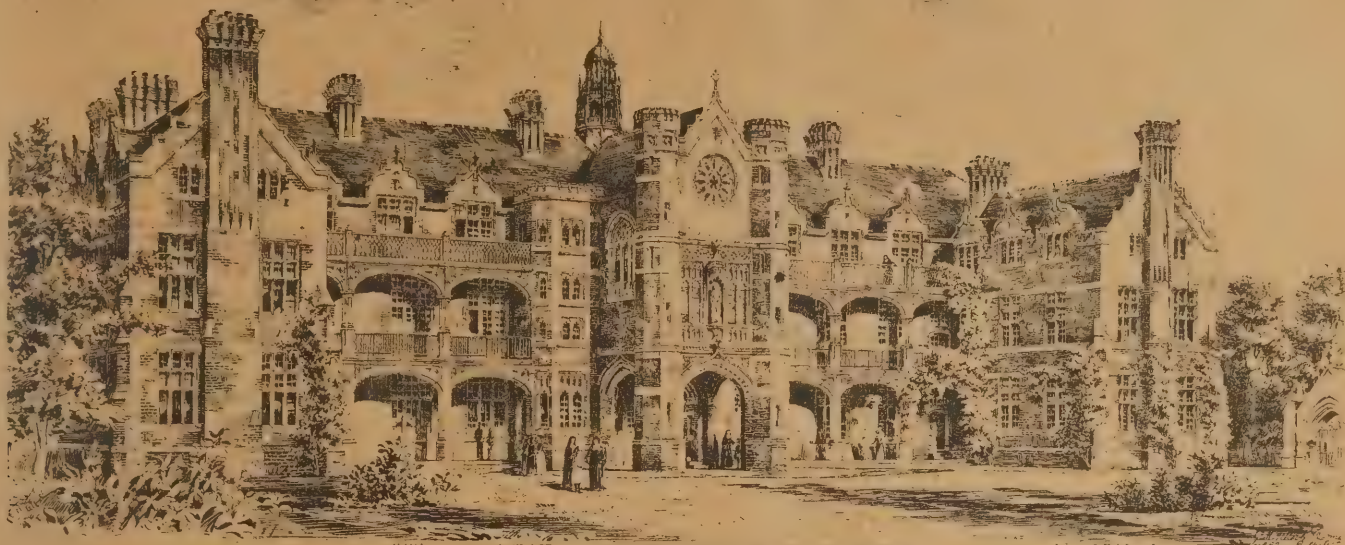


ST. SAVIOUR'S MISSION CHURCH, EALING. G. H. FELLOWES PRYNNE, ARCHITECT.

floor to roof. That was rejected at the time, though no doubt it would have been the most effective and satisfactory way of meeting the difficulty.

ascertained. The physician or surgeon has to deal with disease in all its forms, and none can be successful unless he has acquired an intimate knowledge of the anatomy and





DESIGN FOR ST. ANDREW'S HOSPITAL FOR INCURABLES, WORTHING. G. H. FELLOWES PRYNNE, ARCHITECT.

functions of the body and all its parts, as also of the experience of the past and the various methods used in combating disease. They have not to provide what the public wants, in the same sense as a picture-painter or dealer, or as an Architect in designing a house or other building has to meet the individual wants and desires of a client. You go to men of the professions I have named for what they are certified to possess and to be able to do, and not to dictate to them in what manner you are to be spiritually consoled, or have the law modified and administered, or modified in the settlement of your affairs, or have your physical trouble alleviated, so that in each case your own wishes may be met. The public deal with us on a totally different footing. While it is true that a client may go to one Architect rather than to another because he is known or believed to be a better educated man in his work than others, yet, taken generally, the Architect is but the interpreter of the public's idea of Art at any given time, and he has to provide what the public wants and is prepared to pay for. No compulsory examination or diploma can alter this. The law cannot, and will not, protect the public from bad Art, because the public can and must at all times protect itself, and if it gets bad Art it gets what it wanted, and the only thing it is able to appreciate. The one hope for Art—and I speak of Art in its widest sense—is

#### AN EDUCATED PUBLIC.

When the public is able to distinguish good from bad, and when it comes to look at Art, not as a question of mere ornament and as a thing apart from structural and functional truth, then the bad Architect will naturally disappear, and no artificial aid will perpetuate his kind or find work for him. While little has been heard lately of converting the Architect into a certified professional man, our friend the registered plumber is still well to the front, and he is now asking the Legislature to pass a Registration Bill as a means of protecting the public health against the ravages of the incompetent man. How the passing of such an Act can do this I cannot comprehend. If the Legislature could ensure plumbers good prices for their work, there might be something in it. That registration will prove that a man is competent and be a guarantee to the public that good work will be done is a fallacy; nothing can make a good plumber or any other tradesman but employment on good work and under a competent foreman and master, and receiving proper payment for his work.

c c 2

Stuffing a lad's head with a lot of data about his work will no more make a good plumber than attending a class on navigation will qualify one to take a ship to sea. So far from the public requiring to be protected against the inferior plumber, it is the respectable plumber who requires to be protected against the public. The keen and excessive competition which is stimulated by the demand for cheap work, the pitting of men of substance, experience, and character against men who have not these qualifications, is the real cause of bad work, and, until that state of things is altered, the registered plumber will only intensify the present unsatisfactory state of things. This claim to protect the public health is rather an arrogant one. The plumber is only a link in the chain, and, if registration is necessary for him, it is equally so for other tradesmen. The mason and the Irish labourer who lay the drains are in every respect as important as the plumber, as far as health is concerned. The State cannot protect the public from the incompetent tradesmen unless it controls both parties to the contract—that is to say, the work and the price to be paid for it. To attempt to do this would, of course, be an absurdity. I have looked over the Plumbers' Registration Bill, and all I can see in it is an arrangement for the appointment of secretaries, treasurers, and auditors, and the collection of fees, but nothing whatever that will add to the protection of the public and ensure a higher standard of work; and for this very good reason, which knocks the bottom out of the whole thing, that no provision can be made for ensuring payment for good work. But the State can do and is doing much that is already bearing good fruit in improving everything that concerns public health, and structures of all kinds, by the appointment of Public Health Officers, the passing of Public Health and Police Acts, and by the powers conferred on health officers, borough engineers, and sanitary inspectors. The enforcement by law of these Acts alike against the public, the plumber, and the Architect is the true and only way of bringing about a

#### BETTER STATE OF THINGS.

While I am entirely opposed to all artificial distinction or hall-marking of a man because he has undergone an examination on subjects which are admittedly not those that test the real qualifications that fit a man for his calling, I am all in favour of education. Give every young man a fair opportunity of equipping himself for his life's work, then let him swim or sink on his own merits or want of them.

The young man who has good stuff in him will educate himself up to the standard of his time, because he knows that to do so is the only passport to success. But you must provide the means of his doing this, and, as far as Art work is concerned, that is the reason for establishing our Applied Art School. Every young man cannot get into a workshop or office where good and artistic work is done. He may and often does drift into a place where he learns little or nothing; but that can be to a large extent rectified by attending this school, and, if there is earnestness as well as ability in him, he will get every help and encouragement. This week three students are leaving having been awarded travelling bursaries, and I have such confidence in them that I feel sure they will submit for inspection an amount of work which, both for quantity and quality, will show that the committee has selected the right men. Two of these students are Architects' assistants, and one a furniture designer; and it cannot be too widely known that our system of education makes no distinction between the different occupations of the students—the rewards and prizes at this school can be held by any Art worker. Merit is the sole title that we recognise. Now that I have said something about the student, I have something to say about the public. Our Association does something to educate the public. We do not exist, like other associations,

#### FOR THE BENEFIT OF THE ARCHITECT

only—our strong point is that we exist chiefly for the benefit of Architecture and its allied Arts. The more we can interest the public in Art the better for us and for Art, and, if all other institutes and associations would do as we do, the Architect and his work would be better understood and appreciated. The Saturday afternoon excursions, which are largely taken advantage of by our non-professional members, are most enjoyable, and are always interesting and instructive. The unfailing courtesy with which we are always received shows that the noblemen and gentlemen who throw open their places to us know that we do not come out of idle curiosity, but from a desire to learn from and to appreciate all we see. This year our special thanks are due to the Earl of Hopetoun, Lord Torphichen, Mr. McKelvie of Hatton, Messrs. Scott, Bruce, and Glover, W.S., and Mr. W. W. Robertson of H.M. Board of Works. We have still two excursions before the season closes, and on each occasion I can promise all who come a very pleasant and interesting afternoon. This



is an eventful year in the history of our country; it marks a long period of progress, prosperity, and comparative peace under the beneficent reign of our Gracious Sovereign Queen Victoria, and in all those benefits we have shared. A great

#### ADVANCE IN ARCHITECTURE,

and, indeed, in all the Arts, has taken place during Her Majesty's reign; and much of the improvement may be attributed to the direct influence and fostering care of the late Prince Consort. This Association is, therefore, in common with all the subjects of the British Empire, greatly interested in the question of the day as to the most fitting expression to be given to this thanksgiving and Jubilee for the long and prosperous reign of Her Most Gracious Majesty. I am aware that the suggestion which commends itself most highly at this time is the equipment or endowment of institutions for the relief of the sick and suffering. But, apart from the fact that infirmaries, hospitals, and kindred institutions command at all times national sympathy and support, irrespective of any special occasion like the present, I would like to point out that this is, to a certain extent, beginning at the wrong end. There is a well-known proverb which says that prevention is better than cure. Applying it to this case, I say do something to keep the people healthy and happy in mind and body, and there will be less need for infirmaries, nursing associations, &c., &c. I would, therefore, like in a word or two to repeat what I dwelt on at greater length in a former address regarding the provision of a suitable place of amusement and relaxation for the masses of people whose means do not admit of them procuring such for themselves. In my opinion, nothing could better mark this year of Jubilee, or be more in accordance with the expressed wish of Her Majesty, and the touching letter of the Princess of Wales, in which she pleads that, when schools, hospitals, and other charitable institutions have been properly provided for, the poor should not be overlooked, than the inauguration of a movement to bring into the lives of those whose means are only sufficient for the barest necessities, some of that brightness and pleasure which are the outcome of comfortable and cheerful surroundings and innocent recreation. I think that the institution of a great free place of recreation for the people would be found to have the most potent influence, not only in preserving the people from many habits which lead to loss of health, but in refining and educating them, and in promoting that cheerfulness and contentment of mind which is the enemy to all social disturbances; and I do not think that the municipality could in this year of Jubilee enter on any scheme which would have more far-reaching or more beneficent effects. This evening terminates my occupancy of this chair, and, in saying good-bye to you, I have to introduce to you

MY SUCCESSOR, MR. R. J. ROSS.

Mr. Ross has long been a loyal and active member of this Association, and is well known, not only to all of you, but to a very wide circle outside. His *magnum opus*, which he prepared in conjunction with Mr. McGibbon, another valued friend and member of this Association, will long remain a monument of industry and research. It is now having, and will continue to have, an important influence on Scottish Architecture. When Mr. Billing's work on the Baronial and Ecclesiastical Antiquities of Scotland was published, it disclosed the existence in Scotland of a class of buildings unlike any that had hitherto been illustrated. The publication of this work coincided with a period of great agricultural prosperity and high rents, as a result of which many old houses were enlarged and new ones were built, and all were more or less in imitation of the buildings illustrated in Mr. Billing's work. It cannot, however, be said that this work led to the erection of buildings which mark the recovery of a lost Art, or that the buildings erected at this time were in any way expressive of the social or political state of the time, because all the buildings illus-

trated by Mr. Billing belonged to a time when a house was more or less a castle—a building to keep people out, not one to invite them into—and they were, therefore, not fitting types for buildings erected in a time of peace and prosperity. A great opportunity for a revival of Art was thus lost. The great merit of the work on Scottish Architecture by Messrs. McGibbon and Ross is that it illustrates a large number of buildings not noticed in Billing's work—buildings eminently Scottish, and at the same time eminently domestic in their character. These are the buildings that ought to be studied with a view to their application to present day work, and if we in Scotland are to develop a domestic Art having a distinctly local colour, and we ought to do so, it will be largely owing to the publication of this valuable work."

#### BUILDING AT NEWCASTLE.

AS with other towns, so with Newcastle—as its boundaries are extended many spots with interesting associations are dismantled to make way for new streets and make room for a growing population. The north-east part of the Jesmond Manor House estate, which abuts directly on the Dene, has been bought by Mr. Stephen Easton, builder, who is erecting, from the plans of Mr. J. T. Cackett, Architect, quite a little town of houses. The building of 150 houses in flats (300 single flats) and fifty self-contained houses cannot be without a very great influence upon the house accommodation of the city. The estate is situated east and south-east of the Old Manor House. The new streets are already made. The avoiding of quagmires by the construction of the roads before a single foundation was laid is a very great point, and it is easily to be seen that great care has been taken to give a pleasant appearance and a healthy air-space to the streets, upon which some £2000 or £3000 has been spent. A great public improvement has been made by the widening of Jesmond Dene Road at the bottom of the Estate. Both the flats and the self-contained houses are finished, both externally and internally, in a style very much superior to that of many already existing and larger houses in the neighbourhood. The solid stone bays of the bay windows are built with cornice, frieze, and elaborate mouldings, while the fronts of the houses are built with best Ruabon bricks. The names of the streets of flats are Cavendish Road, Grosvenor Road, and Grosvenor Avenue; and the self-contained houses occupy both sides of Cavendish Place, all of which have back streets. So far as the flats are concerned, each block is in excess of the requirements with regard to space. The sites are all larger than a literal compliance with rules necessitated. In Grosvenor Road the bay windows of the flats are carried up the full height of three storeys, and the upper flats will contain seven rooms each. Opposite the flats on the north side of Cavendish Road will be a row of semi-detached houses in flats just like semi-detached villas, only that there will be one tenant upstairs and another downstairs. Every flat has a proper bath-room, with hot and cold water from a circulating supply. In the case both of the flats and self-contained houses, there is an inspection chamber for the sewers, and a disconnecting trap by which gas from the street sewer is prevented from entering the houses. The roofs are all overshot and handsomely supported by cantilevers, while the masonry of the bay windows is of a very superior order. Without going into details about the internal fittings of the houses (all of which possess the latest conveniences), an instance of the way in which they are fitted is shown by the fact that very substantial and Artistic carved oak mantelpieces are provided in the front rooms of the self-contained houses, a decorative enrichment formerly confined to elaborate mansions. There are gardens at the front and yards behind all the houses, and the flats have three, four, or seven rooms, while the self-contained houses have six, seven, or nine. All the materials used in the construction are of good quality, and altogether the estate is a model one.

#### OLD BRUSSELS.

ONE of the most interesting parts of the Brussels Exhibition will, no doubt, be the quarter where Old Brussels houses have been built up as they appeared in the early years of the present century. A similar idea was carried out at one of the South Kensington Exhibitions, when a street of London houses was built up. The Brussels idea has, however, been carried out on a much more ambitious scale, a series of streets and squares having been laid out on a plot of ground, surrounded by reproductions of the old walls of Brussels. Those acquainted with the history of the city need not be told that it was in 1830 that the Great Revolution broke out, in the course of which a large number of the finest houses in Brussels were destroyed by the infuriated mobs. It has been the aim of the committee to reproduce as many of these houses as possible, so that most of the buildings just reproduced were in existence in 1830 or the decade before. In those days the houses were not numbered, neither was the fancy of the Architect trammelled by the requirements of City Councils or Boards of Works. Consequently the Architecture displays all the pleasing qualities in which experts delight. There being no numbers, the houses were distinguished by the names of the families who lived in them, or by names determined by some idiosyncrasy, or due to propinquity to some public building or well-known landmark. Thus we find houses bearing names such as the "Three Heads," the "Cheval Marin" (which sounds as if the joke about horse marines was of ancient origin), the "Green Dog," and the "Three Virgins." The committee has spared no pains to reproduce with fidelity not only the

#### ARCHITECTURAL FEATURES OF THE PERIOD,

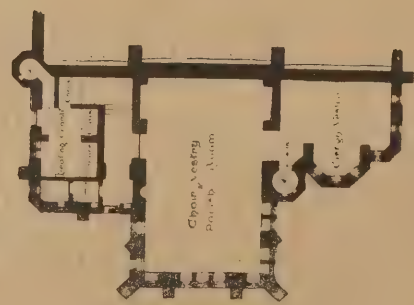
but also the costumes, the attendants in the houses of "Old Brussels" being habited in the styles in vogue early in the century. The gateways of the old town have been carefully copied. In addition to early nineteenth century buildings, there are some old seventeenth and eighteenth century houses, which were still standing in 1830, as well as some which escaped the general destruction of the revolution. One of the finest of the old gates, which was unfortunately destroyed in 1784, was the "Porte de Gand," or "de Flandre." This has been reproduced, as well as the old gateway of the Convent of Jericho, which belongs to the thirteenth century. The house of the "Trois-Têtes" is on the right as the visitor enters the Place Verte. With reference to this, M. Hymans, an authority on Brussels, says that the name was derived from a curious old house of the fifteenth century, which is said to have been used as a place of meeting or refuge by the Jews. Three finely sculptured heads protrude from the upper part of the wall, below them being two niches for statues. The doorway is guarded by two massive caryatides supporting a heavy wooden cornice. Further on the visitor sees the celebrated mannikin fountain. Then comes the Old Butter Market-place, with its series of wondrously diversified little houses, glittering all over with their tinted tiles and slate roofs. In this Market-place stands the "Green Dog," with its belfry in which is a peal of silvery bells. The original "Green Dog" was a sort of public-house and tea gardens, founded in 1705 and pulled down in 1842. In the gardens of the "Green Dog" the people of Brussels were wont to take their pleasure, and indulge in the games of the period. Visitors to the Exhibition will be able to play those same games if they are so inclined, as the "plant" for them has been fitted up just as it was in the early years of the century.

The seawall in front of the Grand Hotel at Lowestoft, which was damaged by the gales in January, has been restored. The new concrete wall is strong and massive. The foundation is taken down 6ft. into the beach, and the structure is strengthened by iron piles driven to a depth of 17ft.

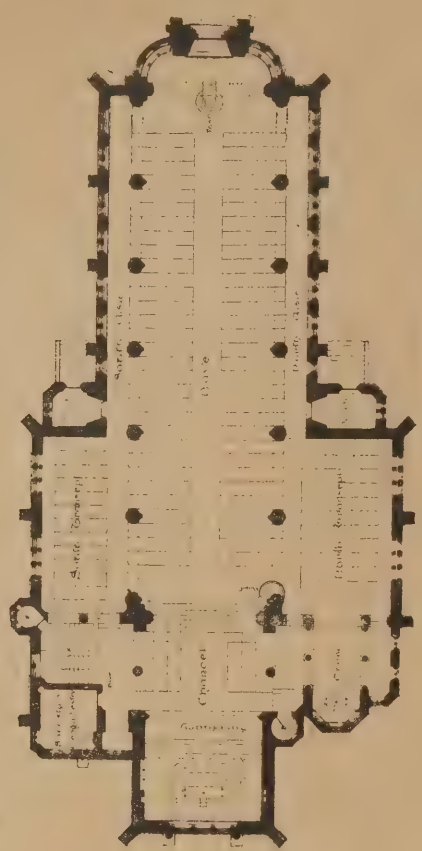


LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

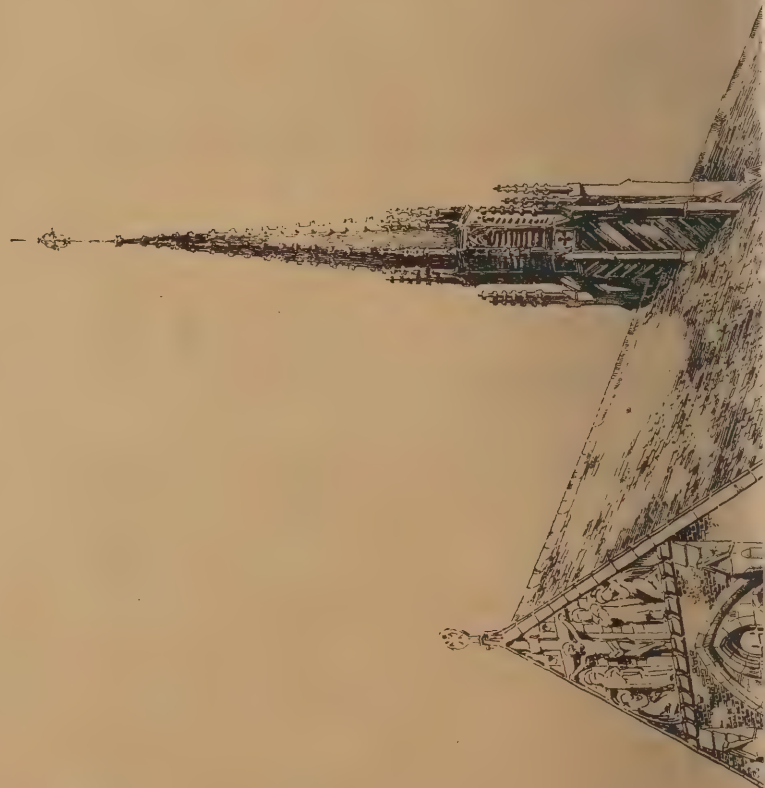




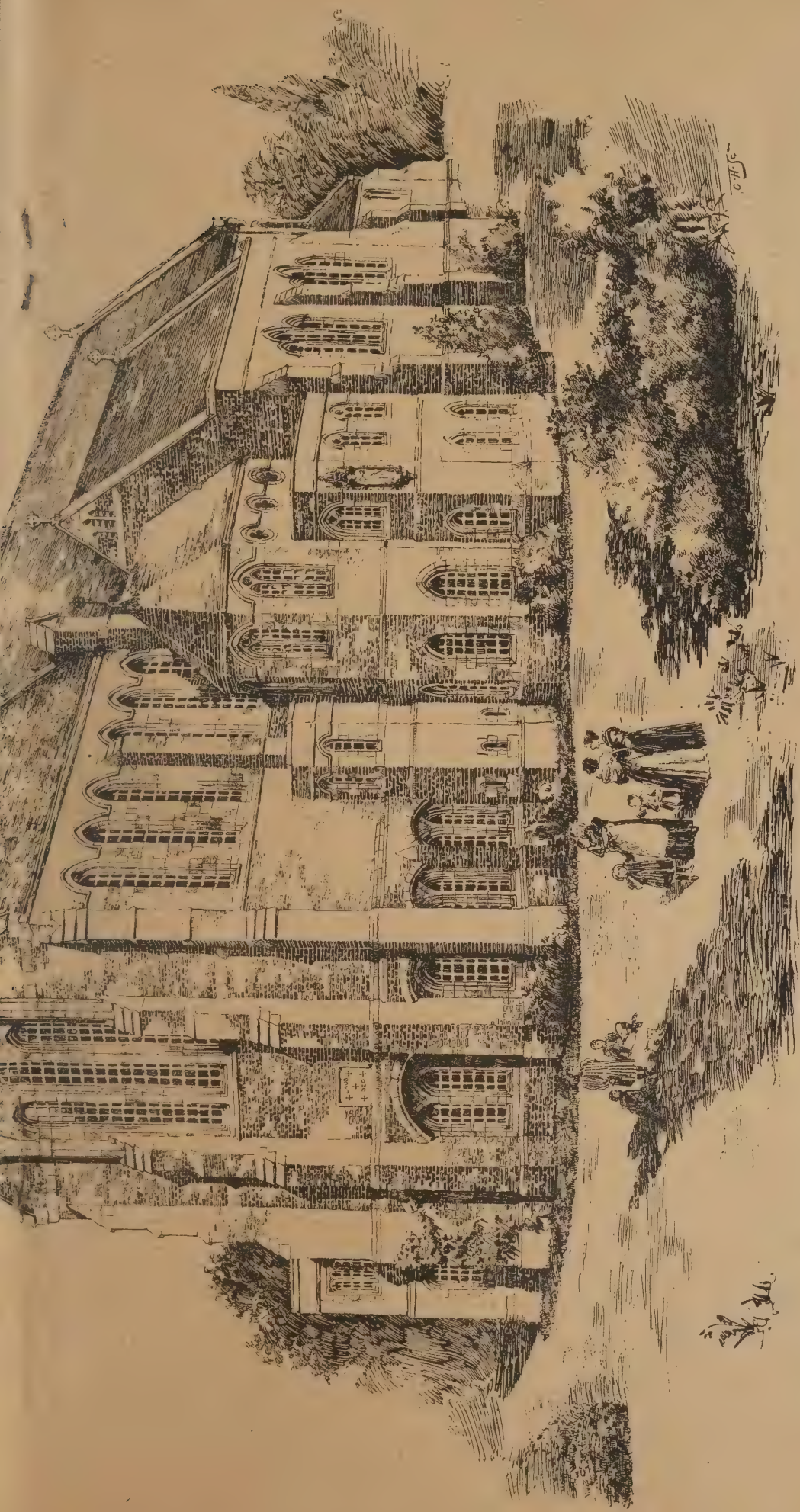
Choir plan



Ground plan







Proposed New Church in Eland, Yorkshire.

G. H. FELLOWS PRYNNE, ARCHITECT.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
May 19th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A REMARKABLE collection of over a hundred paintings and over thirty examples of black and white by Mr. Mortimer Menpes was opened to the public at the Dowdeswell Galleries last week. They represent a year's work in Japan. The painter has not been content with depicting the ordinary everyday tourist aspect of life in Japan—which, by the way, everyone is getting a little tired of, just as they are becoming weary of the third-class Japanese curios, fabrics, and pictures with which England has been deluged during recent years—but he has wandered in the less frequented tracks, he has explored picturesque corners, he has gone behind the scenes and studied the life and character of the people, he has made himself familiar with their country, and has mastered the peculiarities of their race. Throughout the collection one can scarcely fail to be impressed with the fact that the Artist has made a distinct advance in power and colour, in variety of subject, and in vigour of handling since his last exhibition. The whole collection—as well as some thirty drawings in black and white—is full of interest and originality.

THE princely domain of Chantilly, from the Condé branch of the Royal House of France, has been completely restored. The Petit Château, or Capitainerie, had been constructed by Jean Bullant for the great Constable, Anne de Montmorency; the Grandes Ecuries belong to the first half of the eighteenth century; the great saloons containing the pictures—a collection next in importance among French galleries to that of the Louvre—are for the most part entirely new. In these last-named buildings the castellated style of the French Renaissance, as illustrated by Blois, Chambord, Chenonceaux, and other châteaux of Central France, has as much as possible been adhered to. The restored chapel, dating in its origin from the fourteenth century, is decorated with sculpture, wood-carvings, and enamelled faience brought from the Château d'Ecouen; it contains, besides a famous carved altar by Jean Joujon—a name now, alas! having such mournful associations—the Urn in which, according to a fashion that obtained especially during the sixteenth century, the hearts of excessive Condé princes is stated to have been deposited. From Ecouen came, too, that curious series of forty-four stained-glass windows, with the "History of Cupid and Psyche," after Apuleius, which was done for Anne de Montmorency—the cartoons for these being attributed to Michael Cockie.

THE memorandum on the annual estimates issued by the Finance Committee of the London County Council states that the estimates of expenditure for 1896-97 amounted to £2,432,932, and the actual payments in the year amounted to £2,348,225, or £84,707 less than the estimate. The total estimates of expenditure for 1897-98 for the various services on the general and special county accounts show an increase of £19,557 over those of last year. The net charge on the rates for debt

shows a decrease of £40,605. The net debt, which stands at £19,105,942, is less than it was a year ago by £109,459, while an increasing proportion of it is what is known as "remunerative"—for example, the debt incurred for such purposes as tramways and artisans' dwellings. The charge for maintaining Blackwall Tunnel, estimated at £9875, appears for the first time in the estimates, and a provision of £5500 has to be made this year on account of the expenses of the County Council election next March. The Main Drainage Committee contemplate a large expenditure on repairs to sewers, and their estimate is £232,330, as against an actual expenditure last year of £192,384. A penny rate over the whole county is estimated to produce in 1897-98 £150,411.

AN excellent proposal by Mr. J. Spencer Curwen to erect a monument over the grave of the great glee composer, Samuel Webbe, the elder, in old St. Pancras Churchyard, has led to the curious discovery that the tomb and apparently the grave have disappeared. The monument was certainly there a few years ago, and the inscription is likewise preserved in Cansick's "Epitaphs," published in 1869. It is possible that when the churchyard was converted into a recreation ground the tomb was carried away. A subscription has, however, been opened to erect a granite obelisk in Webbe's memory in this churchyard; and the inscription will be identical with that placed on the original monument erected after Webbe's death in 1816.

THE fourth of a series of six lectures on "Ancient and Mediæval Art" was delivered in the Royal Dublin Society's new theatre by Mr. G. Baldwin Brown, M.A., Watson-Gordon Professor of Fine Art in the University of Edinburgh. At the beginning of the lecture Mr. Brown dealt with Hellenistic Art as perfected at Alexandria, and subsequently adopted into the service of the Roman Empire. He described in considerable detail a number of the public works of the Romans, especially in their scientific and artistic aspects. On the screen were shown some beautiful specimens of Hellenistic sculpture, which the lecturer said were specimens of ideal Art. Referring to architectural Art in Rome, he said that Roman buildings were mainly of concrete, faced with various materials, of which marble was the dearest and finest. It was said that Augustus had found Rome brick and left it marble. In reality it was still brick, and only faced with marble. The Romans in their Architecture did not reach the standards of the Greeks. The Roman ornament tended to become florid, yet a good deal of the work of the Augustinian age was admirable. The Romans were consummate masters of the materials which they chose to employ, and their systematic methods enabled them to accomplish an almost fabulous amount of building. Proceeding, he described the modification of Roman building and decoration to suit the needs of the early Christian Church, the meeting-houses of the Christians, and their embellishment. The artistic importance of the early Christian Church was chiefly in its mural designs, most of which were mosaics. The architectural subjects dealt with were illustrated by views, including pictures of the chapels of the catacombs.

THE following is the full text of the memorial addressed to Sir John Gorst on the subject of the South Kensington Museum, and signed by the President of the Royal Academy and many others distinguished in Art:—"To the Right Hon. Sir John Gorst, Q.C., M.P., Vice-President of the Committee of Council on Education.—We, the undersigned, practising various branches of the Arts as a profession, seeing that a committee of the House of Commons, of which you are chairman, has been appointed to report on the South Kensington Museum, venture to address this memorial to you, trusting that you will bring it before that committee, and also that, as the Minister responsible in the House of Commons for the Museum, you will use your influence to give effect to our prayer. The South Kensington

Museum was founded in order that 'all classes might be induced to investigate those common principles of taste which may be traced in the works of excellence of all ages.' The extent to which it has stimulated an interest and educated opinion in Art matters in this country, and the profound impression it has made on the progress and revival of what may be termed the industrial Arts, is well known and acknowledged by all those in a position to judge, not only in this country, but on the Continent and America, where the South Kensington Museum has been avowedly taken as a pattern on which to found various national museums. The extraordinarily valuable collections, which have been enriched by gifts and bequests valued many years ago at more than £1,000,000, cannot, however, be properly arranged or seen, much less studied, owing to want of space; while the external appearance of the Museum is a discredit to the nation. We, your memorialists, therefore earnestly pray that active steps may be taken by Parliament to complete the building; and we share the opinion already expressed that no more fitting national memorial of the sixtieth anniversary of the accession to the throne of Her Most Gracious Majesty could be made than the completion of a museum, which owed its existence to her Royal Consort, and which Her Majesty has declared that she has taken under 'her special and personal protection.'

A CORRESPONDENT writes with reference to the safety of our public halls:—"We have done much, after the terrible catastrophes at the Ring Theatre, Vienna, the Paris Opéra Comique, and the Exeter Theatre, to improve the safety of our playhouses; though maybe the manner in which the improvements have been effected has often been lacking in system, and has even caused much unnecessary friction. It is high time now that the safety of our public halls should also receive more attention, and I would advocate the immediate careful examination of all assembly-rooms before the lesson of the fearful calamity at Paris is forgotten. During this year of celebration our halls are being used to a considerable extent for all manner of purposes in connection with the Jubilee. It would be lamentable indeed if our festivities were associated with any great fatality. Of course the immediate and efficient remedy of the many defects which would be discovered in the majority of our public halls cannot be effected at short notice, but a beginning should at once be made with such small improvements as are feasible. At the very least, there should be no door to a public hall throughout the country that does not swing outwards. Halls having their floors near the ground-level could have extra doors cut, and there is no doubt that supplementary staircases could easily be arranged for in many instances where the floor is on a higher level."

WE congratulate the Select Committee of the House of Commons on rejecting the scheme for spoiling Chelsea Reach. The bill—needless to say it is part of the County Council's scheme of "improvement"—aimed at improving London by depriving it of its most striking bit of riparian foreshore. London has many reaches, as someone has said, but only one bay; and it is a bay in which the brown-sailed barges come and go, and where, not ten minutes' walk from the 'buses and the bustle of the King's Road, you can almost catch a "whiff of the briny," and at least see blue-jerseyed sailormen, on whose tanned faces the spin-drift of the North Sea has beaten not so many hours before. No one who goes down to Chelsea Reach, in the early hours of a spring morning or the late sunlight of a summer afternoon, will ever again say that London has nothing that is picturesque. It was the brilliant design of the County Council to destroy the bold curve of this bay by running a straight line of embankment from one horn to the other. There would be an end of the shingle foreshore, the wharves, the brown-sailed barges. Instead, there would be the usual "walk" on which nobody walks, and several acres of reclaimed land, on which cheap houses, with their cellars in the river ooze,



might be built. Also there would be a very big "job," in both senses of the word, for the Council's famous Works Committee to superintend. On the whole, the House of Commons is wise to return this notable project to its authors.

THE Church of St. Leonard's, Shoreditch, for the restoration of which funds are being appealed for, has considerable value from Artistic and historical points of view. It appears that the very handsome tower and spire require immediate attention, and, as this steeple is the greatest ornament to the neighbourhood, its repair must not be postponed. The present Church dates from the year 1740, and was designed by Dance, a pupil of Wren's. The only portion of the building which is in any way remarkable is the steeple, which, from its height and conspicuous situation, is seen both far and near. There has, it is true, been much debate as to the merits of the design, the writers at the period of its production praising it considerably beyond its deserts—as may be seen by turning to the third edition of Maitland's "History of London"—and later writers condemning it far too severely. Of course, it can scarcely be regarded as an original work, as a much finer design of a very similar kind had been carried out by Wren at St. Mary-le-Bow. It must be acknowledged, too, that the modifications, especially in the way of proportions, introduced by Dance are the reverse of improvements; yet it is a stately work, and one well worth preserving. We have been unable to find out what is the height of the Shoreditch Church tower. Leigh, in his "New Picture of London" (1824), says, "The Church is 75ft. long and 66ft. broad, and the spire is about 70ft. high." This is unintelligible, as it is at least three times that height. The old Church, which fell down, or was pulled down, in 1735, is represented by some engravings in the Guildhall Library. It seems to have consisted of a nave with three aisles, so that its eastern end presented the uncommon features of four gables. It possessed, also, a lofty western tower. Judging from the views it would appear to have been erected in the fourteenth or fifteenth centuries, though there is evidence that a Church stood there in Saxon times.

THERE will shortly be sold, at Messrs. Debenham, Storr, and Sons', in King Street, Covent Garden, by order of the Rhodesia Ancient Ruins Company (Limited), of which Lord Gifford is one of the directors, a collection of ancient treasures, which will excite great interest among archaeologists. It is made up of gold ornaments, such as beads, bangles, rings, necklets, armlets, dagger hilts, and mountings of ancient wands of office, recovered from the ruins of the forgotten cities of Mashonaland and Matabeleland. There are 350oz. of beaten gold, twenty-four carats fine, taken from the ancient tombs and strongholds, much of it from the skeletons direct. Among the most curious of the articles are two rings, with beaded boss in the centre. These rings are, of course, bent out of shape; they are so soft that moderate pressure with the fingers will twist them any way, but they are unmistakable rings, and the singular feature of them is that the skulls of the bodies from whose fingers they were taken were not those of negroes, but were distinctly European. The armlets and necklets are coils of pure gold, from six to ten strands through, and weighing, some of them, as much as 7oz. each. These golden ropes or spiral wires stretch out to any length, quite like ordinary cheap wire. There are two curious gold ornaments whose use is a little uncertain, particularly as one of them was evidently cemented to something else.

IN excavating for new buildings for the Gloucester School of Science, in Brunswick Road, the foundation of the Roman wall has been exposed for a distance of nearly 150ft. There are four courses of huge blocks of oolite from the Cotswolds. The original wall was about 25ft. in height, and must have been of immense strength. It was, undoubtedly, erected before the close of the first century,

for when the second century began the need for it had ceased, the Roman garrison being then moved to Caerleon, in the heart of the enemy's country. Among the objects of Roman date found in the excavated débris are a number of Colchester oyster shells. This delicate bivalve was brought to Britain by the Romans, who, at Colchester, laid beds for its cultivation, and there it has been cultivated ever since. It was essentially an oyster for the officers, not for the common soldiers. At Gloucester its shell is never found west of the Cross, because there the men were quartered, and they had to be content with the native variety; but east of the Cross, where the officers lived, as proved by the richness of the architectural remains, the shells of the Colchester oyster frequently occur.

A COLLECTION such as that comprised in the annual exhibition of water-colours at Messrs. Agnew's Gallery, Dale Street, Liverpool, has a certain quiet dignity very pleasurable to the beholder. Much prominence is still given to rich examples of Peter de Wint, David Cox, Copley Fielding, William Hunt, Prout, Turner, Cattermole, Muller, Birket Foster, Linnell, and the rest; but relatively works by painters like Sir E. Burne-Jones, Mr. Alma Tadema, Mr. M'Whirter, Mr. H. G. Hine, Mr. E. M. Whimperis, Mr. H. Clarence Whaite, and Mr. Alfred Powell are much more prominent. This will commend itself to collectors, for water-colours as a branch of Art is decidedly vigorous, and, with all due deference to the older masters, work is produced now worthy of at least equal respect.

VERY high prices were realised at the rooms of Messrs. Christie, Manson, and Woods, King-street, St. James's-square, when the collections of Early English pictures of Earl Sondes and the Marquis of Normanby were sold. The principal items were:—"Portrait of Mrs. Puget," by T. Gainsborough, 4800 guineas; "Portrait of Mrs. Grove," by G. Romney, 3500 guineas; "Portrait of Anne Kershaw," by G. Romney, 2300 guineas; "Portrait of Mrs. Tickell," by Romney, 2000 guineas; "Lady Anne Fitzpatrick as Sylvia," by Sir Joshua Reynolds, 1800 guineas; "Portrait of a Young Lady," by J. Hoppner, R.A., 1460 guineas.

THE Bishop of London, presiding at the anniversary dinner of the Artists' Benevolent Institution on the 8th inst., proposed "Prosperity to the Artists' General Benevolent Institution." In the old times of the monasteries, he said, some people could spend their days in decorating the walls with frescoes and in illuminating missals, but these places, so necessary to certain classes of the population, were swept away, superseded by the less popular institution of the workhouse. It was impossible to find out the causes leading to success and those to failure. Those who had succeeded best most often wondered how they had done so, and must sometimes think that the public taste was incapable of proper discrimination. The Artist, after filling a canvas with a picture intended to out rival Titian—though it seldom did—found no particular use for the canvas if he scraped the paint off. The statue, which was to convulse the world, could find no place, as fashion changed; even in the garden. It was not everyone who had capacity for illustrating the daily papers, and, as for falling back on teaching drawing, South Kensington produced its own young men, who were adapted for that purpose. Nobody could foretell what the public taste would be. One picture took it, another failed. The Artist's lot was therefore beset with pitfalls from the beginning. Those who had succeeded would frankly admit their great debt to those who had failed. Those who failed in Art through audacious experiments which did not appeal to the public taste were of great value to the Artist himself.

MR. C. B. FOWLER, of Cardiff, under whose superintendence the excavations in the grounds of Cardiff Castle are proceeding, has discovered some very interesting specimens of ancient glass during the progress of the excavations.

Black and white representations of artistically coloured glass must, of course, be very inadequate. This ancient glass found at the Blackfriars and Greyfriars Monasteries, Cardiff Castle, is mostly of fourteenth century period, though several of the patterns are of later date. The glass tints are mostly of jonquil and citron yellow, light greys, browns, and greens, lined with a dark red. The glass was discovered near the foundations of the Churches at the west end, about a yard and a half in area and 3ft. underground, the pieces being piled one over the other in a mixture of clay and old mortar. The glass is very brittle in consequence of its burial for such a number of years, but many of the patterns and tints are still discernible, and represent animals, birds, and foliage, among which are the leopard, eagle, and dove, the ivy, vine, fig, maple, and oak; also the fleur-de-lis. The beautiful Art of glass painting, says Mr. Fowler, is not only restored in our day to the perfect fullness of its ancient splendour, but has also acquired, through the science of chemistry and the great progress latterly made in the Art of design, an amount of technical and æsthetical power far exceeding that which could be formerly called to its aid. Nevertheless, exquisite effects were attained in the olden times, taking into consideration its then more limited capabilities. The early glass painters were very selfish; they worked hard, and experimented a good deal to produce colours, but they not only kept the information they had acquired secret during their lives, they even carried it with them to their graves in preference to leaving it behind to be made use of by their scholars. The colours used in glass painting are oxides of metals or other metallic combinations. The colours laid on, together with the foundations on which they are laid, must, in this Art, be fixed together in a kiln. The proportions of the several ingredients used in the pigments must, in a great measure, be left to the trials and experience of the Artist. The silver, yellow, and red colours are always placed on the back, or the reverse side, of the glass; also illuminating colours and shadows and dark-coloured outlines on the front side, or that which is fixed towards the interior of the Church, the glass being cut with a diamond from cartoons and fired in fire-brick ovens.

LONDON is already being made to look hideous in anticipation of the approaching celebration. Many grand-stands along the route are rapidly approaching completion, although more than five weeks still remain before the great day. This is particularly the case with regard to the Government erections. The National Gallery is made uglier than ever by the erection of a bare timber monstrosity across its front; Palace Yard and Speaker's Green are disfigured by piles of six-inch planks, and Parliament Square is now the battle-ground of builders' labourers. One of the most irritating things is the amount of fine old turf that will be destroyed by the building of these structures. It will take years to restore the lawns of Palace Yard and its precincts.

OF Burke's homes in London, one may point with certainty to the house, No. 37, near to Dryden's, in Gerrard Street, as well as to Nos. 6 and 25, Duke Street, St. James's Square. Whilst lodging in the neighbouring Charles Street he received the memorable letter from Crabbe to which he gave so ready and feeling a response. At an earlier period of his career, having come to London in 1750, and been admitted of the Middle Temple, he lived over Jacob Robinson's shop, at the Pope's Head, next to the Rainbow Tavern, Fleet Street; after his marriage, in 1756, he was in Wimpole Street; we follow him, eight years later, to Queen Anne Street.

MR. RICHMOND, R.A., recently gave an address on "The Mosaic Decorations of St. Paul's Cathedral," in the galleries of the Royal Society of British Artists. The chair was taken by Mr. Wyke Bayliss (President of the Society). Mr. Richmond exhibited a number of full-sized cartoons and smaller drawings to



show the *modus operandi* of his work. He remarked that by this time his experience had become very considerable in a difficult and beautiful Art, and the longer he studied that Art the more enchanting he found its possibilities and the more ennobling its limitations and restrictions. The decoration of the choir of the Cathedral had been finished, and he was now engaged on another part of the building, which he hoped would be completed some time this year. When the Dean and Chapter desired him to submit designs for the decoration of the choir, he was fully determined on certain points. These were, first, that the only material for such decoration was mosaic, because it could be washed without injury—an absolutely necessary precaution under the condition of London's smoke-laden atmosphere. However delightful might be the methods of fresco and tempera painting in the clear air of Italy, or even in country places in England, while London continued to be charged with every destructive acid they were out of the question for St. Paul's. Against pictorial mosaic he resolved to set his face and to adhere to the principles of design and execution which prevailed in Italy, Greece, and Asia Minor during the classical times of the Byzantine Empire, and while adhering in principle to severe methods of design and simplicity of colouring, and making use of the modern spirit of antiquarian research, he decided to follow the precepts of the great masters by being accurate in drawing and, according to his lights, noble in his choice of form. But perhaps his most important point was that our Metropolitan Church must be decorated by English and not by Italian labour. On this point, quite leaving out of consideration any estimate of the qualities of his design, it might in fairness be said that the mosaic work in St. Paul's, laid by English workmen, the materials for it made in England, proved that, however rash it might have appeared to be at first sight to employ them, there need be nothing but congratulation as regarded the choice. He then described in considerable detail the way in which the work had been carried out.

In a few days the Church of St. Mary Woolnoth, in the City, will be handed over to navvies and bricklayers for the purposes of excavation, but no deeper than is necessary for the new subterranean railway. No theological experiment is intended. The value of the ground has now been paid by the company into the hands of the proper authorities, and the workmen will commence operations as soon as possible after next Sunday. It is not proposed to destroy the edifice, but to excavate the station underneath its foundations. This will, of course, entail the closing of the building during the boring operations, which, it is calculated, will occupy nearly two years.

The following letter, signed by four residents at Queen Anne's Gate, has appeared in the Times: "We trust you will permit us to give expression to the feelings of most of the ratepayers of Queen Anne's Gate with regard to the recent arbitrary conduct of the united Vestry of St. Margaret's and St. John's, Westminster. Our street is macadamised; it has been greatly neglected as regards repairs and cleaning; during the long frost two years ago the roadway was much broken up, and has never been properly repaired since. Without in any way attempting to ascertain the views of those living in the street, the vestry announced that the Works Committee had recommended paving with asphalt, and that the vestry had confirmed this. Immediately a protest was drawn up, and numerous signed, showing that streets, neglected as the side streets in Westminster are, become a danger to health when paved with asphalt; that such paving is quite unnecessary in a street where there is no great through traffic; that it tends by resonance to make the street more noisy for those who have offices therein; and that asphalt is very dangerous for horses in frost, in great dryness, and after a sudden shower. After much difficulty this protest was permitted to be read at the general meeting of the vestry on April 28, and it was hoped the matter would be again referred

to the Works Committee for reconsideration, but on the hostile motion of an individual member this reference was negatived by the chairman, without a counting of votes. We feel as ratepayers that our wishes, or at least our protest, should be treated with more consideration by the vestry; and that, if the new system of asphalt for side streets as well as main streets is to be applied throughout Westminster, the vestry should first show that it is capable of organising a proper and constant cleansing of the streets, as otherwise the general health may greatly suffer."

On the Chelsea Embankment, fast approaching completion, stands the edifice erected by Mr. Henry Tate as a gift to the nation. "The gallery," says Mr. Tate, referring to the new building, "is of white Portland stone, and covers about an acre of ground. The date of opening and handing over the building and its contents to the Prince of Wales is not yet fixed, and will not be until H.R.H. has arranged the many demands on his time and decided upon a date. The National Gallery trustees will control the gallery, besides adding to it many of the paintings dating from 1796, and now in Trafalgar Square. There is a possibility of the Chantrey bequest works of Art also being placed in the new building. Only the front portion of the structure will be opened in July. This contains four large galleries, with two smaller ones for pictures, and one room at the main entrance for statuary. At the front apex will be placed an erect statue in stone of Britannia, and a figure of a lion and an unicorn beside it on the front angles. The ground was granted by the Government in accordance with my wish for plenty of room." The collection includes six Millais, six Briton Rivieres, five Orchardsons, and two canvases each of Leighton, Landseer, Alma Tadema, Fildes, and one by Lady Butler.

At a Local Government inquiry held at Bristol, relative to the proposed erection of an infectious hospital beyond the northern boundary of the city, Mr. Charles Kisingbury, divisional inspector of the Great Western Railway Company, objected to the scheme, and indicated important railway developments in the district. The company proposed to make forthwith a new line to provide direct communication between London and South Wales, cutting off Bristol. At Patchway, on the Gloucestershire side of the Severn tunnel, five miles from Bristol, traffic would be concentrated between all parts of South Wales, London, and Bristol. It was likely that 100 engines would be employed at this new depot, requiring a permanent staff of 300 men. The navvies engaged in the construction of the line would be accommodated in huts, but the hands engaged permanently would have to live adjacent to the works. In addition to the houses required, fifteen acres will be built upon for engine sheds. The Duke of Beaufort gave evidence opposing the hospital scheme, and Mr. Parr, solicitor, said it was a cruel invasion, as the district was likely to develop into a second Swindon.

A SINGULAR discovery has been made on Brandon Hill by the workmen engaged in preparing for the erection of the Cabot memorial. In the course of their excavations they met with the bones of two human beings interred in a well-defined grave lying east and west. The Cabot tower is to be placed on the summit of the hill, and will rise from the level platform on which for a good many years have stood the big guns which were trophies of the Russian war. The guns have been moved a little from their former position, and the contractors, Messrs. Love and Waite, began to sink in the middle of the walled enclosure a square pit in which to place the foundations of the tower. For about 10ft. the men cut through "made ground," the natural level of the hill had been raised, and a great mass of earth and rubble piled upon it. But after excavating for 10ft. something far more solid was discovered, viz., the remains of an old wall and outcropping masses of Brandon Hill stone, a material notable for its hardness and durability. To the east of the excavations the workmen still

found they had some earth to deal with, and here they met with the bones forming portions of two skeletons. There appeared to have been something in the nature of a coffin, at any rate fragments of wood were picked up in close association with the bones.

THERE is at present on view at the Grafton Gallery an interesting exhibition of pictures, representative of famous theatrical identities. There you may look upon presentments of the famous ones of the stage, from Mrs. Siddons to Cissie Loftus, from Kemble to Nutcombe Gould, and so on. During the afternoon an elderly comedian, bronzed by Brighton suns, looked in and took up a commanding position in front of Sigismund Goetz's fine picture of John Lawrence Toole. The actor regarded it seriously for a moment, then, turning to a friend, he said:—"Clever, very clever; but has he quite caught the nobility of expression?"

THE coinage of the Latin Union of Europe is to be enriched with a new 20-franc piece, which is something of a fresh departure in the stamp it bears. The new gold piece in question is being struck at the Berne Mint, and for the presentation of Helvetia the artist has chosen a daughter of the people. The head represents a maiden of the cantons, of the strong, free type that may be frequently met with in the mountain villages of Glarus and the Jura. The hair is folded in heavy plaits and fastened in a simple knot over the head, one loose lock falling free over the forehead. The breast kerchief is folded crosswise, leaving the neck open above, and around the shoulders Helvetia wears a necklace of edelweiss, the flower of the snowy heights. To the right and left in the background is the outline of a broken range of mountains, and the stars of the twenty-two cantons are on the edge of the coin. The conception is free, bold, and original, and is said to satisfy the national sentiment, which prefers a daughter of the people as the country's symbol to the legendary William Tell or the temporary President of the Confederation.

"MAY I draw your attention to the state of the picture representing the Martyrdom of St. Thomas a Becket in Canterbury Cathedral?" writes Mr. John Leighton, F.S.A. "It was painted by John Cross, who, it may be remembered, won one of the highest prizes at the Cartoon Exhibition in Westminster Hall. It is not in the bright condition that it ought to be, having hung so long in the Cathedral untouched. It was presented to the Dean and Chapter by a committee, which provided for the widow and children left by a painter of much promise, who was cut off early in his career. As one of that committee, for its protection and conservation I should like to see it as well cared for as the example we gave to the National Gallery. I believe that it is the only picture hung at Canterbury, and I well remember that it had hardly been hung before a pilgrim prostrated himself before it."

THE Exhibition of Dramatic and Musical Art, which has just been opened at the Grafton Galleries, consists of a most interesting collection of portraits, engravings, relics, and play bills illustrative of the history of the stage and music. Our own time is illustrated by some of the finest of modern works, notably Whistler's portrait of Sir Henry Irving as Philip of Spain, Sargent's Ellen Terry as Lady Macbeth, and Herkimer's Beerbohm Tree as Gringore. Collier's Julia Neilson, Tadema's George Henschel, Solomon's Mrs. Patrick Campbell as Paula in "The Second Mrs. Tanqueray," and Edward Long's Henry Irving as Richard, Duke of Gloucester, and as Hamlet—two old Royal Academy favourites—also hang on the walls. France is represented by Madrazo's Coquelin as Don César and Chartran's Sarah Bernhardt. Lord Sackville sends from Knole many of the finest things in the exhibition, notably the lovely portrait of Miss Linley (Mrs. Sheridan) and her brother. It is insured for £30,000. Romney's Sheridan is also here, lent by Colonel Unthank. The Corporation of Stratford-on-Avon has sent Gainsborough's David Garrick, Romney's Titania (whose face is said to have



been done as a portrait of Lady Hamilton), and Phillips's portrait of Mrs. Stirling as Peg Woffington. Sir Henry Irving contributes many interesting pictures from his collection: Sir Thomas Laurence's Madame Vestris and G. F. Cooke, Sir Joshua Reynolds's Jack Bannister, Westall's Imogen, Clint's sketch of Edmund Kean in his dressing-room, Harlow's Trial of Queen Katherine, W. G. Wills's Ophelia and Laertes, and Wageman's T. P. Cooke as Jack Sykes.

THE Christina Rossetti Memorial Fund does not progress as rapidly as the friends of the poetess could wish. At least £200 will be required to cover the cost of the work, which, as has already been stated, is designed to beautify the Church Miss Rossetti attended—Christ Church, Woburn Square. The work, it may be recalled, is to consist of a series of pictures for the reredos, which will be designed by Sir Edward Burne-Jones.

ENGLISH Art is to have a show in Boston in addition to the French Art which is so much sought after all over America. The committee of the Jordan Art Gallery in Boston will, in celebration of Her Majesty's long reign, hold an exhibition of the works of English Painters in both oil and water colour, as a sequel to three previous exhibitions of pictures from the Salon and Champs de Mars. Among the English Painters who will contribute works of their own are Sir E. J. Poynter, Mr. L. Alma Tadema, Mr. Luke Fildes, Sir J. D. Linton, Mr. Hubert Herkomer, Mr. A. C. Gow, and Mr. David Murray.

THE Forth, the Tay, and the Tower Bridges will stand as lasting monuments to the skill of Sir William Arrol, who, by the bye, has rendered valuable assistance in connection with the Royal Institute of British Architects' series of brick-tests. The amount of work he got through during the building of the Tay and Forth Bridges is almost incredible. Rising at four on Monday morning, he was down at the Dalmarnock Works before five o'clock, busy looking over plans and scheming the details of the work in progress there. A hurried breakfast, and he was off to Queensferry. There he met the various heads of departments engaged in the building of the Forth Bridge, and spent the day—and often the greater part of the night—in arranging not only how the more important work, but even how many of the minor details should be carried out, and sometimes personally superintending their execution. Early on Tuesday morning he was over at the Tay Bridge, the work of which he carried on in the same way. Back to Glasgow late on Tuesday night, he was down at the Dalmarnock Works by five on Wednesday morning, ready to start the round as before. On Thursday night he started for London to meet the engineers who prepared the plans there, and to discuss with them on Friday the details of any proposed alterations or amendments. Travelling back to Glasgow on Friday night, he was generally at the work till late on Saturday.

#### ENQUIRY DEPARTMENT.

THE Editor begs to notify that he has decided to open an Enquiry Department for the benefit of professional readers. All questions should be written on one side of paper only, and be marked "Enquiry" on the envelope.

#### ROAD-MAKING.

DEAR SIR,—Can you kindly tell me the difference in the systems of making roads invented by Telford and the system invented by Macadam.

Yours truly,  
S. R.

#### SYSTEM OF MAKING ROADS ADOPTED BY THOMAS TELFORD, C.E., F.R.S.

Telford's plan of making roads was first to level and drain, and then to lay (like the Romans) large stones the round or broad end downwards, as close as they could be set. The points were then broken off, and a layer of

stones about the size of walnuts was laid upon them, and over all a little gravel was spread. In making his great road from Carlisle to Glasgow, which was required to bear very heavy traffic, Telford specified that the bed was to be formed in two layers, with a rise of 4in. towards the crown of the road, the bottom course being formed of whinstone, limestone, or hard freestone, 7in. in depth. These were to be carefully set by hand with the broadest ends downwards, all crossbonded or jointed, no stone being more than 3in. wide on the top; the spaces between were then filled up with smaller stones, packed by hand so as to bring the whole up to an even and firm surface. Over this a top course was laid, 7in. thick, consisting of broken, hard whinstones, none exceeding 6oz. in weight, and able to pass through a ring 2½in. in diameter, and a binding of gravel, 1in. in thickness, placed over all. A drain crossed under the bed of the bottom layer to the outside ditch in every hundred yards.

#### SYSTEM ADOPTED BY MR. MACADAM.

Macadam's plan was to level (and drain, if necessary), and then to lay a bed several inches in thickness of stones, broken into angular fragments; the material best adapted for the purpose being granite, greenstone, or basalt. Upon this a layer of smaller angular stones were laid, and the whole covered with a binding coat of gravel, about 1in. in thickness.

#### GLASGOW TECHNICAL COLLEGE.

##### ARCHITECTURAL PRIZES.

THE list of prizes and certificates awarded in connection with the Glasgow and West of Scotland Technical College, session 1896-97, has just been issued. The Architecture and Building Construction Classes, conducted by Professor Charles Gourlay, A.R.I.B.A., I.A., have been particularly successful. The results are as follows:—

##### ARCHITECTURE.

*Junior Class.*—First Class Certificates: 1, W. F. Finlay (prize); 2, J. A. Ferguson (prize); 3, J. A. McMillan.

##### ARCHITECTURE AND ARCHITECTURAL DESIGN.

*Junior Class.*—First Class Certificates: 1, John Ralston (prize\*); 2, James Mather (prize\*); 3, James M. Alexander (prize); 4, William K. Anderson (prize); 5, Gordon L. Wright; 6, James S. Kay; 7, John Wilson. Second Class Certificates: 8, John McLelland; 9, William J. Lukeman; 10, Hugh McDonald; 11, Alexander Henderson.

*Senior Class.*—\* Prizes in Architectural Design: James McKissack and William S. Moyes. Glasgow Institute of Architects' Prize (value £2 2s.) for Sketches and Measured Drawings (Summer Work): William S. Moyes.

##### BUILDING CONSTRUCTION.

*Junior Class.*—First Class Certificates: 1, James A. Ferguson (prize+); 2, Alexander Craig (prize+); 3, Robert Park (prize+); 4, James W. Martin (prize); 5, John Dunn (prize); 6, David Craig (prize); 7, John McFarlane (prize); 8, John G. Bennett (prize); 9, John R. Johnstone (prize); 10, Thomas Cockburn (prize); 11, Gavin T. MacNaughton; 12, George M. Douglas; 13, John Gourlay; 14, William Kerr; 15, Lawrence J. Lambe; 16, Alexander Livingstone; 17, Duncan Grant; 18, Henry Melville; 19, James McFarlane; 20, Robert Morrison; 21, Alexander Wagstaff; 22, Norman McL. Paterson. Second Class Certificates: 23, Donald McIntosh; 24, Alex. Lindsay; 25, Andrew R. Robertson; 26, William B. Pringle; 27, David Gilchrist; 28, George R. Bryce; 29, John C. Buchanan; 30, George Paul; 31, Julius Bradley; 32, Alexander McLean; 33, William Barr; 34, Murdo Stewart; 35, R. M. Young Hughes; 36, Robert E. Frame; 37, William McFarlane; 38, William Burns; 39, Matthew Steele; 40, Robert McCallum; 41, John McKellar; 42, James R. Twaddle; 43, James Anderson; 44, William M. Taggart.

\* Prizes presented by the Architectural Section of the Glasgow Philosophical Society.

+ Prizes presented by the Glasgow Building Trades Exchange.

*Senior Class.*—First Class Certificates: 1, Colin Sinclair (prize\*); 2, John Ralston (prize\*); 3, Archie Scott (prize\*); 4, Alexander Henderson (prize); 5, James N. Gilmore (prize); 6, James Flett (prize); 7, Malcolm Black (prize); 8, Duncan McKinlay (prize); 9, John Burnside (prize); 10, James Angus; 11, John M. Machattie; 12, James A. Laird; 13, David Martin; 14, Duncan Campbell; 15, Robert Moon; 16, James S. Robertson; 17, James C. Thompson; 18, Robert B. Donald; 19, William H. McLean. Second Class Certificates: 20, James Bunyan; 21, William Young; 22, Robert Craig; 23, John Earley; 24, Charles P. Barrett; 25, Andrew D. Ireland; 26, James Simpson; 27, William H. Murray; 28, James Braid; 29, Alexander Elliot; 30, William Thomson; 31, James Winton; 32, Donald Brown; 33, Alexander B. Kay; 34, Andrew E. Martin; 35, Millar D. Douglas; 36, James Smith.

*Honours Class.*—First Class Certificates: 1, John M. Arthur (prize+); 2, James S. Boyd (prize); 3, John Smith (prize); 4, David Skinner (prize); 5, James H. Mellis; 6, Robert Douglas; 7, John S. Henderson; 8, James Johnstone; 9, Nigel C. R. Howie; 10, James Reid; 11, David M. Girdwood. Second Class Certificates: 12, Archibald Cook; 13, James W. Service; 14, William Aird; 15, William McClelland; 16, George Mathieson; 17, William V. McMahon; 18, Thomas Whyte.

##### QUEEN'S PRIZES FOR SCIENCE SUBJECTS.

*Building Construction* (5 awarded).—James H. Mellis, first place; Wm. K. Anderson, fourth place.

*Light* (2 awarded).—David Robertson, second place.

##### QUEEN'S PRIZES FOR ART SUBJECTS.

*Architecture* (2 awarded).—Thos. A. Moodie, second place.

#### THE BERKELEY HOTEL.

THE Berkeley Hotel has just undergone extensive and important alterations. Adjoining property having been acquired, the proprietors have been enabled to double the size of the restaurant, to increase the accommodation at the hotel by about one-third, and to generally improve the kitchen and offices, whilst the whole of the old building has been redecorated. The restaurant will now consist of a very handsome suite of rooms, designed, decorated, and furnished by Messrs. S. J. Waring and Sons, whose most recent work has been the complete installation of the Hotel Regina at Cimiez, where Her Majesty has spent this year's vacation. The restaurant is now capable of containing seating accommodation for 100 visitors, and the proprietors have adopted the most unobtrusive scheme of decoration and colouring, consisting of half Dutch, half Jacobean treatment, with high oak panelling enlivened by rosewood drops and carving, with gold and crimson leather work above. The whole of the electric lighting work has been carried out by Messrs. Strode and Co., of 48, Osnaburgh Street. The elegant fittings throughout the building are their own design and manufacture. Those in the restaurant and entrance hall are Jacobean in style, and are made in polished bright iron, the reception-room being fitted with handsome gilt Louis XIV. candle sconces. Amongst other works, Messrs. Strode have also supplied and fixed two vertical steam boilers, which are not only the means of supplying steam for all the cooking apparatus, and for heating purposes, but, by an ingenious automatic arrangement, provide a hot-water supply for the hotel of over 1000 gallons per hour if required. An entirely new system of drainage has been laid down by Messrs. Dent and Hellyer, and Messrs. Burke and Company have supplied marble floors and mosaic work. An electric lift has been supplied by the Otis Elevator Company, and Messrs. Shoobred and Company and Messrs. Norton and Company have supplied furniture for the hotel.

\* Prizes presented by the Glasgow Institute of Measurers.

+ Prize presented by the Glasgow Building Trades Exchange.



THE PARTHENON AND THE EARTH-  
QUAKE OF 1894.\*

BY F. C. PENROSE, M.A., F.R.S.

MR. PENROSE said he had undertaken to describe the result of his recent examination of the Parthenon, the object of which was to advise the Greek Minister of Public Instruction, and the Archaeological Society of Athens, as to certain repairs which were required in consequence of the damage done to the building by the earthquake of 1894. Three international consulting Architects—namely, Mr. Penrose himself, Professor Dürm (of Karlsruhe), and M. Lucien Magne (of Paris)—had been appointed to confer with a local committee presided over by M. Cavvadias, the Government Superintendent of Antiquities, and consisting of several Greek members of the Athens Archaeological Society and some associated members, including Dr. Dörpfeld, M. Troump, a resident French Architect, and the Government engineer, M. Balanos, who was to superintend the repairs. Having referred at some length to the principal events which had reduced the building to its present insecure condition, Mr. Penrose went on to say that when he arrived at Athens last year Professor Dürm and M. Magne had already made their reports. The former had gone very fully into the question of the defects and remedies, and his report was a valuable contribution to the study of the subject. That of M. Magne was a brilliant and well-illustrated memoir on the construction and

## ORNAMENTS OF THE TEMPLE

rather than a more technical report on the defects and remedies; but he called attention to one very important detail, namely, the instability of the angles of the pediments. The local committee had already made arrangements for several 14ft. architrave stones being prepared on Mount Pentelicus. The part of the temple which demanded the most immediate attention was the hexastyle portico of the Posticum. The state of the Posticum was such that it was impossible to execute any satisfactory repair without replacing at least five of the architrave stones. Of the six columns composing the portico, four only were free; two of them were more or less embedded in the mass of masonry containing a staircase which was once surmounted by a Turkish minaret. This mass secured the southern columnnade. The architraves supported by the four free columns consisted of twelve stones. Of these twelve, only five were free from very great defects; but if five of them could be replaced with new material, two could be so pinned together to their neighbours that they might be supported sufficiently well.

## THE WORST DEFECTS

were on the eastern side of the portico. With one exception the western stones were sound, which was fortunate, as they supported the portion of the Panathenaic frieze still left on the Temple. With regard to the defective one—namely, that which once connected the north-eastern column with its neighbour—the simplest remedy would have been to replace it with new; but its removal would endanger a portion of the precious sculptures, and it would have to be keyed to a new stone placed alongside of it. Professor Dürm, in his report, suggested that the reason of this part being in so much worse condition than any other, was that the original builders had used for an interior part of the fabric a very much worse material than they had provided for the exterior. It was true that the marble of these architraves was more streaky than could be found on the exterior; but streaky marble of similar quality had endured well on the Temple of Jupiter Olympius. Another and more effective cause could be assigned to it, namely, fire, which had consumed all the inflammable part of the structure, and had very much calcined the whole of the

## SUPERSTRUCTURE OF THE POSTICUM,

as the state of the surface of the marble showed. It had also weakened the lintel of

the great western door, and some of the columns of the Posticum, especially on the eastern side, had also suffered. Many portions of the capitals and of the architrave stones in this part retained traces of iron plugs, which could only have been used to fix some material for the purpose of repairing the surfaces which had been split off by the action of fire. This completely explained why the architrave stones of this portion of the building, although much less subject to ordinary weather vicissitudes, had become so much more cracked than those of the Peristyle. A large piece from the middle intercolumniation fell down in the earthquake of 1894, split off apparently at an ancient flaw. The course of deep stones above the architrave, which formed the back of the Panathenaic frieze, and ranged with it in level, was also very much cracked and dislocated, so much so that only two pieces in the whole length were in a fit condition to be retained. These pieces, however, were neither so difficult to handle nor to replace as the main architrave stones, which had a length of about 13ft. 9in. each. The lecturer then referred to the difficulties attending the removal of the condemned blocks and fixing those which were to replace them, and showed by the aid of diagrams how the operation could be performed. With regard to the lintel of the great western door, the two ends remained in the wall, but the rest was gone, and the place was occupied by

## AN EXCEEDINGLY UNSIGHTLY BRICK ARCH.

This, it was hoped, would be replaced by marble; but there was not the slightest prospect of a 30ft. beam being found, nor could it be brought to Athens with existing appliances. The plan recommended by the lecturer, and accepted by the Athenian Committee, and by Mr. Penrose's French and German colleagues, was explained by a diagram. The insecure condition of the angles of the Temple was to be traced to the great overhanging stones which supported the angular acroteria having a tendency to slip downwards and drag the neighbouring portions of the superstructure with them. The worst crack in the architrave was over the north-west angle column, where, owing to the fall of a large piece at the corner of the abacus, the bearing of the outer stone of the architrave was reduced to little more than a point. Between the fourth and fifth columns, reckoning from the south, a crack through the architrave had been produced by a cannon-shot, and the abacus of the fourth column had been so much shattered that it gave a bearing to no more than about half the thickness of the architraves which rested upon it. The exfoliation of iron cramps connecting the architrave stones at the top had also injured all but one of the vertical joints, but, beyond the breakages of the large splinters which had fallen, the injury at these places did not seem likely to extend. Among the diagrams shown by the lecturer was one illustrating the

## CURIOUS CONSTRUCTION OF PARTS,

and another showing how the angles could be secured from slipping by connecting the great horizontal corner-stones by means of strong gun-metal cramps with the main cornice at a sufficient distance, so as to provide an adequate amount of weight to resist the tendency to slip. Few of the new stones proposed to be introduced would make any difference in the general view of the Temple, and scarcely any of the steel or bronze work; and the new stone could be stained with copperas, so as to be almost indistinguishable from some of the old time-stained marble.—Professor Gardner, who was in Athens at the time of the earthquake in 1894, opened the discussion, endorsing Mr. Penrose's remarks as to the earthquake not being entirely accountable for the damage to the Parthenon, as a minute examination failed to reveal any new cracks, except, perhaps, in one or two minor instances. Therefore he agreed that the earthquake, so far from being an unfortunate disaster, had done good in calling attention to the extremely precarious state of certain portions of the building. The speaker strongly deprecated those mangled remains of columns,

discordant and hideous as they were, being built up again at the north side of the Parthenon. The attempt to build up the old pieces had been very disastrous. Of course, it was quite impossible to rebuild the whole of the Parthenon. There was not sufficient material for it, and to replace the old blocks would simply destroy the symmetry of the building. It was most reassuring to them to hear from such an authority as Mr. Penrose that the repair and restoration necessary was not so extensive as they perhaps had been led to believe, after having noticed the numerous cracks and the seemingly inadequate support of certain of the blocks.—Mr. R. Phené Spiers asked Mr. Penrose if he could explain the

## CAUSE OF THE DISCOLOURATION

of certain parts of the structure—whether it was due to the decomposition of the marble itself, to the discolouration of the iron work, or to lightning. He was sure they all must have heard with very great pleasure that their ex-President had been asked to become a member of the International Committee to deal with the question of the restoration of the Parthenon, and they had the greatest confidence in his judgment. Of course it was a very difficult matter to decide precisely as to how the restoration should be carried out—where they should use iron, where the old material, and where material similar to that which formerly existed; but he did not see why some fresh material should not be used, as it would then become apparent which was old and which was new work. He had pleasure in proposing a vote of thanks to Mr. Penrose. In seconding it Mr. T. J. Willson thought the whole architectural world was to be congratulated on the comparatively small extent of repair and restoration which the Parthenon required.—Mr. John Hebb was glad Mr. Penrose had not favoured a general use of the fragment of columns, the use of which, he was sure, would mean a great injury to the building. He also would have great diffidence in colouring new marble so as to obtain a similarity in appearance with that of the old, though generally he much appreciated the ingenious way in which architraves had been raised, and the way the work of restoration has been carried on in other ways.—Mr. Hugh Stannus wished to ask whether the restoration of the Parthenon might not be carried one or two steps further than had been suggested. Many of the walls at Pompeii were covered with tiles, but in the case of the Parthenon probably cement could be used to advantage in

## PROTECTING THE IRON WORK

from the disintegration of rain and moisture for many years to come. He suggested, further, the advisability of making regular inspection of the Parthenon. Every year, say, it should be someone's duty to examine carefully every wall, and see that there was no crack of any kind through which water could percolate, or the herbage find root, to disintegrate the walls of this noble monument. He submitted for consideration the question whether they might not re-erect some of the old columns. He thought it was a thousand pities that the columns were allowed to lay about as at present. Of course these columns had broken joints, but these defects were equalled by other broken joints up and down the Parthenon. It was melancholy to reflect that the grand building was in two pieces, and he earnestly hoped that they would soon be joined, if even, in the absence of anything better by a sandstone wall.—Mr. A. Payne remarked that the great difficulty as to re-erecting the fallen columns was that they could not be restored to the same condition as those which were at present standing.—Mr. J. M. Brydon wondered how it was that the old Greeks had spent so much time and thought and skill on a frieze which is, and always must have been, so badly seen.—The President spoke very briefly, and the vote of thanks having been carried, Mr. Penrose acknowledged the compliment, and in answering Mr. Spiers, attributed the discolouration of certain parts of the Parthenon to the iron hidden in the marble.

\*Abstract of a Paper read before the Royal Institute of British Architects on Monday night.



## Professional Items.

**BOLSOVER.**—It has been decided to rebuild the Church on the enlarged ground plan, but dispensing with the additional vestry, also abandoning the triforium so far as the seating accommodation is concerned. The triforium arches will remain over the arcade, but there will be no floor, which will dispense with the two turrets that had been provided to get the triforium. The plans agreed upon represent an estimated decrease in the total cost of building of £750, and a decrease in the seating accommodation of 90.

**BRIDLINGTON QUAY.**—The restored chapel of St. Anne's Convalescent Home, which is a brick building, consists of a nave and north aisle, and is in the Early English style of Architecture prevalent in Flanders in the thirteenth century, where brickwork was so largely used. The south windows consist of three lights, and the mullions and tracery above are built of brick without any admixture of stone. The effect is more pleasing than the usual combination of stone and brick. The beautiful arches which separate the north aisle from the nave rest on four octagonal pillars of Roche Abbey stone. The roof is heavily timbered and put together with oak pins, and left plain with tie beams, king posts, &c. The building is lighted by pairs of incandescent lights hung from the roof. The Architect is Mr. C. Hodgson Fowler, Durham; and the builder, Mr. A. Lyons, Norton, Malton.

**CARDIFF.**—The new and imposing synagogue in Cathedral Road was formally opened last Wednesday. The new building provides accommodation for 241 men on the ground floor and 158 women in the gallery. A novel feature of the interior is an arrangement whereby the apse containing the Ark is placed at the same end of the building as the main street entrance, this being the only method of securing the necessary eastward aspect for the Ark. The building has been enriched by two Sephor Torah mantles (Scrolls of the Law), covers, and a cushion.

**CLACTON.**—The Board of Trade has approved of and issued a provisional order for the enlargement of the local pier. The undertaking covered by this provisional order is the lengthening of the pier to such an extent that four large steamers will be enabled to lie alongside at once, a measure of public convenience which is not enjoyed by any other pleasure pier in the Kingdom. The provisional order also covers a scheme for the electric lighting of the new pier and various other improvements.

**EDINBURGH.**—The new club house of the Edinburgh Burgess Golfing Society at Barnton, near Cramond, was formerly opened on the 11th inst. by Lord Rosebery. The club house is two stories in height, and built in the Early English style. On the left of the main entrance is the principal club room, an apartment 51ft. by 31ft., lighted by a couple of oriel windows. Connected with this room are the kitchen, service rooms, and bar. The smoking room is another spacious apartment, the ventilation of which has received special attention. The dressing rooms and lavatories are arranged on the most approved lines. Upstairs a room has been set apart for the use of ladies, who will have access to the balcony by a special entrance. On the same flat there is a billiard room with space for two tables. Hot water heating apparatus, electric bells, and fire-extinguishing fittings throughout, add to the completeness of the building. Suitable accommodation is provided for the resident secretary of the club. The plans were prepared by Mr. R. M. Cameron, Edinburgh, and the premises cost over £6000. Contemplated additions to the course are a residence for the greenkeeper, a caddie's shelter, and stabling.

**ELY.**—It has been decided to build a parish-room in commemoration of the Queen's

Diamond Jubilee at a cost of £800. The room will accommodate 350 persons. The Architects (Messrs. James and Sweet-Escott, of St. Mary Street, Cardiff) have been instructed to proceed with the plans and to invite tenders for the erection of the building upon a site given by Lord Windsor, situate at the back of the post office.

**GAULDRY, FIFESHIRE.**—A building is being erected at Gauldry, in Fifeshire, which is intended as a hall and reading-room. The hall if necessary can be divided by sliding panels into two, giving accommodation for reading-room or like purpose. In addition to the ordinary retiring rooms the block comprises caretaker's house with other offices. The building occupies a commanding site, and is faced with red Dumfriess stone. Mr. Ritchie, Perth, is the Architect.

**GRANGE-OVER-SANDS.**—The Convalescent Home erected by the North-Eastern Counties Friendly Societies at Grange-over-Sands, on Morecambe Bay, has just been opened. The home has been erected at a cost of £4000. It stands in two acres of ground, and commands lovely views of the sea and the mountains of Yorkshire and Westmoreland.

**HASTINGS.**—The Corporation has decided to purchase the works of the local electric light company as a going concern. The price agreed is £58,000, and the plant includes that in use for the illumination of the Front-line and parades.

**HELEN'S BAY.**—The new Presbyterian Church erected at Helen's Bay was opened on the 9th inst. It is built of silurian stone from the Ballygowan quarries, and faced with white granite from Scrabbo. Messrs. Young and McKenzie were selected as Architects, and Mr. Wm. Kerr as builder, and in a short space of time the present edifice, which with the further growth of the district can be enlarged by transepts, was completed. The total cost of the Church was about £1600, and it is proposed to build a tower and new transepts at some future date.

**INVERNESS.**—The alterations to the Free East Church, Inverness, will cost very much more than was at first supposed. Then it was thought that £2500 might cover the alterations, now the cost is estimated at about £4500. The design is by Messrs. Ross and Macbeth.

**KILMARNOCK.**—A design of the building to be erected as a gift to the town for the purpose of a Public Library and Museum has been prepared by Messrs. J. and R. S. Ingram. The style of Architecture adopted is Italian. Taking into consideration the site of Elmbank House, with the trees surrounding it, this proposed building will have a distinctive and characteristic appearance. The building is partly two stories and partly one story in height, the frontage being about 130ft. in length, with a total depth of 114ft. To the right of the entrance hall is the reading-room; adjoining is magazine-room; also ladies' room. On the left of entrance hall is the lending library, corresponding in dimensions to the reading-room; also reference library, librarian's room, with side entrance. Immediately behind the main staircase is placed a lecture hall, 60ft. by 36ft., with platform and gallery at opposite end.

**LEEDS.**—At a meeting of the Highways Committee of the Leeds Corporation on the 12th inst., a deputation attended to urge the desirability of substituting a silent pavement for the granite setts now used in Boar Lane. The noise of the traffic is at present very great, and by the suggested change it would, of course, be greatly lessened, while the committee in adopting it would simply be treating Boar Lane as a portion of Briggate has already been treated. It was decided to accede to the wishes of the deputation, and to put down a pavement of wood, the work to be done when the tram lines are being re-laid in connection with the electric system.

**LOWESTOFT.**—The work of restoring the sea wall in front of the Grand Hotel, at Lowestoft, which has been executed by Messrs. B. Cooke, contractors, of Victoria Street, and the engineer of which was Mr. W. J. Roberts, is now finished. The former wall was not strong enough to resist the force of last January's storm, and was consequently overturned.

**MANCHESTER.**—It is proposed to erect a Church to accommodate a little over 500, at a cost of about £5000, in the new district of St. Aiden. It will, however, be capable of enlargement. Plans have been prepared by Messrs. Preston and Vaughan, Architects.

**MOSS SIDE.**—The public free library and newsroom, recently erected at Moss Side is in every way suitable for its purpose, and has been erected from designs prepared by Mr. Acton, the surveyor to the District Council, the cost being about £3000. It includes a large public room, which may be used for meetings, concerts, &c., a library and newsroom, and, in the basement, class-rooms, in which some of the technical instruction classes held under the District Council may be carried on.

**NORTHWICH.**—The new Technical Schools at Northwich will be opened in July. The schools are the gift of Sir Joseph Verdin, and have been built at a cost of £10,000. They provide for the study of every branch of Art, and rooms will be fitted with machinery to enable practical instruction to be given in mechanical science, plumbing, cookery, and laundry work.

**OXFORD.**—The new block of municipal buildings, which has been in course of erection for the past three years, was opened last Wednesday by the Prince of Wales. The new building stands on the site of the old Town Hall and Corn Exchange; it is 96ft. long by 55ft., and presents a very handsome appearance.

**PAISLEY.**—The plans of the new Drill Hall show a building four stories in height, in the Scottish baronial style of Architecture. Besides the hall proper, which is 130ft. by 80ft., situated on the second floor, the building contains accommodation for the keeper, a room for band practice, storage, officers' rooms, armoury, billiard room, and committee rooms. Entrance is had from the front, but the main doorway is to the west side, immediately adjoining the main building. In a separate erection on the west side of the hall are a gymnasium and lavatories, and on the east side is a Morris tube range, 130ft. long by 12ft. broad. The estimated cost of the whole building, which has been designed by Mr. T. G. Abercrombie, is £8000. It is expected that it will be ready for use by next August.

**PARTICK.**—The new police gymnasium in Meadowside Park was opened recently. The building is a single storey erection of brick with slated roof, 80ft. long, 37ft. wide, and 18ft. high from floor to beams. At both extremities a gallery has been erected of pitch pine. The flooring and ceiling are also of pitch pine, and the entire woodwork has been varnished. At the entrance apartments are provided as library and reading rooms, while at the east-end of the building a dressing-room has been erected containing bath and other conveniences. Adjoining the gymnasium there is a grass plot for outside recreation, with a cinder track encircling it about 180 yards in length.

**STONEHAVEN, N.B.**—Plans have just been sanctioned for the erection of, and additions to, the Episcopal Schools, comprising large classrooms, teachers' retiring rooms, cloak-room and lavatories, also new staircase. The elevation to High Street is of Gothic design, and the front dressings will be of Brechin Stone. The Architect is Mr. J. Augustus Souttar, Aberdeen.



## Trade and Craft.

### "RETENTION" OF A WALL.

The case of *Reg. v. the London County Council* was a motion for a *mandamus* to the London County Council directing it to hear and determine an application. The application was one made by a Mrs. Webster for the Council's consent for the "retention" of a certain wall erected a distance less than the prescribed distance from the centre of the roadway, Pearson's Avenue, Deptford. The facts were these. Mrs. Webster had the wall in question substituted for a wooden fence running between a piece of unoccupied ground and the road. Subsequently on this land she erected stables, the foreyard of which was bounded by the wall. This wall was distant less than 20ft. from the centre of the road, and having become part of a building by reason of the stables being built, the structure became illegal. The London County Council then took proceedings against the builder of the wall, and he was convicted. The wall, however, was not removed, and further proceedings were then taken against Mrs. Webster. After the building was erected she had applied for the consent of the London County Council. It, however, refused to hear the application. An appeal was made to the special tribunal of appeal created under the Act. Objection was taken on behalf of the Council that there was no decision of its given, and, therefore, no appeal would lie. This contention prevailed. The present application was made with the view of being able to get to the tribunal of appeal. The court discharged the rule.

### OVERHEAD TRAMWAY SYSTEM IN GLASGOW.

After a long discussion the Glasgow Town Council has adopted the recommendation by the Tramway Committee that the route from Mitchell Street to Springburn, about two and a half miles in length, should be equipped with the overhead system of electric traction, at a cost of about £20,000. This short route is only to be in the way of an experiment.

### THE GURNEY FOUNDRY COMPANY, LIMITED.

The question of how to apply artificial heat to secure an equable warm temperature at the same time subject to the unwholesome effects of an atmosphere vitiated by the extraction of its health-giving quality, is one which the Gurney Foundry Company (whose agents in Great Britain are Messrs. Samuel, Sons, and Benjamin, 164, Fenchurch Street, E.C.) are doing much to solve in a practical way. Low pressure water circulation—which admittedly secures the nearest approach to the natural diffusion of heat by the sun—is, the Company claims, the key to the situation, and, having combined economy with efficiency, considerable success has attended its enterprise in introducing its new methods in Canada and the United States. It is also claimed that this system of warming will meet every variation of climate, providing a soft, gentle, and adequate temperature, and at a cost, both as regards the original outlay and the cost of maintenance, as low, if not lower, than any system now upon the market. The Gurney Foundry Company manufactures three distinct types of water heaters, and they embrace every modern improvement of value. First of all, the Company manufactures the "Oxford," which is less expensive than the others in original outlay, and is more largely employed in warming medium and small dwellings. The "Double Crown" series works with a direct circulation, and also has the advantage of down draught and long fire travel, the greatest economy ever attained in this class of apparatus being claimed for this heater. The third pattern is the "Defiance," which is adapted for comparatively small work. It is used extensively in hotels, laundries, stables, small conservatories, &c. The same Company also manufactures water and steam radiators in great variety of lengths, widths, and heights. The Gurney heating system has, among other places, been installed at the Tivoli Theatre and Restaurant, the Garrick Theatre, and the Union Bank of London.

### MESSRS. OATES AND GREEN.

We have received from Messrs. Oates and Green, Limited, of Halifax, a copy of their supplementary catalogue containing full information as to their waste water closets and latrines, along with particulars of their general sanitary goods. Messrs. Oates and Green rightly claim special advantages for their patent automatic waste water closet. It is specially worthy of notice that in this system the traps in all cases are fixed clear of the closets and latrines, and that the connecting pipes, increasing in size from the tipper to the trap, provide increased area to allow for friction, retarding the flow, and therefore enabling the whole volume of flush to pass in one solid body. Messrs. Oates and Green's patent anti-fouling cone has proved most efficient—it is made from highly-glazed porcelain—and their overhead tipper boxes with patent concentrating channel are perfectly simple and strong. A specially adapted ventilator for closet and latrine roofs is Smith's patent "Zafila." It is constructed of highly-glazed stoneware, and is impervious to the weather. Messrs. Oates and Green have all the latest improvements in sanitary ware. In drains made with Plummer's pipes solid matter is in continual contact with a stronger and deeper force of water than is the case of a circular pipe of similar dimensions. These pipes are not top-heavy, nor are they inclined to fall to one side. The advantages of strength, &c., are maintained by the circular form of socket. Patent socketless access pipes for making connections or repairs without disturbing the main drain; valve traps; Phillips' patent gully, now made with side inlet; a patent disconnecting channel; the trap of which can be turned in any direction, are a few of the wares illustrated in Messrs. Oates and Green's supplementary catalogue.

### JUBILEE PANEL.

The illustration here given is a reduced facsimile of a terra cotta panel manufactured by Mr. W. T. Chapman, of Cleethorpes. The modelling is in high relief and gives a bold and striking effect, and can be strongly recom-



mended for use in public buildings erected during this Jubilee year. The total measurement is 30in. by 24in., and the panel can be obtained at the low price of twenty shillings. We understand Mr. A. Thacker was the sculptor.

We have received a copy of *Metrical Tables for Engineers, Surveyors, Chemists, Merchants, &c.*, by Frederic Elie Gay, Assistant City Surveyor, Bath. (St. Bride's Press, Limited, 2s.) The book is published to meet the want experienced by readers of Continental technical works "of some concise and portable series of tables that would permit them to rapidly and accurately transpose into the system with which they are most acquainted the values met with, which frequently vary considerably in their expression, according to the professional customs of different countries." The varying standards of metric values have long been a perplexing matter, and a text-book of tables computed on the most universal basis—that laid down by the Standards Commission, 1871-72—ought to meet with a warm welcome. Mr. Gay has accomplished his task with that thoroughness and precision which ensures success.

## SOCIETY MEETINGS.

**London Association of Foremen Engineers and Draughtsmen.**—Mr. A. J. Durston, C.B., R.N., presided at the annual festival of the London Association of Foremen Engineers and Draughtsmen, held at the Cannon Street Hotel. The Society, now widely spread and numerous, was originally formed by a few foremen, not only for comradeship, but also as a means for interchanging knowledge, and it arranges for lectures, followed by discussions, upon mechanical and scientific subjects. Disabled members are assisted, and the unemployed are aided while seeking work.—The Chairman, in proposing the toast of the evening, "Prosperity to the Association," said that the most sanguine engineer at the beginning of this glorious reign would not have dared to predict such an advance as that which had been made.

**Iron and Steel Institute.**—The annual dinner of the Iron and Steel Institute took place at the Hotel Cecil, the president, Mr. E. P. Martin, in the chair. Sir Courtenay Boyle, in proposing "Prosperity to the Iron and Steel Institute," said his connection with the toast showed that there was something more in the relations between the great industries and the representatives of the State than the exchange of despatches to and from Whitehall, and it was a sign of the belief, which was well founded, that the little that could be done by the officers of the State to encourage the commerce and trade of this country would be done heartily, loyally, and zealously.

**Registered Plumbers of Edinburgh.**—The annual meeting of the registered plumbers in the Edinburgh and East of Scotland District was held in the Philosophical Rooms, Edinburgh, recently. Sir Jas. Russell presided.—The report of the Council stated that 62 masters and 54 journeymen had been added to the roll during the year, and that a very successful series of lectures were given during the winter.—The Chairman moved, and Mr. J. W. Wilson seconded the adoption of the report, the Chairman remarking that copies of last year's report were circulated among public health officials, so that there was hope that they might be able to get the public educated to the fact that there was such a thing as a registered plumber. They must hammer into the public that with the registered plumber they had a guarantee that he would practice his craft to the benefit of the public, whereas, with the unregistered plumber, they had no such guarantee.

The Hampstead Guardians have resolved to apply to the Local Government Board for permission to borrow £15,000 for the purpose of erecting the proposed additions to the Hampstead Workhouse.

The opening of the new railway from Tipton St. John's, near Sidmouth, to Budleigh Salterton, took place on Saturday. By this new route to Budleigh Salterton, eighteen miles are saved on the journey from London.

PAINTING with compressed air nozzles instead of brushes is rapidly coming into fashion, because it can be done much more cheaply. As yet the "reform" extends only to the painting of railway carriages.

LORD TOLLEMACHE has undertaken to defray the cost of restoring the chancel of Acton Church, Nantwich. The cost will be £1500, and the work will be carried out so as to preserve the original style of the building, which dates back 900 years.

LORD LLANGATTOCK has offered to the vestry of St. George-the-Martyr, Southwark, a piece of land three-quarters of an acre in size, known as the Paragon, New Kent-road, for £3400 for the purposes of a recreation ground for the parish. Towards this sum he has promised £1000, and the London County Council has agreed to contribute £1700. The Newington Vestry is considering an application to subscribe part of the remaining £700, the site adjoining the parish. The Metropolitan Gardens Association has agreed to lay out the ground.



## Correspondence.

### R.I.B.A. ELECTIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—May I direct attention to another aspect of these elections?

There are sixteen architectural societies allied to the Institute, but only nine of these at a time are allowed representative seats upon the Council, and this is by an election under the provisions of Bye-law 30. Last year there was no contest; on previous occasions three or four representative candidates were defeated.

If, therefore, four elected President-representatives did not attend even one of the twenty-eight meetings held during their year of office, there is good reason why they should retire in favour of the representatives of other allied societies.

But what those who are acting with me demand is that there shall be periodical retirements from each class of the Council, and that, after his third year of office, each member shall withdraw, unless elected as a vice-president.

We are therefore voting only for the seven new candidates, leaving the present members of the Council and the friends of the old system to decide as to which eleven or more of the present members shall remain in office.

I am, Sir,

A FELLOW OF THE INSTITUTE.

London, May 15th, 1897.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to post postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteen pence.

Three Insertions for the price of Two. Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open. Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St  
Strand, W.C.

THE plaster cast of the gigantic statue of Mr. Cecil Rhodes, which is to be erected in Bulawayo, has just been completed, and removed to the foundry at Thames Ditton to be cast.

A NEW organ has been presented to Heaton Parish Church by Mr. Fred Illingworth. The instrument has been built by Mr. Hope-Jones, of Birkenhead, and the action is of the electrical type.

THE plans of Sir A. Blomfield for the restoration of Macclesfield Parish Church, at an estimated cost of £13,630, have been approved, and steps will now be taken to raise the necessary funds.

A FIRE has occurred in Sunderland which destroyed the Mann Quay Works. A plot of land about 150 yards in length was covered by joiners' shops and other workshops, as well as large stacks of timber. The joiners' shop was a very large building, only erected within the past two years, and fitted with the latest and most costly machinery. The damage is estimated at £15,000.

THE Government of New South Wales has finished the large stone dock, which will take in the largest steamers afloat. The Morts Dock and Engineering Company is altering its dock, which, when completed, will be capable of taking in two vessels at the same time.

THE Belfast Chamber of Commerce, after considering the construction of the tunnel between the north of Ireland and Scotland, has passed a resolution that the subject was of national importance, and that the Government should arrange for having borings and soundings made to test its practicability.

## CONTRACTS OPEN.

### URBAN DISTRICT COUNCIL of THAME.

TO GRANITE CONTRACTORS AND OTHERS. The Council invite TENDERS for the SUPPLY of 1200 Tons of BROKEN GRANITE and 120 Tons of GRANITE CHIPPINGS, the whole to be delivered free to Thame Railway Station (G.W.R.) at such times before the 1st of October next, and in such quantities as the Surveyor to the Council shall direct.

The Broken Granite to be 1½ in. gauge, or 2 in. gauge, that is 1½ in. cube, or 2 in. cube (whichever the Council may decide to accept), and no appreciable portion of it to be smaller than the size accepted, or to be composed of flaky flat stones or chippings.

Each person tendering must forward to me with his Tender sample of the material tendered for.

The Council do not pledge themselves to accept the lowest or any Tender. Forms of Tender may be obtained of me, or the Surveyor to the Council, Mr. JOSEPH TOWERS, Chinnor-road, Thame.

Tenders must actually be received by me, endorsed "Tender for Materials," before MAY 26th.

By order of the Council,

Thame, May 3rd, 1897. WILLIAM PARKER, Clerk.

### PARISH OF ST. MARY MAGDALENE, BERMONDSEY.

The Vestry of the above Parish is prepared to receive TENDERS for the SUPPLY of about 30,000 STOCKS, or other Hard Bricks, delivered either in barge alongside the Vestry Wharf, East-lane, or at the Vestry Depot, Spa-road, or in trucks at the nearest Railway Station. Separate prices to be stated in each case.

The bricks shall be sound, hard, well burnt, truly shaped, and free from all defects. Any soft or inferior bricks will not be paid for.

Tenders, endorsed "Bricks," accompanied by sample brick, must be sent to the undersigned not later than TWELVE o'clock on MAY 24th.

FREDERICK RYALL,

Bermondsey Town Hall, Vestry Clerk,  
Spa-road, S.E.,  
May 12th, 1897.

### TO BUILDERS AND OTHERS.

The Streets Committee of the Commissioners of Sewers of the City of London are prepared to receive TENDERS for the CONSTRUCTION of UNDERGROUND CONVENIENCES, for both sexes, in Upper and Lower Thames-streets, according to plans and specification to be seen at the Office of the Engineer to the Commission, in the Guildhall.

Tenders are to be on the forms supplied at the said Office, to be sealed, and endorsed "Tender for Underground Conveniences," addressed to the undersigned, and delivered before TWO o'clock on JUNE 1st, 1897.

Security will be required for the due performance of the contract.

The Commissioners do not pledge themselves to accept the lowest or any Tender.

H. MONTAGUE BATES,

Principal Clerk to the said Commissioners.  
Guildhall, May 12th, 1897.

### HORNSEY URBAN DISTRICT COUNCIL.

#### TO BUILDERS AND OTHERS.

The Hornsey Urban District Council are prepared to receive TENDERS for the ERECTION of WORKMEN'S DWELLINGS (108 houses) at Nightingale-lane, Hornsey.

Plans and specifications may be seen, and forms of Tender and all information obtained, on application to Mr. E. J. LOVEGROVE, C.E., Engineer to the Council, at the offices mentioned below, on any morning between the hours of TEN and TWELVE o'clock, on a sum of Five Pounds being deposited with the Clerk to the Council, which sum will be retained by the Council and deemed to be forfeited if a bona-fide Tender is not made by the Depositor.

If a Tender is made which is not accepted, the sum deposited will be returned, and if a Tender is accepted such sum will be retained by the Council until the contract has been executed by the Depositor, and will be forfeited in the event of his, or his sureties, failing or neglecting to execute such contract, or the bond accompanying same, within seven days after he or they respectively shall have been requested to execute the same.

No Tender will be considered except on the prescribed form.

Sealed and endorsed Tenders are to be deposited in the Tender-box in my department not later than FOUR o'clock p.m. on MONDAY, MAY 31st.

The Council reserve to themselves the right to decline all, or any, or any portion of the Tenders so sent in.

By order of the Council,

F. D. ASKEY,

Clerk to the District Council.  
Offices, Southwood-lane, Highgate, N.  
May 12th, 1897.

### ERITH, KENT.

#### SEWERAGE WORKS.

##### CONTRACT No. 4.

The Erith Urban District Council invite TENDERS for the LAYING of about 4½ miles of STONEWARE PIPE SEWERS, together with the necessary Manholes, Flushing Appliances, and other Works.

The drawings and specification may be seen, and prints of the estimate of quantities obtained at the Offices of the Engineer, Mr. G. CHATTERTON, M.Inst.C.E., 46, Queen Anne's-gate, Westminster.

A charge of Three Guineas will be made for prints of the estimate of quantities. This sum will, however, be returned to all those sending in bona-fide Tenders.

Sealed Tenders (which must be on the form supplied), endorsed "Erith Sewerage, Contract No. 4, Tender," are to be sent or delivered to me, the undersigned, at the address given below not later than NOON on MONDAY, the 31st MAY inst.

The Council do not bind themselves to accept the lowest or any Tender.

Dated this 11th day of May, 1897.

FREDK. PARISH (Solicitor),

Clerk to the District Council.

High-street, Erith.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERFELDY (N.B.).—For the erection of distillery buildings, for Messrs. John Dewar and Sons, Limited, distillers, Perth. Mr. C. O. Dalg. Architect, Elgin. Building.—W. C. Duncan, Murthly ... £2,777 0 0  
Carpentering.—Peter Reid, Aberfeldy ... 1,070 0 0  
Slatting.—James Buchanan, Perth ... 899 10 0  
Plumbing.—John Menzies, Aberfeldy ... 170 0 0  
Painting.—Alexander Douglas, Perth ... 78 7 8  
[Plastering and ironwork, &c., not yet accepted.]

ASHFORD (Kent).—For the erection of workhouse buildings, for the East Ashford Urban Guardians:— Ellis Bros. ... £5,481 0 0 T. T. Denne ... £5,406 12  
Tuff and Miskin ... 5,455 10 R. Aard, Maid. ...  
Davis and Leaney ... 5,415 0 stone\* ... 5,238 0  
\*Provisionally accepted.

AYR.—For the construction of a steel girder road bridge across the River Ayr, near Content House, for the Commissioners. Mr. John Eaglesham, C.E., Town-chambers, Ayr:— J. Watson ... £9,167 7 4 H. B. Blackburn ... £7,699 13 1  
D. Kirkland ... 8,321 14 7 Hanna, Donald, ... 7,660 0 0  
H. Kennedy & Sons ... 8,150 2 8 and Wilson ... 7,222 3 1  
J. Paton and Co. ... 7,931 11 6 W. Clarke, Ayr\* ... 7,222 3 1  
J. Osborne ... 7,929 13 1 Somervail and Co. ... 6,964 14 10  
A. Findlay and Co. ... 7,699 11 1 T. Scott and Co. ... 6,956 11 5  
\*Accepted.

BEDFORD.—Accepted for the erection of a house, Grafton-road, for Mr. G. Christie. Mr. Richard Lund, Architect, 8, St. Paul's-square, Bedford:— Geo. Harrison, Bedford ... £497

BLAIRGOWRIE (N.B.).—Accepted for the construction of a reservoir, &c., at Burrelton, for Blairgowrie or Eastern District Committee of the County Council of Perthshire. Mr. W. J. Brewster Grant, Engineer, Bengarth, Ratray (interim). Quantities by Engineer:— D. and R. Taylor, 29, Balhouse-street, Perth ... £1,161 3 5  
[Works to be completed in three months.]

BRISTOL.—For the erection of the "Cabot" memorial tower. Mr. Wm. V. Gough, Architect, 24, Bridge-street, Bristol:— E. Walters ... £4,459 6 1 W. Cowlin and Son ... £3,050 0  
A. J. Beaven ... 3,670 0 Love and Waite, ...  
G. Humphreys ... 3,741 0 Backfields, -St. ...  
W. Church ... 3,110 0 Paul's\* ... 2,676 10  
\*Accepted.

CANNOCK (Staffs.).—For the execution of sewerage works, for the Urban District Council. Mr. John Peake, Surveyor, Church-street, Cannock:— Enoch Blewitt, Hednesford ... £1,749

CARDIFF.—For the extension of school buildings, Albany-road, for the School Board. Mr. S. Rooney, Architect, Cefn Malby-chambers, Quay-street, Cardiff:— S. Shepton and Son ... £6,733 7 1 H. Gibbon ... £6,500 0  
Powell & Mansfield ... 6,720 0 J. Allen ... 6,395 0  
W. Thomas and Co. ... 6,078 0 Knox and Wells ... 6,390 0  
Cox and Bardo ... 6,941 0 Lettice and Co. ... 6,348 0  
A. J. Howell and Co. ... 6,543 8 D. Davies ... 6,136 0  
Cadwallader and ... C. C. Dunn\* ... 5,995 0  
Hockrige ... 6,530 0  
[All of Cardiff.] \*Accepted.

CARNARVON.—For the erection of school (Sunday) buildings, for the Committee of the Waentaw C.M. Chapel. Mr. Rowland Lloyd Jones, Architect, Carnarvon:— Wm. Roberts ... £1,764 10 Hugh Hughes, New-William & Roberts ... 1,835 0 borough, Anglesea\* £1,275  
David Jones ... 1,298 0 H. Jones and W. R. Thomas ... 1,232 0  
\*Accepted.

CROYDON.—For building new studio and alterations to present premises at No. 1, Station-road, Croydon, for Mr. H. Ward. Mr. F. Windsor, 82, Heathfield-road, Croydon, Architect:— E. P. Bulled and Co., Croydon ... £639  
Bristle and Son, Croydon ... 638  
S. Page, Croydon ... 620  
G. Knight, Croydon ... 474  
J. Ingram, Croydon\* ... 460  
\*Accepted.

DUNDEE.—For the erection of public wash-houses, Guthrie-street, and Horse-water-wynd, for the Town Council. Mr. Wm. Mackison, C.E., Burgh Engineer, 91, Commercial-street, Dundee:— Masonry and Bricklaying.—David Crichton, Kincardine-street ... £263 4 4  
Joinery.—Grove and Cameron, N. Tay-street ... 129 2 8  
Slatting.—Ramsay and Reid, Wellgate ... 44 1 7  
Plumbing.—John Crichton and Sons, Cowgate ... 445 18 8  
Plastering.—Reoch and Kilgorn, Brown-street ... 86 15 0  
Painting.—Petrie and Greig, Hawkhill ... 17 11 8  
Iron and Smith Work.—Nicoll and Jack, King William Dock ... 188 11 5  
Engineering.—Cooper and Greig, E. Dock-street ... 366 15 0  
£1,641 15 10



**COLCHESTER.**—For the erection of a station for the installation of the electric light, for the Corporation. Mr. H. Goodyear, C.E., Borough Engineer, Colchester:—  
 W. Chambers... £3,775 H. Everett and Son... £3,594  
 A. Dias... 3,740 G. Grimwood and Son... 2,996  
 E. Dupont... 3,689 Sudbury... \* Accepted.  
**ELGIN (N.B.)**—For alterations, &c., to "Commercial Hotel" Buildings, for Mr. R. Ritchie. Mr. C. C. Doig, Architect, Elgin:—

Masonry.—James Young, Bishopmill, Elgin... £18 10  
 Carpentry.—Mackie and Mackenzie, Elgin... 68 15  
 Plumbing.—William Lyon and Sons, Elgin... 10 0  
 Plastering.—Geo. Gray, Elgin... 71 8  
 Painting.—William Fordyce, Elgin... 5 14  
**HANWELL (Middlesex).**—For new shops and stores in the Broadway, for Mr. W. B. Hieatt. No quantities supplied:—  
 Penny... £3,935 Nye... £3,247  
 A. and B. Hanson... 3,347 Loving... 3,157  
**KING'S LYNN (Norfolk).**—Accepted for the supply of road materials, for the Corporation. Mr. E. J. Silcock, C.E., King's Lynn:—

Rough Granite Lumps.  
 A. and F. Manuelle, London... per ton £0 7 9  
 Broken Granite.  
 L. Sommerfeld, Lynn... per ton 0 8 3  
 Granite Setts.  
 Croft Granite Company, Leicester... per ton 1 7 9  
 Do. do. per ton 1 6 3  
 Do. do. per ton 1 5 9  
 Kerb.  
 Gordon and Sons, Annalong... per foot 0 1 0  
 Do. do. per foot 0 0 10½

**KING'S LYNN.**—For the erection of a covered service reservoir, for the Corporation. Mr. E. J. Silcock, C.E., Borough Engineer, King's Lynn:—  
 Pedrette and Co. ... £5,600 R. M. Parkinson, Queen-street, Peterborough\* £4,698  
 H. Collison ... 4,878  
 T. H. Blyth ... 4,878 \* Accepted.

**LONDON.**—For erecting the Metropolitan School, Southampton-row, London, W.C., for Sir Isaac Pitman and Sons, Limited. Mr. G. D. Martin, Architect, 3, Pall Mall East, S.W. Quantities by Mr. W. Westmoreland:—

Excavations and Foundations.  
 T. Welsh & Sons £3,340 0 0 J. Long and Sons £2,487 0 0  
 Holloway Bros. ... 3,050 0 0 Dove Bros. ... 2,475 0 0  
 J. Carmichael ... 2,805 0 0 W. Smith ... 2,445 0 0  
 T. Boyce ... 2,824 0 0 F. G. Minter ... 2,436 0 0  
 A. Kellett ... 2,683 3 10 Perry and Co.\* 2,365 0 0  
 Grover and Sons 2,583 0 0 \* Accepted.

## Superstructure.

J. Long and Sons ... £25,770  
 T. Boyce ... 25,690  
 G. H. and A. Bywaters ... 25,673  
 H. Lovatt ... 25,620  
 Dove Bros. ... 25,600  
 Colls and Son ... 25,535  
 J. Grover and Sons ... 25,499  
 A. Kellett ... 25,498  
 J. Carmichael ... 25,487  
 Holloway Bros. ... 25,390  
 Foster and Dicksee ... 25,190  
 Perry and Co. ... 24,920

**LONDON.**—Accepted for the erection of Addison Park Mansions, Addison-gardens, Kensington (block B), for the Kensington Freehold Land Trust, Limited. Messrs. Booth and Fox, Architects, 9, John-street, Adelphi, W.C.:—  
 J. Christie, Uxbridge-road Station... £3,250

**LONDON.**—For alterations, &c., to 79 and 80, Bishopsgate-street Without, and 77 to 81, Houndsditch, for Messrs. J. Wisbey and Co. Messrs. Edward Saunders and Son Architects, 6, Bishopsgate-street Without, E.C.:—

Pattison ... £3,200 Holloway ... £2,085  
 Laurence and Son ... 3,130 Lascelles ... 2,908  
 Jerrard and Son ... 3,076 Clarke and Manooch... 2,784  
 Gladding ... 3,023 Ashby Bros. ... 2,576

**LONDON.**—For the erection of asylum buildings, Hendon, for the Managers of the Central London Sick Asylum District. Messrs. Giles, Gough, and Trollope, Architects, 28, Craven-street, Strand, W.C.:—

Thomas Turner, Ltd. ... £104,540 0 0 T. Rowbotham £90,500 0 0  
 C. Wall ... 88,730 0 0  
 Bywaters & Sons 102,757 0 0 H. Willcock and Co., Wolverhampton\* 86,840 0 0  
 Leslie and Co., Ltd. ... 98,468 8 4 \* Accepted.  
 F. Gough & Co. 95,954 0 0

**LONDON.**—For laying pipe sewers, &c., Kirkland Estate, Plumstead. Mr. H. H. Church, Surveyor:—  
 Penn ... £325 Thomas and Edge ... £267  
 Sanford and Co. ... 231 Brewer ... 255  
 Kitby ... 279

**LONDON.**—For stabling and coach-house, Lucas-street, Lewisham High-road, S.E., for Plummer's Stores, Limited. Mr. J. J. Downes, Architect, 199, Lewisham High-road:—  
 Jerrard and Son ... £530 0 S. R. Best (accepted) £501 10

# ASPINALL'S ENAMEL

Unequalled for all Decorative Purposes.

SPECIAL ENAMEL FOR DECORATORS' USE.

ASPINALL'S ENAMEL Ltd., New Cross, LONDON, S.E.

Sole Agents for Scotland: W. L. AIM & CO., 10, Bothwell Lane, Glasgow.

Sole Agents for the North of Ireland: JOHN FRACKLETON & SONS, 42, Church Lane, Belfast.

Sole Agents for Mid. and South Ireland: THOS. DOCKRELL, SONS & CO. LTD., Dublin.

# ASPINALL'S WAPICTI

The Sanitary Washable Distemper.

SANITARY, ECONOMICAL, ARTISTIC.  
 Made in any Shade.

WORKS:  
**DARWEN.**

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF

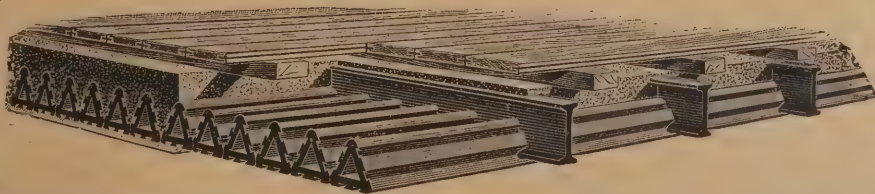


THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
 IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
 92  
 Great Russell St.,  
 W.C.

# HOMAN'S FIREPROOF FLOORS.

Used in  
 nearly  
 2000 BUILDINGS.



Roofs, Piers,  
 Bridges, Joists,  
 and Girders.

CONSTRUCTIONAL STEEL AND IRONWORK.  
 GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS.**

LONDON { Offices: 17, GRACECHURCH STREET, E.C.  
 { Works: RATCLIFF, E.

MANCHESTER { Offices: 10, MARSDEN STREET.  
 { Works: WEST GORTON.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.







STRETFORD.—For the erection of steam laundry buildings, Chester-road, for Yapp's Laundry, Limited. Messrs. Johnstone Bros., Architects, 39, Lowther-street, Carlisle.—  
T. & W. Meadows £5,792 19 1  
Bentley, Son, and ... 5,525 0 0  
Partington ... 4,815 17 6  
C. Braddock ... 4,420 0 0  
J. and J. Lee ... 4,341 0 0  
Blanchard Bros., ... 3,980 0 0  
Southport\* ... \*Accepted.

SUTTON ST. EDMUNDS (Lincs.).—For the erection of a school and teacher's residence, South Eau Bank, for the members of the School Board. Mr. R. H. H. Hand, Architect, Spalding. Quantities by Architect:—  
Wadley and Co. ... £1,348 0 0  
Watson ... 1,174 0 0  
Pawn and Bone ... 1,145 14  
E. Girling and Co. ... 1,145 0  
S. Hipwell and Co. £1,052 0  
S. Allister, Sutton ... 997 0  
St. Edmunds\* ... \*Accepted.

TREVETHIN.—For erecting new infants' school, and for other alterations at Park-terrace Board Schools for the Trevethin School Board. Messrs. Lansdowne and Griggs, Architects, Newport, Mon.—  
W. and A. Davies, Abersychan, near Pontypool, £1,120

[Eight tenders were received for this work, ranging from £1,375 to £1,120.]

WALSALL.—For the erection of a leather factory. Mr. Fred. W. Cross, C.E., 2, The Bridge, Walsall:—  
F. N. Stephens ... £1,022 0  
A. Lynex ... 925 0  
Thos. Hughes ... 890 0  
Wm. P. Lees ... 868 7  
John Mallin ... £279 0  
R. Merton Hughes, Bradford-street, Birmingham\* ... 768 0  
\*Accepted.

WEST HAM.—For external repairs to the church and chapel at cemetery, West Ham, Essex. Mr. J. R. Smith, Surveyor:—

Christopher ... £384 8 6  
North ... 158 0 0  
Wilson ... £117 0 0  
Webb, Stratford\* ... 85 0 0  
\*Accepted.

WHITCHURCH (Shropshire).—For the erection of ten cottages, Smallbrook, for the trustees and members of The Loyal "Good Samaritan" Lodge, I.O.O.F. Mr. J. Harry Pickard, Architect:—

Jno. Corfield ... £1,605  
Geo. Dodd ... 1,510  
Geo. Edge (accepted) £1,417

For Plumbers' Work at above.  
Stephen Gorham (accepted) ... £298 15

**M'NEILL'S FELTS** (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)  
**M'NEILL'S SLAG WOOL** (Silicate Cotton), for Fireproofing and Soundproofing.  
AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. M'NEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

## THE UNITED ASBESTOS PATENT

# "Salamander"

**Gold Medal  
Awarded.**

NOVEL APPLICATION OF ITALIAN ASBESTOS IN EMBOSSED WALL AND CEILING DECORATIONS IN HIGH AND LOW RELIEF.

Designs by Leading Artists, capable of infinite variety of Decorative Treatment.

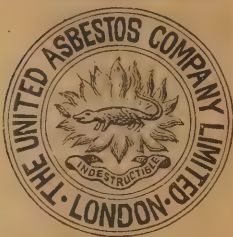
PRICES RANGING FROM 8d. PER YARD TO 7s. 6d. PER PANEL.

## Decorations

"It cuts smoothly and hangs easily."—*Journal of Decorative Art.*  
"One cannot well over-estimate the importance of a fireproof covering to walls and ceilings. Many a fire has been materially assisted in its progress by wall-paper, and a substance capable of being adapted to such uses, and of an ultra fireproof nature, had long been sought."—*The Architect.*

Fireproof. Plaster Effects at much below cost of Plaster. Easily Hung. Very Light in Weight.

"SALAMANDER"



TRADE MARK.



No. 1032. FRIEZE. Size, 11in. by 30in.

"SALAMANDER"



TRADE MARK.

IMPORTANT.—Our Patent "Salamander" Decorations are being extensively used in H.M. Navy as a Protection from Fire. PATTERNS MAY BE SEEN AT ALL THE LEADING DECORATORS.

For Illustrated Price List fill up and send this slip to—

**The UNITED Asbestos Company, Ltd.,**  
SOLE MANUFACTURERS AND PATENTEES (WHOLESALE ONLY),  
158 & 160, Charing Cross Road, LONDON, W.C.  
HEAD OFFICES: DOCK HOUSE, BILLITER STREET, E.C.  
(BUILDERS' JOURNAL.)

Name \_\_\_\_\_ Address \_\_\_\_\_  
Profession or Trade \_\_\_\_\_ Date \_\_\_\_\_ 189\_\_

## EASTON, ANDERSON & GOOLDEN, LIMITED,

BROAD SANCTUARY CHAMBERS,  
BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."  
Telephone—"545, WESTMINSTER."

## ELECTRIC & HYDRAULIC LIFTS & CRANES,

PUMPS, RAMS,

WATER SUPPLIES, ENGINES AND BOILERS,

ELECTRIC LIGHT AND POWER.

MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.



**WHITCHURCH** (Shropshire).—For the erection of a new residence and stables, Highgate, for Mr. R. Newbrook. Mr. J. Harry Pickard, Architect.  
Jno. Corfield ... £601 0 | George Dodd (accepted) ... £486 10  
Richard Powell ... 532 0

**WOLVERTON** (Bucks).—For the erection of new envelope works, for Messrs. McCorquodale and Co., Limited. Mr. H. Phelps Drew, Architect, 33, King-street, Covent Garden, W.C. Quantities by Mr. J. Rookwood, 47, Museum-street, W.C.:—  
Honour and Son ... £6,295 | Robinson ... £5,870  
Parnell ... 6,090 | Martin, Northampton\* ... 5,375  
Kemp ... 5,910 | \*Accepted.

**YIEWSLEY** (Middlesex).—For additions and alterations to St. Matthew's Church, Yiewsley. Messrs. Nicholson and Corlette, Architects. Quantities by Messrs. C. John Mann and Son:—  
Badcock and Sons ... £5,049 | Silver and Sons ... £4,025  
Trask and Sons ... 4,157 | A. and B. Hanson ... 3,991  
C. F. Kearley ... 4,122 | Fassnidge ... 3,968  
Dove ... 4,075

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly prepares Candidates for the above EXAMINATIONS by Correspondence. No books are required.—For particulars and testimonials apply "Certified Coach," 31, Herbert-road, Plumstead, S.E.

Price 3s. 6d.

**GLOSSARY OF TECHNICAL TERMS** used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I. Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**R.I.B.A. EXAMS. PREPARATION** personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

## THE LONDON (TELEPHONE {Holborn,} No. 1011.) DRAWING & TRACING OFFICE,

98, Gray's Inn Road, Holborn, W.C.

(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.

Established 1853.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS, PERSPECTIVES, SURVEYS, COMPETITION DRAWINGS,**

Black Line PHOTO-COPIES and Blueprints. Quantities, Specifications **LITHOGRAPHED.**

**MODELS, DIAGRAMS, &c.**

Estimates by return of post on receipt of full particulars to the MANAGER.

**WANTED, a JUNIOR PARTNERSHIP** in a Surveyor's or Architect's Office, where a small capital is required.—Address H., S., Southampton-row, W.C.

**DRAUGHTSMAN.—WANTED** for two or three months, ASSISTANT, well up in getting out details for Builder in the drawing-office of a large works.—Apply, W., Estate Office, Bournville, Birmingham.

**ARCHITECTURAL ASSISTANT REQUIRED** immediately. Capable of preparing drawings from sketches. Neat and accurate draughtsmanship essential.—State experience, salary, &c., to JAMES R. WIGFULL, 14, Parade-chambers, Sheffield.

**TO BUILDERS and CONTRACTORS.**—FREEHOLD LAND for SALE in Tunbridge Wells; five minutes from railway station. Drainage, water, and gas provided; land cheap; houses in demand; advances could be arranged.—Apply, W. B. HUGHES, Estate Architect, Tunbridge Wells.

## THE ARCHITECTURAL REVIEW,

PRICE 6d. NETT.

The MAY Number contains the First Series of Drawings at the Academy and other Splendid Features.

OF ALL NEWSAGENTS AND BOOKSTALLS.



Jubilee Panel in Red and Buff Terra Cotta, commemorative of the 60th Year of Her Majesty's Reign.

**BROWN & DRAB GLAZED BRICKS.**

(Largely used for Hospitals, Schools, &c.)

Illustrated List on Application.

**STANLEY BROS. (LTD.) NUNEATON.**

GLAZED SINKS.

SALT GLAZED BRICKS.

WHITE AND COLOURED ENAMELLED BRICKS.

Blue Bricks, Quarries, Copings, Kerbings, Roofing and Ridge Tiles, Fire Bricks, &c.

**GODWIN'S TILES**  
for PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGWARDINE WORKS, WITHERINGTON,**  
Patronised by Royalty. | Established 1848. | Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!

## ILLUMINATION BUCKETS IN ALL COLOURS.

Commemorating the 60th year of Her Majesty's Reign.

SEND YOUR ORDERS EARLY

To

**J. YOUNG & CO., Wholesale Glass Merchants, Kenton Works, KENNINGTON CROSS, LONDON, S.E.**

Telephone No 4712 (Hop).



## WIRE DEVICES,

With Patent Wire Clips, to hold Bucket Lamps, in Crowns, Monograms, Letters, Feathers, and Window Blinds.

WRITE FOR DRAWINGS AND PRICES.

Telegrams:—"YOUNGS, KENNINGTON CROSS."



# Surveying and Sanitary SUPPLEMENT.

MAY 19TH, 1897.

## PLANNING OF SMALL HOUSES.

(Continued from page xlii.)

By H. V. LANCHESTER, A.R.I.B.A.

No. V.

THE plans previously published in this series have all been designed for positions in more or less close proximity to town, though some might undoubtedly be adaptable for more open sites; those given this week are intended

all requirements; where, however, the desired spot is lacking in such accommodation, the opportunity arises to erect cottages that are somewhat more suitable.

The plans illustrated have been worked out somewhat on these lines, so as to be adapted either for ordinary occupation, or the occasional use of the town dweller.

No. 11 is a design of about the smallest possible dimensions and simplest construction; the roof would run uninterruptedly from end to end, and the building throughout would be of a very inexpensive character. It would

sort let readily, furnished, in places such as some of the Surrey villages, popular as summer resorts.

All designs intended for country building should study simplicity of design; for example, all unnecessary complications in the roofing should be avoided. Gables are generally to be preferred to hips, especially where the rooms are partially in the roof and dormers would otherwise be required. Chimneys should be grouped together so as to diminish trimming, flashing, &c., to a minimum.

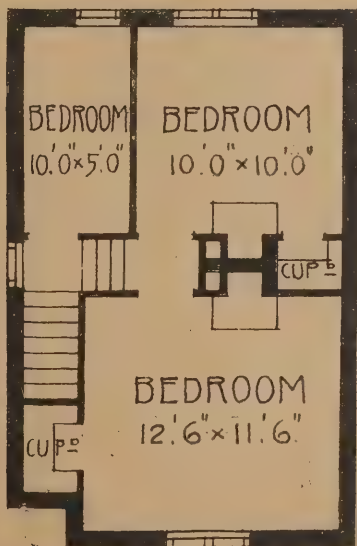
The arrangement of flues in the centre of the building (as in these plans) bring them to the highest part of the roof, thus avoiding the liability to down-blow and the chance of cold and consequently smoky chimneys.

It is not essential that all bedrooms should have fireplaces, but where they are absent, efficient ventilation must be provided.

While it is outside the general scope of my subject to deal in any detailed way with the questions of style and manner of construction, it is as well to remember that with regard to the materials used it is always best to adopt as far as possible local methods and products; these will be much more likely to produce a building harmonising with its surroundings than the forcing of an exotic treatment for the sake of variety. The stone and slate of the north country and the tile and rough cast of the south are both in thorough agreement with the landscape, but would both look equally out of place if their locations were transposed. If timber is plentiful, nothing could be brighter and more satisfactory than good half-timbered work; but it is better to be content with tile hanging or rough cast than to have a shoddy imitation of the timbering with no structural reason for its use. In fact, in all things we must bear in mind that common sense and rational taste will always bring about a more satisfying result than fads and fakements.

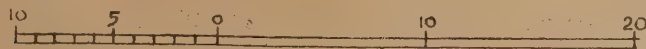
### No. 11. COTTAGE

CUBE AT 12 = £34



GROUND FLOOR

FIRST FLOOR



SCALE OF FEET

for rural districts. It is difficult for those living in a large city to detach themselves from the rush and bustle of business or social duties without putting a substantial distance between the vortex of town life and their place of refuge. How many men owe their mental and physical well-being to the possession of some little *pied-à-terre* near to river or sea, or else, perhaps, out on the edge of a breezy hill where the wind whistles among the pine trees. As a matter of course, outdoor occupations would fill most of the time, and the housing may be of the simplest, a mere labourer's cottage, if well-built, water-tight, and clean, often meets

unquestionably be a mistake to finish buildings of this class otherwise than in the simplest manner, though of course with good taste and refinement.

No. 12 is slightly larger and would group more picturesquely; laid out somewhat more liberally, it would be suitable for a bachelor's shooting box on a small scale, when the small room on ground floor could be used as an extra bedroom if required.

No. 13 shows a cottage of a class suited for occupation by a bailiff or gamekeeper, but it might also be a convenient size for the holiday retreat of a small family; little houses of this

## RURAL SANITATION.

ABOUT fifty members of the Yorkshire branch of the Sanitary Inspectors' Association visited Dewsbury on Saturday the 8th inst. The Corporation's sewage farm at Southill Nether, where, upon 168 acres, a million and a quarter gallons of sewage is treated daily, was inspected, and afterwards the Refuse Destructor Works, which were described by the Borough Surveyor (Mr. Dearden). Thirty tons of rubbish are destroyed daily at a cost of £11 3s. 1d. per week. The remainder of the afternoon was spent in discussing the subject of cottage sanitation in rural districts and other matters affecting sanitary inspectors and medical officers. Mr. T. Pridgin Teale, the President of the Association, who was in the chair, expressed a hope that certain points interesting to sanitary authorities would be very much advanced at the important Sanitary Congress to be held in Leeds this year. The question of rivers pollution called for serious attention in that



part of the country. He was glad that the West Riding County Council and the county boroughs were seriously endeavouring to prevent the Yorkshire rivers from being stinking sewers. The problem was complicated, and any help the discussion of it in various parts of the country might produce would yield results quite worth

#### NORWICH DRAINAGE SCHEME.

ABOUT three-fourths of the work in connection with the Norwich City Engineer's scheme of main drainage has now been completed. Thirty years ago, extensive sewerage works were initiated and carried out at a very

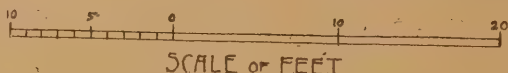
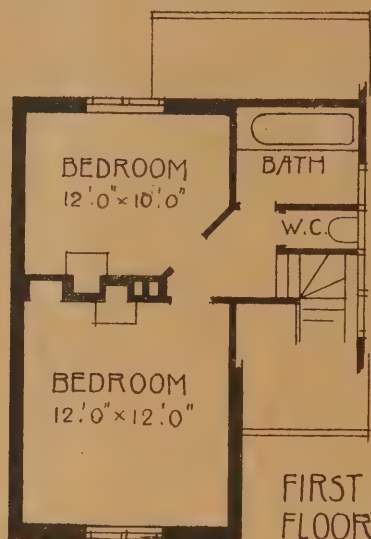
purpose is divided into six drainage zones, each draining to a pumping station situated underground, and, in all but one case, under the streets. In the low-lying districts the sewers will be on the separate system, whilst the surface-water which runs from the roofs of houses and the streets will flow into surface-water sewers, discharging directly into the river. The intercepting connections between the combined sewers and the new sewage sewers have been specially designed and constructed in such a manner that the ordinary flow of sewage proper, together with surface-water resulting from ordinary rainfalls, passes into the sewage sewers, and thence to the sewage farm at Whittingham. The scheme not only provides for a proper self-cleansing system of sewage sewers in the portions of the city which have been so badly drained in the past, but also for an extensive system of surface-water sewers to prevent the local floodings. Nearly all of the most difficult portions of the work have now been completed. The most difficult was the construction of the sealed main and gravitating sewer across the river at Eyebridge, where the sewers had to be constructed at such low levels as to be below the points or bottom piles supporting the piers of the bridge. In addition to this, the streets through which these sewers had to be constructed were so narrow that great difficulties were incurred for lack of proper room. The same remark applies to the narrow way available for navigation of the river at this point. The works remaining to be done are the construction of the sewage and surface-water sewers in the low level districts. But with the constant extension of the city other works will, of course, be necessitated, which in most cases will simply take the form of extensions of what are provided by the scheme, which has now made such great progress.

#### THE ESTIMATED COST

of the whole was £152,000, and the amount actually spent up to May 4th last, with the amounts which will be due on contracts now in hand, when those contracts are completed, is £112,000, leaving £40,000 for the completion of the works. Taking the works as a whole, very little departure has been made from the lines which were originally laid down in the plans submitted to the Local Government Board and approved by it some twelve months ago. One great change between the scheme which the Council decided upon when it commenced operations six or seven years ago and the scheme which it is carrying

#### NO. 12. COTTAGE

CUBE AT 1° = £40

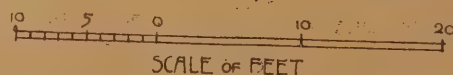


the trouble. In a paper on "Cottage Sanitation in Rural Districts," he had suggested in the preface, which he was asked to write, the formation of volunteer committees to help small villages to improve their sanitary conditions. Those who thought with him on the matter had outlined a minimum of what they should aim at. Those small rural committees, in their efforts to raise the standard of sanitary habits in small communities, would make mistakes at first, but they would be educated by their work, and become valuable factors in the sanitation of the country.—Alderman Kilburn, the chairman of the Dewsbury Sanitary Committee, thought that the difficulties which property owners and occupiers placed in the way of sanitarians rendered the necessity of educating the people into right ideas of elementary sanitation increasingly important. Though the Dewsbury bye-laws forbade back-to-back houses, modifications allowed dwellings that were practically back-to-back.—Mr. Denham (Tadcaster) feared that the drainage of villages had been much neglected. If all the West Riding treated its sewage like Dewsbury, the River Calder would be much purer. Every village should be drained, and should adopt water-closets. Clergymen were the worst sanitarians. To them an inspector was an intruder. Bye-laws were being adopted for large villages, but every small village should be similarly controlled.—Dr. Watts (Medical Officer of Health for Dewsbury) said that town had great difficulties in dealing with sewage till it got water carriage. Rural sanitary officers who had been beaten with whips should remember that town authorities sometimes used scorpions.—The Mayor remarked that the Corporation had tried to make Dewsbury all that it should be. By means of expenditure upon refuse destructors, sewage disposal works, baths, free libraries, gas, electric light, and other instances of enterprise, it had striven to set an example to neighbouring authorities. He preferred through dwellings to the blocks that were a modification of the back-to-back system, and hoped that, while the sanitary condition of the town was all that it should be, the rates would be reduced and the rateable value of the borough correspondingly increased.

heavy cost, which, whilst generally well designed, having regard to the appliances then available, were, as regards the sewers, badly constructed, and in operation were never successful. The old works consisted, generally, of main outfall and intercepting sewers, with pumping station at Trowse, from which point the sewage was pumped through a cast-iron raising main to the Whittingham sewage farm, which was bought and laid out at that time. The portion of these old works about to be abandoned consists of the outfall penstock and screening chambers at Trowse, the main outfall sewer and most of the intercepting sewers. In

#### NO. 13. COTTAGE OR LODGE

CUBE AT 1° = £52



place of these a new main outfall and intercepting sewer, and an entirely new system of sewerage for the low-lying parts of the city is being constructed, which for this

out now consists in the abandonment of the separate system in certain of the higher levels of the city and the continuance of the existing sewers, where they are in good condition, as



combined sewers. It is very difficult to estimate what would have been the ultimate cost if the original scheme had been carried out in its entirety, but it must have been greatly in excess of what the present scheme will cost. Provision has been made in carrying out the new works for the ventilation of the sewers at points clear of the streets and well away from windows, chimneys, &c., and also for effectually flushing the sewers. Within the past few months a large flushing van, which contains about twelve tons of water, has been brought into use with very satisfactory results as regards many of the old sewers of the city. Improved gulleys of the City Engineer's design are being put in wherever possible, which have the effect of intercepting grit, &c., which formerly found its way into the sewers, and had to be removed by expensive processes. Wherever the new sewers have been completed they have proved most satisfactory, and there will be, when the whole are done, a clear run in every such sewer in the city. The whole of the work has been carried out during the past three years under the supervision of the City Engineer (Mr. Collins).

## Surveying and Sanitary Notes.

ANOTHER section of the main drainage works at Dublin is being proceeded with, the sewer in continuation of that completed in Lower Marlborough Street being gone on with through Lower Abbey Street in the direction of Beresford Place. At present the sewer works extend to the Christian Union Buildings, and excavations to the extent of 21ft. have been made. This sewer will proceed by Beresford Place to Amiens Street, and on to Clonliffe. A large number of men are employed at the works.

CONTINUING the series of sanitary lectures at Cardiff, Mr. E. Foster, chief engineering assistant to the borough engineer, speaking on the "Calculation of areas and cubic space, and the interpretation of plans and sections to scale," explained the methods of measuring various areas and solid figures, and demonstrated some of the formulae used with models. He proceeded to explain the delineation of solids by means of plans and sections, and exhibited drawings of recent public works in Cardiff, including amongst them Clarence Bridge, Sanatorium, Bute Road Police Station, St. Mary Street Market.

THE Bury Corporation Sewage Disposal Works are nearing completion. The top stones of a monster chimney connected with the destructor and sludge-pressing machinery were placed in position a few days ago. The chimney, it is said, will rank amongst the largest structures of the kind in the country. It measures 300ft. in height from the ground line, the diameter at the bottom being 28ft. 6in., and at the top 10ft. 4in. The foundation covers an area of 44 square feet, and is 18ft. below the ground line. The total weight of the structure, including the cast-iron cap and terra-cotta top, is 5000 tons, which gives a pressure of 5631lb. to each square foot of the foundation. About 200,000 bricks were used in the foundation, and 800,000 bricks in the whole structure. The cost is about £3000.

MR. GEORGE MILNE, Sanitary Inspector for Elginshire, has issued his sixth annual report,

in which he says:—The general sanitary state of the county is gradually improving. The removal of abatement of nuisances, the thorough disinfection and cleaning of premises where infectious diseases have occurred, and the remedy of insanitary defects generally, structural or otherwise, have had a beneficial effect on the health of the community. Improvements in the above direction are being accomplished with less difficulty than formerly. People, as a rule, comply more readily with the requirements of good sanitation. Nothing has as yet been done to stop the pollution of the River Lossie and the Tyock Burn by the sewage from the town of Elgin. The condition of the Tyock Burn is a positive nuisance, which can hardly fail to be dangerous to the health of those residing in that locality. For over two years the Town Council of Elgin has had under consideration several schemes for the disposal of the town's sewage, but no practical steps have as yet been taken to carry out any of these schemes.

MR. ROBERT LINDSAY, Sanitary Inspector for Midlothian, has just issued the reports of the various inspectors as to the county and the districts under the jurisdiction of the Midlothian County Council. In his principal report, Mr. Lindsay states that during the year "county affairs have been moving smoothly, and questions connected with insanitary houses, drainage, water, hospitals, common lodging-houses, scavenging, lighting, pollution of streams, dairy improvement, pigeries, consideration of new Public Health Bill, &c., have absorbed much time and received great attention and consideration, and with many of these considerable progress has been made." Perhaps the most outstanding event that the Council had to face was resisting an encroachment upon the county area by the Corporation of Edinburgh. "What effect," says the report, "the city extension may have upon the county, it is impossible meantime to state, but as building is increasing beyond the city boundary, it is anticipated that the loss sustained in that respect may be easier borne than it would otherwise have been." The works connected with the various water and drainage districts throughout the county, it is stated, continue satisfactory, except that there is difficulty in finding sufficient water for three of the water districts, which the committees are anxiously endeavouring to procure.

## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
May 21	Aberaman—Erection of Thirty Houses	Building Club	G. A. Trehan, 27, Cannon-street, Aberdare.
" 21	Alford, Lincs.—Erection of a House		Rev. M. Riggall, Malta House, Alford.
" 21	Chartham Downs—Works at County Asylum	Asylum Governors	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 21	Golcar, Yorks.—Erection of Three Houses		A. Shaw, Architect, Golcar.
" 21	Middlesbrough—Erection of Large Block of Buildings	Co-operative Society	W. G. Roberts, 61, Albert-road, Middlesbrough.
" 21	Oakworth, Yorks.—Erection of a Residence		J. Judson and Moore, Architects, Oakworth.
" 21	Skegness—Erection of a Residence, South-parade	Miss Kirkby	Providence House, South-parade, Skegness.
" 21	Winchester—Erection of a Sanatorium	High School for Girls	T. Stopher, 57, High-street, Winchester.
" 21	Hornsey—Erection of Workmen's Dwellings	Urban District Council	E. J. Lovegrove, Council's Offices, Southwood-lane, N.
" 22	Alnwick—Erection of House	W. R. Hindmarsh	W. R. Hindmarsh, jun., Architect, Alnwick.
" 22	Armley, Leeds—Works for 24 Houses and Shop		C. F. Wilkinson, 35, Park-square, Leeds.
" 22	Bradford—Erection of Houses, Undercliffe	Exeter Church Extension Committee	G. C. Gamble, Parkinson's-chambers, Bradford.
" 22	Corsham, Wilts.—Erection of Church	Great Yarmouth School Board	H. Brakspear, Corsham, Wilts.
" 22	Gorleston—Alterations and Additions to School		Bottle and Olley, Queen-street, Great Yarmouth.
" 22	Halton—Works for 4 Houses	Liberal Club Buildings Company	P. Robinson, 72, Albion-street, Leeds.
" 22	Keighley—Erection of New Club Premises	Urban District Council	J. Judson and Moore, York-bldgs., Cavendish-st., Keighley.
" 22	Sedburgh—Alterations to National Schools	Stella Coal Company	A. E. Stringer, Wheelock-road, Sandbach.
" 22	Sandbach—Alterations to the Commons House		J. F. Curwen, 51, Highgate, Kendal.
" 22	Ryton-on-Tyne—Building Colliery Shops and Houses	Corporation	Office, Clara Vale Colliery, Ryton-on-Tyne.
" 24	Leeds—Building Three Houses, Beeston Hill	Hamsterley Colliery	Carter's, Punch Bowl Inn, Beeston, Leeds.
" 24	Colchester—Erection of a Pavilion, &c.		H. Goodyear, Borough Engineer, Colchester.
" 24	Elcheater—Erection of Sixteen Houses		Hamsterley Colliery Offices, Elcheater, R.S.O.
" 24	Kinloss, Scotland—Erection of Cottages	Brewsters, Limited	J. Forrest, 129, High-street, Forres.
" 24	Londonderry—New Premises, James-street	Commissioners of Control	T. Johnston, 11, East-wall, Londonderry.
" 24	Monaghan—Building New Chapel		Board of Control of Lunatic Asylums, Custom House, Dublin.
" 24	Sowerby Bridge—Pulling down of old Tannery and Rebuilding		S. Wilkinson, Architect, Sowerby Bridge.
" 24	St. Keverne, Cornwall—Erection of School	Urban District Council	Porthallow Hotel, St. Keverne.
" 24	Taunton—Building Six Almshouses	Taunton Town Charity	I. H. Spencer, 8, Hammet-street, Taunton.
" 25	Aberdare—Altering the National Schools		T. Roderick, Ashbrook House, Clifton-street, Aberdare.
" 25	Blackburn—Extension of Goods Yard, &c.	Lancs. and Yorks. Railway Company	Engineer's Office, Hunt's Bank, Manchester.
" 25	Brighouse—Erection of Press-house, Chimney Shaft, &c.	Corporation	A. M. Fowler, 1, St. Peter's-square, Manchester.
" 25	West Ham—Erection of Boiler House, Buildings, &c.	Town Council	L. Angell, Town Hall, Stratford, E.
" 25	Henwick, Worcs.—New Station Buildings	Great Western Railway Company	Engineer's Office, Gloucester Station.
" 26	Dublin—near Doncaster—Renovation of Wesleyan Chapel	Trustees	H. Ramskir, Fern Villa, Thorne.
" 26	Gateshead—Erection of Eight Cottages	Guardians	J. O'Neill, North Brunswick-street, Dublin.
" 26	Gilfachgoch, Wales—Erection of School	Commissioners of H.M. Works	The Secretary, 12, Whitehall-place, S.W.
" 26	Leeds—Additions to St. Andrew's Schools	Llandyfodwg School Board	J. Rees, Architect, Pentre Rhondda.
" 27	Crumpsall, Manchester—Erection of Wards, Work-house, &c.	Guardians of Prestwich Union	Smith and Tweedale, 12, South-parade, Leeds.
			W. Telford, Gunson, and Son, 10, Marsden-st., Manchester.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—(Continued)</b>			
May 28	Marnhull, Dorset—Erection of New Bridge	Dorset County Council	Clerk, Justice Room, Sturminster Newton.
" 28	Wigton—Erection of Grammar School	Urban District Council	G. D. Oliver, 5, Lowther-street, Carlisle.
" 28	Walthamstow—Alterations, &c., Grosvenor House	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
" 28	West Ardsley—Erection of Stables, &c., Boyle Hall	Urban District Council	Nelson and Savage, Sun Buildings, 15, Park-row, Leeds.
" 29	Elland Edge, Yorks.—Erection of Stabling, &c.	Urban District Council	C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
" 31	Hastings—Erection of School	School Board	F. H. Humphreys, 6, Trinity-street, Hastings.
" 31	Levenshulme—Council Offices, Stables, &c.	Urban District Council	J. Jepson, Union-road, Stockport.
" 31	St. Leonards-on-Sea—Erection of Infants' School	Hastings United District School Board	Elworthy and Son, London-road, St. Leonards-on-Sea.
" 31	London, W.—Stables, Lavatory, Walls, &c.	Paddington Vestry	G. Weston, Vestry Hall, Harrow-road, W.
June 2	Knutsford—Additions and Alterations	Guardians	R. J. M'Beath, Birnam House, Sale, near Manchester.
" 2	York—Engine Shed, &c., Haverton Hill	North-Eastern Railway	W. Bell, Architect, York.
" 3	Woking—Erection of New Schools	School Board	Clerk's Office, 4, The Broadway, Woking.
" 7	Morecambe—Erection of Chimney	Urban District Council	J. Bond, Council Offices, Morecambe.
" 8	Balham—Erection of branch Library	Streatham Public Libraries Commrs.	S. R. Smith, 14, York-buildings, Adelphi, W.C.
No date.	Newhaven—Extension of Premises	Indus. Co-operative Society, Limited	E. J. Hughes, Riverside, Newhaven.
"	Brighouse—Buildings at Sewage Works	Corporation	R. M. Fowler, C.E., 1, St. Peter's-square, Manchester.
"	Bircle, Lancs.—Vicarage	Urban District Council	C. H. Openshaw, Architect, Fleet-street, Bury.
"	Painswick—Board School	School Board	W. H. C. Fisher, 6, Rowcroft, Strand.
<b>ENGINEERING—</b>			
May 21	Bury, Lancs.—Eight-Cell Destructor, &c.	Sewage Committee	J. Cartwright, Borough Engineer, Bury.
" 21	Bury, Lancs.—Sludge Presses	Sewage Committee	J. Cartwright, Borough Engineer, Bury.
" 21	Stafford—Supply of Boiler, Royal Brine Baths	Corporation	W. Blackshaw, Borough Hall, Stafford.
" 22	Haslingden—Sludge-Pressing Machinery	Sewage Board	H. L. Hinnell, 41, Corporation-street, Manchester.
" 24	Portrane, Co. Dublin—Heating, Ventilating, &c.	Asylum Commissioners	G. C. Ashlin, 7, Dawson-street, Dublin.
" 24	Northwich—Engineering Works	Weaver Navigation Trustees	Weaver Office, Northwich.
" 25	Alexandria, Egypt—Construction of Iron Swing Bridge	Egyptian Government	Inspector, 3rd Circle, Alexandria.
" 26	London, S.W.—Engineering Works, Grove Hospital	Asylums Board	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
" 27	Carnarvon—Construction of Sea Wall	Harbour Trustees	Harbour Office, Carnarvon.
" 28	Donegal—Construction of Reservoirs, &c.	Guardians	J. L. Devenisty-Meares, Town Hall, Newry.
" 29	Wakefield—Precipitating Tanks, &c.	Corporation	R. Porter, Town Hall, Wakefield.
" 29	Wakefield—Pumping Engine, &c.	Corporation	R. Porter, Town Hall, Wakefield.
" 29	Walsall—Excavation and Erection of Tank	Corporation	J. R. Cooper, Bridge-street, Walsall.
" 30	Hebden Bridge—Construction of two cast-iron Culverts	Urban Council	J. Newton and Son, 17, Cooper-street, Manchester.
June 1	Ashby-de-la-Zouch—Waterworks	Urban Council	G. and F. W. Hodson, Engineers, Loughborough.
" 1	London—Underground Conveniences	Commissioners of Sewers	The Engineer, Guildhall, E.C.
" 2	Petersfield—Construction of Reservoir	Urban District Council	H. T. Keats, Petersfield.
<b>IRON AND STEEL—</b>			
May 21	London, E.C.—Railings, &c.	Shoreditch Vestry	J. E. Dixon, Town Hall, Old-street, E.C.
" 22	Bedwellty, Tredegar, Mon.—Pipes (400 tons)	Urban District Council	J. H. Lewis, Surveyor, Blackwood.
" 24	Tredegar, Mon.—Pipes (405 tons)	Urban District Council	H. F. Wells, Gasworks, Tredegar.
" 25	Brighton—Supply and Delivery of Pipes (1600 tons)	Corporation	F. J. Tillstone, Town Hall, Brighton.
" 25	Cleckheaton—Supply of Thirty-two Retorts, &c.	District Council	J. Armitage, Town Hall, Cleckheaton.
" 25	London, W.—Supply of Steel Girders (about 280 tons)	Great Western Railway Company	Engineer, Paddington Station.
" 25	Willesden—Supply of Pipe Sewers, Manholes, &c.	Urban District Council	O. C. Robson, Public Offices, Dyne-road, Kilburn, N.W.
" 25	Croydon—Wrought Iron Fencing	Urban District Council	Borough Surveyor's Office, Town Hall, Croydon.
" 31	Erith—Pipe Sewers, Manholes, &c.	Urban District Council	G. Chatterton, 46, Queen Anne's-gate, S.W.
<b>PAINTING—</b>			
May 22	Mossley—Painting, &c., Temperance Hall	Urban District Council	J. E. Robinson, 1, George-street, Mossley.
" 22	Willington Quay, Northumberland—Painting, &c., Stephenson Schools	Wallsend School Board	Clerk, Bewicke Schools, Willington Quay.
" 24	Warrington—Painting Iron Rails, Gates, &c.	Cemetery Committee	T. Longdin, Town Hall, Warrington.
" 24	London, W.—Whitewashing and Cleaning Asylum	Central London Sick Asylum	Asylum, Cleveland-street, Fitzroy-square, W.
" 26	Goole, Yorks.—Painting Street Lamps	Urban District Council	C. Chambers, Surveyor, Goole.
<b>ROADS—</b>			
May 21	Kingston-on-Thames—Supply of Flints (3000 tons)	Corporation	Borough Surveyor, Kingston-on-Thames.
" 21	Pattingham, Hull—Supply of Whinstone (annual contract)	Rural District Council	W. H. Snaith, Surveyor, Pattingham.
" 22	Batley—Levelling, Paving, Flagging, &c.	Town Council	O. J. Kirby, Market-place, Batley.
" 22	Bedwellty—Laying of Water Pipes	Urban District Council	J. H. Lewis, Surveyor, Blackwood.
" 22	Grange Town, Middlesbrough—Kerbing, Flagging, &c.	Eston Urban District Council	T. W. Stainthorpe, District Surveyor, Grange Town.
" 22	Hexham—Paving, &c., Cattle Market	Urban District Council	R. T. Surtees, Surveyor, Hexham.
" 24	Morley—Sewering, Levelling, Paving, &c.	Corporation	H. Sykes, Town Hall, Morley.
" 25	Adlington—Seth, Kerbs, Flags	Urban District Council	J. Stanton, Clerk, Chorley.
" 25	Dartmouth—Paving, Kerbing, &c.	Corporation	T. O. Veale, Borough Surveyor, Dartmouth.
" 25	Sale—Excavations, Supplying and Laying Pipes, &c.	Urban District Council	A. G. M. Brath, 4, School-road, Sale.
" 25	Tanfield—Limestone and Slag	Urban District Council	R. Heslop, Burnopfield, R.S.O., Durham.
" 25	Uppingham—Repairing Footways, &c.	Rural District Council	T. Northen, Thorpe-by-Water, Uppingham.
" 25	Wombwell, Yorks.—Sewering, Levelling, Paving, &c.	Urban District Council	J. Robinson, Council Offices, Park-street, Wombwell.
" 25	Church, Lancs.—Supply of Materials (annual contract)	Urban District Council	W. E. Wood, Surveyor, Church.
" 25	West Ham—Pitching, &c.	Town Council	Lewis Angell, Town Hall, Stratford, E.
" 25	Willesden—Road-making and Paving	Urban District Council	O. C. Robson, Public Offices, Dyne-road, Kilburn, N.W.
" 26	Ely—Road Materials (150 tons)	Urban District Council	W. McKelvie, City Surveyor's Office, Ely.
" 26	Hailsham—Supply of Materials	Rural District Council	E. Catt, Jun., Church-street, Willington.
" 26	Thame—Supply of 1200 tons of Granite, &c.	Urban District Council	W. Parker, Clerk, Thame.
" 27	Escrick, Yorks.—Leading Stone, Repairing Roads, &c.	Rural District Council	G. H. Nelson, 1, Museum-street, York.
" 28	Brighton—For Laying Wood Paving	Town Council	F. J. C. May, Town Hall, Brighton.
" 28	Colchester—Supply of Materials, &c.	Rural District Council	J. Ennals, Surveyor's Office, Copford.
" 29	Bebington, Cheshire—Road Diversion	Joint Railway Committee	Engineer, L. and N.W. and G.W. Railway Cos., Birkenhead.
June 1	Carshalton—Road, &c.	Urban District Council	W. W. Gale, Surveyor, Carshalton.
" 1	Folkestone—Road Materials	Corporation	J. White, Borough Engineer, Folkestone.
" 1	Urmston, Lancs.—Paving, Flagging, &c.	Urban District Council	C. C. Hooley, Council Offices, Urmston.
<b>SANITARY—</b>			
May 21	Bury—Sewage Disposal Works	Corporation	J. Cartwright, Borough Engineer, Bury.
" 22	Hexham—Sanitary Pipes	Urban District Council	R. T. Surtees, Surveyor, Hexham.
" 24	Hollingworth—Sewerage Works	Urban District Council	Foster, Son, and Bardsby, 23, John Dalton-st., Manchester.
" 25	Dover—Construction of Sewers	Town Council	H. E. Stilgoe, Town Hall, Dover.
" 26	Uppingham—Building New Culvert, Drain	Rural District Council	T. Northen, Thorpe-by-Water, Uppingham.
" 26	Kersley, Lancs.—Sewering, Bark-street	Urban District Council	T. Nuttall, 20, Market-street, Bury.
" 26	Ramsbottom, Lancs.—Sewers, &c.	Urban District Council	T. Nuttall, 20, Market-street, Bury.
" 27	Featherstone-upon-Hull—Scavenging (annual contract)	Corporation	Inspector of Nuisances, Lowgate.
" 28	Featherstone, Yorks.—Sewerage Works	Urban District Council	G. and F. W. Hodson, Engineers, Loughborough.
July 31	Oporto, Portugal—Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 5	Sheffield—Plans for Proposed New School	£15, £10	Sheffield School Board.
" 16	Morecambe—Designs for Hotel	£100, £50, £25, £15	Baxter and Abbott, Back-crescent, Morecambe.
July 1	Elne, France—Water Supply Scheme	50, 30, 20 guineas	La Marie, Elne, Pyrénées Orientales.
" 31 1898	Bootle—Designs for Technical School	50, 30, 20 guineas	Corporation.
Jan 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.
" 30	Wandsworth—Nurses' Home at Workhouse Infirmary	50 gs. (merged in 5 p.c.), 20 gs., 10gs.	Guardians, St. John's Hill, New Wandsworth.
" 30	Chesterfield—Brewery-street Board School		Managers, School Board Offices, Chesterfield.
" 30	Bexhill-on-Sea—Drinking-fountain and Dog-trough		Hon. Sec. Col. Lane Memorial, Standerton, Bexhill.
" 30	Burnley—Fountain, Queen's Park	£10, £5	Corporation.
" 30	Bury, Lancs.—Art Gallery and Free Library		Corporation.
" 30	Chesterfield—Enlarging Stephenson Memorial Hall	£25, £10	Corporation.





WE hear much complaint from Architects now-a-days, of the unseemly haste in which so much of their designing has to be done. The bad results of working at high pressure are constantly enlarged upon. While realising the inconvenience to himself, the Architect is too apt to show but little consideration in this matter to those working under his control. If a building has to be finished by a certain

building is nearing completion, with the result that the Craftsman has not the chance of doing himself justice. In most cases, when the Architect discovers the time they will take, he contents himself with selecting the most suitable of the stock patterns, and so the building loses in interest. Such work also as polished marble wall linings or staircases should be duly considered, and the detail drawings sent off months before the work has to be fixed. This gives the marble-mason time to select just the right blocks as they come from the quarry, and to let the Architect see and approve of them. Blocks of particularly fine marking can be reserved for prominent positions, and where, perhaps, two or three caps, or other features, are required of a certain colour or grain, there is time to instruct the quarrymen to try and procure what is wanted. When the drawings are delivered at the last moment, the mason has to use such material as he may have in stock. There is all the

delay in its delivery; and if he hurries the quarry owner unduly, that inferior stone is sent; such stone being the only one of the size available at the time. In all such matters as these the Architect can, by a little forethought at the beginning of the work, and with perhaps a little added strain on himself, take care that the pressure of the time limit does not bear so severely on any individual worker as to result in bad workmanship or material. No one knows better than he how destructive haste is to good design; he might bear in mind more often that it is equally detrimental to sound and honest craftsmanship. The Architect always expects to get in his buildings skilful and finished workmanship; he ought, therefore, to do all in his power—and he can do much—to see that the Craftsman have at least the time in which to do their best. The result would, we think, more than compensate for the small amount of extra trouble to the Architect which it might entail. Anyhow there is everything to gain.



GOLD PLATE FOR ST. PAUL'S CATHEDRAL. PRESENTED BY MR. HOOLEY.

MANUFACTURED BY THE GOLDSMITHS' CO. LTD. (SEE PAGE 237).

too early date, naturally all those concerned in its erection must expect to bear their share of the general pressure; but the greater the rush, the greater the need for the Architect to bring all his powers of organisation into play, to see that this pressure does not bear too unequally. There are many ways in which this can be done. For instance, he could make the full-size drawings of the various details, not so much in the order in which the finished work will be wanted on the job, but more in relation to the length of time the various works take to execute after the drawings have been received. On every building there are certain things that can be executed in a few days; the details for these can be kept back, if necessary, till the work is required to be fixed. There are other things, however, such as elaborate brass gas pendants from the Architect's design, for which special patterns have to be made, which take, perhaps, a couple of months after the drawings have been received. In the ordinary way, the consideration of all such fittings is put off till the

difference between a job where every block and slab has been selected to suit its particular position, and time has been spent on the finish of the workmanship, and one where the work has been turned out at a moment's notice, from whatever material happened to be at hand. In stone work there is not, perhaps, quite the same need to be beforehand. Most good quarries can supply at once all that is needed for ordinary work, and there is not the same necessity to select stones for their appearance, though it is necessary to do so for their weathering qualities, &c. Where, however, stones of unusual size and shape are required; it is most advisable to let the masons have details of these—or at any rate the dimensions and purpose for which they are required—as early as possible. The quarrymen can then be instructed to look out for extra large, or extra good blocks. If the Architect at the last moment decides to have, say, a balcony-landing in one stone that was originally taken off and described in the quantities as being jointed in several pieces, he cannot be surprised if there is

#### Peterborough Cathedral and the Protection of Public Buildings.

THE Centralblatt der Bauverwaltung of April 10th, a Berlin official journal relating to Architecture, contains an article by Herr Muthesius, an Architect connected with the German Embassy in London, on Peterborough Cathedral, which may be studied with interest as expressing the views of a dispassionate witness of the recent controversy with regard to the west front of Peterborough Cathedral and restoration in general. Commenting on the scheme put forward by the Society of Antiquarians for preserving the northern gable of the west front, the author compares the scheme to the newly-discovered practice of transferring old paintings to new canvas, by means of which the actual surface of the picture is preserved for centuries by the addition of a canvas backing. After a graceful allusion to the labours of William Morris for the preservation of ancient buildings, the author proceeds:—"English Architects are divided into two hostile camps on the subject of the restoration of buildings. The greater number side with Mr. Pearson,



who has a considerable following among the members of the Royal Institute of British Architects, whilst on the other side are ranged all those Architects who have identified themselves with the new Art-movement. These latter advocate freer and more liberal views with regard to Architecture, and, together with the painters, sculptors, and craftsmen imbued with the new Art tendency, form a considerable body. This body was unanimous in protesting against the pulling down of the gables, and it is pleasant to see the disciples of a new and progressive Art movement holding out the hand of fellowship to the recognised guardians of antiquity—the Archaeologists and antiquarians. Injurious expressions have been indulged in by both parties. Standing aloof from the strife of parties, one cannot but regret the manner in which the question has been solved by the somewhat hasty demolition of the gable in dispute, especially bearing in mind Mr. Pearson's views with regard to restoration. The defeat of the opposing party, it must be borne in mind, is more apparent than real, inasmuch in the course of the controversy they have brought over to their side such a body of public opinion in their favour as will render restorations which are preceded by demolition more difficult in the future. The conflict has, above all things, awakened public interest in the preservation of public buildings to such an extent that it is some compensation for the loss of the northern gable of Peterborough Cathedral. One result of the controversy has been that a Bill was introduced at the commencement of the present Session of Parliament to remove the control of Cathedral Churches from the Dean and Chapter, and vest them in some central authority for the inspection of ancient buildings. The Bill, however, did not emanate from the right quarter, being introduced by a member of a party which is opposed to the privileges of the clergy; the proposal consequently became a mere party question and was defeated. The future of an organised system for the protection of ancient buildings appears to be inseparably connected with the new Art movement, and it is to be hoped that it will steadily progress as that movement has done, and will follow its triumphant course."

#### CELTIC ART.

##### SOCIETY OF ANTIQUARIES OF SCOTLAND.

AT the last monthly meeting of this Society for the present session, the first paper read was a notice of a kitchen-midden at the Den of Dun, Forfarshire, recently excavated by Lieutenant-Colonel H. W. Lumsden, F.S.A. Scot. In the second paper, Dr. James Macdonald gave an account of the discovery of an urn of an uncommon type in Scotland, which was exhibited by Mr. James Mackenzie, F.S.A. Scot. It was found in December 1889 in ploughing a field near the seashore at Craigmond. It stood in the ground upright, the mouth covered by a flat stone, and was nearly full of burnt human bones, the earth round about it being blackened and mixed with charcoal. The burial had been after cremation, and no relics of any kind were found in connection with it. The urn, which is a narrow-mouthed jar, widening to the shoulder, and tapering to the base, stands 14in. high, and is wheel-made, greyish in colour, and unglazed, ornamented only by slightly incised lines running round the shoulder and a band of parallel lines slightly impressed in the clay. It has all the characteristics of Romano-British pottery, of which, during the Roman occupation, there were many manufactories in Britain. In the next paper, Mr. W. A. Craigie discussed the question of the Gaels in Iceland. Mr. Alexander Hutchinson, F.S.A. Scot., Broughty Ferry, read a paper in which he gave notices of several articles of interest which had recently found a resting place in the Dundee Museum. The first was

##### A NATIVE CANOE,

dug out of a single tree which was found imbedded in a sandbank in the Tay in July 1895. It is of oak, 29ft. 2in. in length and 4ft. 3in.

wide at about 6ft. from the stem, and about 20in. deep inside. Like most Scottish canoes, it was fitted with a sternboard inserted in grooves. Indentations on the sides probably indicate the positions of two seats or stretchers, and another in the prow suggested the insertion of a figure-head. The second article referred to was a sharpening stone covered with deeply indented scores or grooves, found in the Sidlaw Hills; and the third was a Beggar's Badge, bearing the arms of Dundee, a pot of three lilies with dragons for supporters and the date 1549, and the legend "Dei Donum." The last article noticed was a flint implement with a peculiar history. When the Dundee whaling vessel Eclipse was engaged in cutting up a recently killed whale in Coutts's Inlet, Davis Straits, one of the knives came in contact with a hard substance imbedded in the blubber about three inches under the surface, which on examination proved to be a lance-head of a dark coloured cherty flint. It is over three inches in length by two inches in breadth, leaf-shaped, with a stem or tang about three-quarters of an inch in length for attachment to a shaft. Flint implements are not now used by the Eskimo, but are still known to have been used, and are regarded as curiosities. In the last paper, Mr. J. Romilly Allen, F.S.A. Scot., discussed the art relations of the early Christian monuments of Scotland with those of Ireland. Referring to the peculiar style of decoration of this period, known as Celtic, which was by some assumed to have had its origin in Ireland, he said it was no doubt true that

#### CELTIC ART

attained its highest excellence in Irish illuminated manuscripts, such as the Books of Kells, Armagh, and Durrow; but it was a relevant inquiry to what extent these illuminators were indebted to foreign sources, and whether the similarities of design on the monuments of the eighth to the eleventh centuries in Scotland, Ireland, England, and Wales might not be accounted for by development on parallel lines rather than by direct derivation. Instancing a series of rubbings taken by Mr. Griffith-Davies from cross-shafts and fragments at Clonmacnoise, which closely resembled the slabs of Perthshire and Forfarshire, he proceeded to point out other resemblances between the Irish and the Scottish monuments generally, alike in their decoration and in the groups of Scriptural figure-subjects which appear on both. The Irish crosses are chiefly found in Leinster and Ulster and are absent from the counties of Kerry, Cork, and Waterford, which contain the Ogam-inscribed pillar stones of the earliest Christian period, and the total number of crosses in Ireland, amounting to about 50, was extremely small as compared with the 300 localities in Scotland, 250 in England, 40 in Wales, and 15 in the Isle of Man that were now on record. The conclusion seemed to be that the pre-Norman crosses of Ireland were later than those of Scotland, England, and Wales, and that this phase of Early Christian sculpture had its origin in Northumbria. The scrolls of foliage on the Irish crosses, and the bird and leaf motives in the Book of Kells, indicated Northumbrian influence. Scandinavian influence had not been detected on the Irish crosses, but was found on the metal work. In conclusion, he considered that the Celtic style was a local variety of the Lombardo-Byzantine style, from which its figure subjects, interlaced work, scrolls of foliage, and many of its nondescript animals were obviously derived.

Mr. C. P. AYRES, of Watford, Herts., Architect and Surveyor, has been elected chairman of the Watford Urban District Council, and has been duly sworn in as a magistrate for the county.

THE St. Pancras Vestry is to erect spacious public baths and washhouses for the north division of the parish. The site chosen, estimated to cost £9000, is in the Prince of Wales Road, near Kentish Town Road, and nearly opposite the site of the projected North-West Polytechnic Institute.

#### THE L.C.C. WORKS DEPARTMENT.

AS already reported, the return which has been presented to the London County Council by the Works Department as to the cost of works completed between March 31st and September 30th, 1896, shows that some very large and serious losses have been incurred. The return relates to fifteen works, in only six of which has the actual cost been below the final estimate, the aggregate saving amounting to £734. On the remaining nine works there has been a total loss of £8260. The most serious loss shown is that upon the execution of some temporary buildings at Colney Hatch Asylum, where the actual cost of the work has exceeded the final estimate by £3827. The original estimate for the work as passed by the Council was £17,500, the final estimate, which included certain additions, £19,114, and the actual cost £22,942. On completion of the job the Works Committee sent in a claim to the Asylums Committee for £2920 for extras, out of which the engineer of the Asylum reported that he could only allow £310. Arbitration was suggested, but ultimately, if the Council consents, the Asylums Committee, in addition to the £310, is willing to pay one-half of the balance for extras claimed. The Finance Committee, reporting upon the application of the Works Committee for an excess vote of £3827, and of the Asylums Committee for an excess vote of £1304 for this work, states that it appears that

#### NO PROPER ESTIMATE WAS PREPARED

or taken out. Another large loss is shown on the Shelton Street dwellings, where the deficiency amounts to £2607, the final estimate for the work being £14,416, and the actual cost £17,028. The lesson, the Works Committee thinks, to be learned from the job is, one of caution in undertaking works which are not of a straightforward character. With reference to the excess vote of £2607 asked for in respect to these buildings, the Finance Committee states that it has already pointed out the exceptional inconvenience attending any excess of cost over estimate in respect of artisans' dwellings erected by the Council, because they are only agreed to by the Council upon carefully-prepared estimates with calculations to show the effect upon the county rate. The excess of cost of £2607 in the present case meant an addition of £103 to the annual charge for interest on the sinking fund for capital outlay which, unless it could be met by increased rents or savings in maintenance and management, would constitute an annual charge on the county rate throughout the loan period of upwards of fifty years. The other losses shown in the return relate to the following works:—Crossness outfall gridiron, where the excess over estimate amounted to £1078 on work estimated to cost £3219; Barking outfall, alterations to pier, excess, £206; Victoria Embankment storeyard wall, £98; Sandy's Row improvement, £345; Battersea river-station causeway, £88. There are also two other minor losses. The aggregate of the fifteen works reported upon shows—final estimate £52,133, actual cost £59,690. This is an

#### INCREASE OF 20 PER CENT.

on the original estimates. In view of the facts disclosed in this report, Lord Onslow has given notice that when the report of the Special Committee on the Works Department comes up for consideration he will move as an amendment to the recommendations:—"That the Council, being satisfied from the evidence submitted and the further report of the Works Committee that work executed for it by the Works Department is not superior in quality to that executed by contractors, and that considerable loss has been sustained in consequence of the operations of the Works Department, resolves that no further work be entrusted to that department, and that it be referred to the General Purposes Committee to consider and report as to the arrangements necessary for the due completion of the works in hand, and for dealing with the central works in Belvedere Road."



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





SHEFFIELD TOWN HALL. DETAIL OF CENTRE BLOCK. WEST FRONT. E. W. MOUNTFORD, ARCHITECT.

From a Photograph by Bedford Lemere & Co.





SHEFFIELD TOWN HALL, FROM THE NORTH-WEST. E. W. MOUNTFORD, ARCHITECT.

From a Photograph by Bedford Lemere & Co.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Sheffield New Town Hall.

(By our Special Correspondent.)

ILLUSTRATED.

IN writing a description of the new Town Hall, it should at the outset be stated that the building is not complete. The hall is finished for the present, as far as erection of buildings is concerned; architecturally, however, the Cheney Row front has yet to be continued right along to Norfolk Street, when the somewhat unsightly red brick walls overlooking Norfolk Street courtyard will be shut out of sight. The small range of buildings thus still required bears a very small proportion to the magnificent whole, and, though essential to the artistic completeness of the pile, its absence does not, at present at any rate, detract in any way from the utility of the remainder. At the commencement of his work, Mr. E. W. Mountford, the Architect, was supplied with a complete schedule of the numerous rooms required in the building, but in the five years during which the hall was in course of erection the requirements of Sheffield grew considerably, and it was necessary to depart from the original arrangements in several instances. Bearing this in mind, the architectural incompleteness of the building becomes itself an advantage, for it allows of very considerable extension, while yet keeping within the bounds of the original site.

On the site of the Town Hall there formerly stood New Church Street, and a mass of what in these days would be called slum property. This property was cleared, not to make room for the Town Hall, but as part of a general scheme of improvement, and at first the site was among the surplus lands which the Corporation has periodically offered for sale by auction. The value of the site, which, of course, has not passed through the market

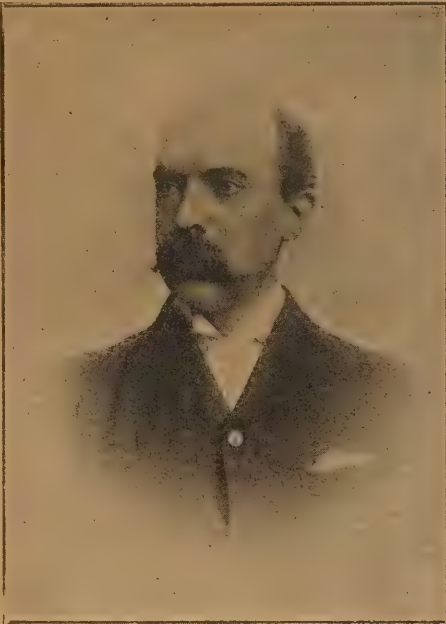
since it was acquired for the purposes of street improvement, is put down at £49,180, and its area is 4920 square yards, so that the land cost almost exactly £10 a square yard.

The general style of the Architecture of the building was described by Mr. Mountford,

century, no existing building having been consciously copied either in whole or in part."

The general idea of the Architect was to obtain the dignity essential for the municipal buildings of a large town, combined with the utmost convenience of internal arrangement and the largest possible amount of light for the interior.

The two principal fronts, to Pinstone Street and New Surrey Street, are separated by a lofty and imposing clock-tower, 200ft. high, at the angle between them; this feature emphasising the long range of the double façade and adding dignity and finish to the whole. On either hand of the clock tower the buildings range away in an effective vista, being grouped together and treated in detail in such a way as to make the general view at once harmonious and picturesque. The design of the building has happily been characterised as "Victorian Renaissance." The details are of Classic form, but as a whole the Architect has aimed at originality, and has obtained it without being either grotesque or archaic. The principal external feature, after the great clock-tower, is the main entrance on the Pinstone Street façade, which is much more imposing and effective than it would have been if Mr. Mountford's first idea had been carried out. Over the semi-circular archway which crowns the steps he originally intended to place two small windows, but the single bold-arched window now appearing there is much more dignified. The archway over the gate is richly panelled, and is flanked by coupled Doric columns supporting a balcony. Octagonal turrets, 7ft. in diameter, flank the lofty gable over the entrance, and in the apex of the gable is a niche containing a statue of the Queen, surmounted by a canopy bearing the Royal Arms. The arms of the city, county, and diocese, and the rose of York, are also introduced into the decoration of this central



E. W. MOUNTFORD, ARCHITECT OF SHEFFIELD TOWN HALL.

when he sent in his designs, as "modern Renaissance, as far as possible English in character and detail, and, so far as he knew, as original as might be in the nineteenth



SHEFFIELD TOWN HALL. SCULPTURE IN VESTIBULE. BY F. W. POMEROY. FROM A PHOTOGRAPH BY BEDFORD LEMERE AND CO.



feature. The entrance itself is 12ft. wide. In the spandrels of the arch are two fine carved figures, representing steam and navigation. Above, over the head of the arch, on the first floor, are carved the City Arms, supported by heroic figures, 11ft. high, representing Thor and Vulcan.

The fitness of internal arrangement was almost the primary consideration which the assessor of the sets of designs sent in entertained when deciding on their respective merits, and the result of this practical criterion is that the designs which came to be actually carried out provide for convenience and utility in a no less conspicuous degree than they provide effectiveness to the eye. There is first the spacious Council Chamber, with Mayoral parlour, reception rooms, and other depart-

feature of the internal arrangement is that each of the municipal departments has its various rooms or offices placed entirely in the space between two of these entrances or adjoining staircases.

Entering the building through the principal entrance, the first feature to attract attention is the pair of fine wrought iron gates, now richly gilded. These are a piece of admirable and artistic work. A very pleasing style of decoration has been carried out, mainly scroll work and foliations, and the grill is treated in the same way as the gates. The work of making the gates was carried out by Messrs. Singer and Son, the well-known Art metal workers of Frome and London.

The principal entrance leads into a vestibule 20ft. wide and 16ft. high. It is paved with

grey Hopton Wood marble, the red Devonshire, the beautiful and lustrous black Ashburton marble from the same county, and the Barrow-in-Furness limestone; the whole presenting a pleasing blend in richness of colour and harmony. The roof of the hall is a dome of enriched fibrous plaster, with a central lantern filled with tinted glass.

Immediately at the head of the staircase is the grand corridor, 150ft. long by 10ft. wide, having marble lined walls, marble floor, and vaulted ceiling. This corridor gives access to the reception rooms on the one side, and to the ante-rooms and council chamber on the other. It is lined, like the central hall, with British marbles, and the floor is a rich floral mosaic. The beautiful groined



SHEFFIELD TOWN HALL: SCULPTURE IN VESTIBULE. BY F. W. POMEROY.

FROM A PHOTOGRAPH BY BEDFORD LEMERE AND CO.

ments. In addition the building contains suites of offices for the Town Clerk's department, the Borough Accountant and his staff, the Borough Surveyor, and the Health, Sewage, and Rivers, and Waterworks Departments. The offices of most of the working departments are on the ground floor or basement floor, and are readily accessible from the street for the convenience of the public. At the same time the uniform corridor arrangement affords every facility for the communication of one department with another. The Council Chamber, Mayor's apartments, and the committee rooms, also the Town Clerk's offices, and several departments whose work is of a more public character, such as the waterworks and rate-collecting offices, are situated on the first floor, while the second and third floors are occupied by numerous offices in relief of the accommodation provided for the various departments below. From the centre of each of the four fronts of the building a staircase leads direct to each floor of the building, and another

marble. The walls are lined with polished Hepton Wood stone—a Derbyshire stone—relieved by columns of Irish marble. Between these columns are arches containing important groups of sculpture, representing the various virtues naturally attributed to the councillors of the city. The vestibule ceiling is handsomely enriched.

Passing through the vestibule into the Central Hall, the grand staircase comes into view. The central hall is pure Architecture. There is nothing in it that is not stone, with the solitary exception of the electrolier, and this is a piece of fine brass work of unique design. The hall is 40ft. square, and, like the vestibule, is paved with white Sicilian marble. A marble staircase 10ft. wide, carried on arches supported by marble columns, leads to the reception rooms on the first floor. The walls of the hall are lined, and the balustrade is constructed with a variety of most beautifully-veined and coloured marbles. Then, in alternate courses up the walls, are the soft

ceiling is left plain for future treatment. On the left of the staircase as one ascends there is a fine marble doorway leading into an ante-room to the Council Chamber. Adjoining the ante-room is a cloakroom, with oak fittings, and an oak cabinet containing sixty-six lockers to be appropriated by the members of the Council. The Council Chamber itself competes very keenly with the Mayor's reception rooms for the honour of being considered the finest room in the building. Its loftiness alone gives it dignity. The dimensions of the chamber are 60ft. by 40ft., by 28ft. high. The ceiling in its ornamentation is most elaborate. On three of its four sides the chamber is lighted by large traceried windows. The walls are panelled in oak to the height of 10ft., and above the oak they are lined with stone. The wood used in the flooring, the aldermanic bench, and the public gallery (which is provided with a separate entrance from Cheney Row) is Baltic oak, which was cut four years before being used. The grand oak canopy



behind the Mayor's chair is supported by four Ionic columns. In the centre of the canopy appear the city arms finely carved, and upon the canopy are also carved the conventional rose, shamrock, and thistle of the three nationalities of the United Kingdom. The carved panels continue along the whole front of the aldermanic bench, the subjects being chiefly floral, with here and there a mask peeping out. The councillors' seats are arranged in the form of three semicircles facing the Mayor; and though each councillor has a chair to himself he has to give elbow-room to a colleague at his desk. Between the councillors and the aldermanic bench are placed one large table for the Town Clerk and his assistants, and two smaller tables, one on each side, for the accommodation of the Press.

The Mayor's reception rooms consist of a suite of three apartments, namely, the Mayor's

moulded in plaster. The chimney-piece stands upon four fine pillars of green Irish marble, above which is a pediment with circular corners, having in its centre a carved alabaster design representing Wisdom and Valour guarding the gates of the city. There are two human figures, with buildings, in the background. In the other reception rooms the salient decorative feature is the carving of the oaken wainscots, doors, and niches. The doors are flanked by fluted columns of oak, with richly ornamented capitals. At intervals along the sides of the rooms are recesses or niches with shallow arches—all in oak—and on the panels above each recess is carved the monogram of a former Mayor of Sheffield, and the date of his term of office. At the tower end of the banquetting hall is a finely carved oaken gallery resting upon cantilevers, and

their fittings differ, but all are in the same material—unpolished oak—and the general appearance is that of simplicity and utility.

There is testimony of the Architect himself as to the ability displayed in the sculptural decoration of the building by his colleague, Mr. F. W. Pomeroy. Most of Mr. Pomeroy's work has the merit of possessing a local meaning; the finest piece of carving in the building, contained on a series of panels on the east side of the grand hall, is a representation of the local legend of "The Dragon of Wantley." Of the outside work, again, probably the best is to be found in the figures of Thor and Vulcan over the principal entrance—these allegorical personages being, of course, those represented on the city arms. One thing that had necessarily to be borne in mind regarding exterior adornment was the inevit-



SHEFFIELD TOWN HALL. SCULPTURE IN VESTIBULE. BY F. W. POMEROY.

FROM A PHOTOGRAPH BY BEDFORD LEMERE AND CO.

Parlour, the dining room, and the reception room. They may be used as separate rooms, or the whole thrown into one large hall for great assemblies by raising the partition screens, which slide into the roof. In style somewhat severe and classical, the effect of this suite upon the spectator is imposing. The rooms are floored and wainscotted with oak, the wainscoting, which extends 8ft. above the floor, being relieved at equal distances with carved niches, supported on fluted columns richly carved on the upper portions, and of the same material. The ceiling of fibrous plaster is ornamented with diamond-shaped figures. There are pairs of fluted columns on either side of the screens, surrounded with carved friezes. When the partitions are raised there is a splendid suite 155ft. long, 35ft. wide, and 22ft. high. In the Mayor's Parlour the principal decorative feature is the large chimney-piece, which rises from the floor right up to the ceiling, and terminates in the city arms

reached by a staircase in the tower. Under the gallery is the entrance to the serving room, which is in the tower, and communicates by means of lifts with the kitchens on the floor above. At the same end of the room there is a door opening towards a small open gallery that will prove useful on social occasions. This fine suite of rooms is capable of receiving and accommodating in comfort 500 guests.

From the grandeur of the reception rooms we pass to the committee rooms. There are three principal committee rooms *en suite*, and three sub-committee rooms located on the first floor, but in different parts of the building. The walls are dadoed in oak, and the floors, tables, and chairs are also of oak—the latter upholstered in red morocco leather, with the city arms emblazoned in gold thereupon. There are scores of offices on every floor, and a uniform style of treatment has been adopted with regard to them. Their purposes and

able obliterating effect of the Sheffield atmosphere upon greatly detailed architectural enrichments. The sculptor's aim in all his work has been to use some symbolism which, although it may not be understood by the man in the street, will always have interest for those who desire to be interested. Passing under the arch into the grand hall, and turning to the east, the sculptor has carved the series of panels in low relief containing the legend of "The Dragon of Wharncliffe," or Wantley. This was a terrible monster that delighted in making a meal of fair maidens, and created havoc until it came to an ignominious end at the hand of Sir Thomas More. The valiant knight is depicted in the act of despatching the dragon with his trusty sword after breaking a spear in the monster's shoulder. The children in the meshes of the tangled wood have been lured there by the blandishments of false promises. At the top of the staircase may be seen, carved in stone over the



door leading towards the Council Chamber, a mystical figure holding a scroll which advises the councillors as they pass in to be "as wise as serpents, and harmless as doves." Among other features the more noteworthy are a series of panels running round the hall under the ceiling cove, which contain trophies of arms, implements, and other manufactures of Sheffield; and on the exterior of the building in Norfolk Street, two fine figures of Peace and War, and several other interesting pieces of sculpture. The entrance in Surrey Street is surmounted by the city arms, while the vestibule inside is decorated with carvings representing the signs of the zodiac. The principal feature in the front towards Cheney Row is the large gable of the Council Chamber, with its flanking turret and traceried windows. In the apex of this gable is a statue of Justice. Scattered here and there about the building are various coats of arms belonging to gentlemen or companies connected with Sheffield, and in a panel upon the Surrey Street staircase is carved a memento of the visit of the Duke and Duchess of York in 1895. Heads of various animals, typical of our Colonial Empire, are carved above the first floor windows in the Surrey Street front.

The tower, rising 200ft. from the pavement, is built on a bed of concrete 30ft. square and 25ft. thick; the concrete itself resting on the solid rock. At the ground floor level the walls are about 5ft. thick, and advantage of this has been taken to locate within them the strong room of the City Accountant. The dome and spire at the top of the tower are covered with copper. The clock in the tower, the work of Messrs. Wm. Potts and Sons, of Leeds, is constructed to strike the quarters and hours on heavy bells.

The heating of the building is carried out on the system of low pressure steam, which is provided by three boilers in the basement. The apparatus has been put in by Messrs. Longden and Company, of the Phoenix Foundry. The heat is spread by the principle of direct radiation by means of Messrs. Longden's "Sunbeam" radiators. The lighting throughout is by electricity, and there are no fewer than 1348 incandescent lamps ranging from 16 to 50-candle power each.

Ten tenders for the building were sent in, and that of Mr. Edmund Gabbutt, of Liverpool, for £83,945 was selected.

MR. GREATOREX, the Borough Surveyor, has prepared a special report for the Sewerage Committee of the West Bromwich Town Council on the treatment of sewage at Friar Park. He submits for their consideration two schemes—the first being chemical precipitation in land and artificial filtration, and the second bacteriological treatment.

THE Waterloo-with-Seaforth District Council has approved the proposal to construct a marine promenade at an estimated cost of £16,152, and has decided to take steps to obtain the consent of the frontagers to the scheme.

A BREWERY of larger dimensions and capacity than any to be found at the present time in the neighbourhood is about to be built by Messrs. Polkinghorne and Company, on the Ashford Estate, Mutley. The contract for the work has been secured by Messrs. G. Shellabear and Son.

PLANS of the new Church of St. Martin, Roath, the proposed memorial to Bishop Smythies, have been prepared. The building will accommodate 1000, and the estimated cost is within £10,000. The subscriptions and promises amount to less than £2000.

WE have received the May number of the Journal of the Royal Institute of British Architects. It contains the official report of Mr. F. C. Penrose's paper on "The Parthenon and the Earthquake of 1894," with illustrations, a letter by Mr. E. Cozens-Smith on "Architects and Reinstatement of Buildings after Fire," memoirs of the late Charles Alfred Chastel de Boinville and the late Arthur Baker, a series of reviews on various subjects contributed by Mr. W. M. Flinders Petrie, Mr. A. E. Street, Mr. A. N. Wilson, and Mr. John Leaning, and other items.

### THE BLACKWALL TUNNEL.

THE Blackwall tunnel is just finished, and the opening ceremony took place on Saturday. For a century the need of some means of direct communication between Greenwich and Blackwall has been greatly felt, and this want became acute in the last decade. A bridge was quite out of the question; so the tunnel was dug. A population estimated at one million four hundred thousand is affected by this improvement. The contract for the construction of the tunnel was given to Messrs. Pearson and Son for £871,000. Over and above this cost of making the tunnel, the County Council has spent £344,000 in acquiring property to enable the tunnel to be constructed, and £50,000 in making the approach roads from Lower Woolwich, bringing up the initial cost of the work to more than a million and a quarter pounds. The line of the boring runs across Greenwich Marshes, and the length of the tunnel proper is 6200ft.—about one mile and a quarter—and its diameter 27ft. This admits of a carriage way 16ft. wide, with footpaths a little over 3ft. wide on each side. The tunnel is level under the river, and is fed by approaches of a degree of incline much like that of the Haymarket. The walls are lined with white glazed tiles, and the whole length underground is to be lighted with electricity, there being three rows of lamps. The tunnel is joined by iron segments, each of about a ton weight, which were placed in position by means of arms attached to the boring shield worked by hydraulic power. This boring shield is

#### ONE OF THE ENGINEERING WONDERS OF THE AGE.

In the first place it is the largest ever made, measuring 19ft. 6in. in length, weighing 250 tons, and costing to build £10,000. Its special features were designed by Mr. Muir, the engineer for Messrs. Pearson and Son. The outer shell consists of four  $\frac{1}{2}$ in. steel plates. There are two vertical plate diaphragms at right angles to the axis of the shield, dividing it into two, and these diaphragms are air-tight, and consequently at the working face of the shield. The portion of the shield that lies against the ground to be cut consists of the outer skin fixed by circular grinders to an inner skin, the two joining to form a cutting outer edge. This cutting edge consists of four floors containing twelve working compartments, and at 6ft. 6in. back from the cutting edge there is a vertical iron screen, at the back of which was a safety chamber in case of any sudden inrush of water. The great shield was pushed forward by means of jacks worked by hydraulic pressure equal to five thousand tons. This majestic mighty mechanical mole, by its use

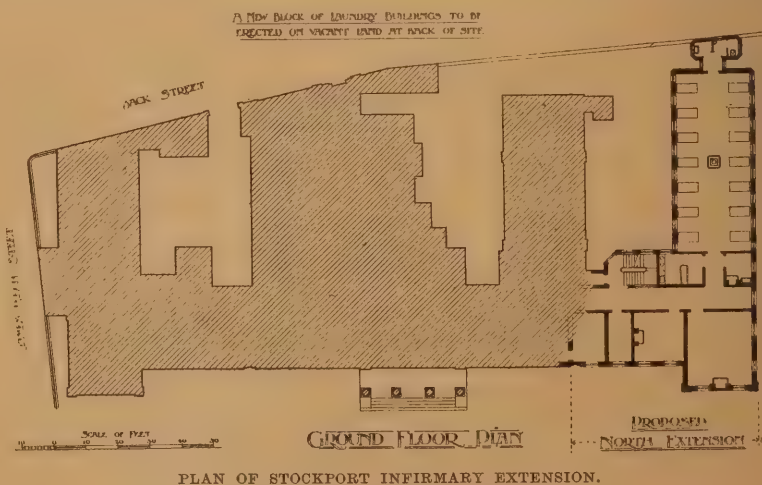
the line of the least resistance, the air bubbled up out of the depths sometimes as much as a quarter of a mile from where, buried in

#### THE SLIME OF CENTURIES,

the huge machine ground its horny head round and round, eating its way to the far shore. The bargeman, resting on the heavy oar of his lazy craft, was many a time startled, if anything ever startled a Thames waterman, at seeing a sudden upheaval of the waters as though a furnace below had made the river to boil. At times the shield approached within 5ft. of the lower waters, and then very often the air was enabled to escape in such quantities as to make it necessary that barges loaded with clay be anchored over the spot, and the cargo dumped into the river to form a proper resistance. To the tunnel there are four ventilating shafts, varying in depth from 75ft. to 100ft. These caissons are of wrought iron, and consist of two skins, the space between, 5ft., being filled with cement. They each weigh about 6000 tons. In grinding and scraping its way under the river the shields came upon a number of curiosities, all of which have been added to the museum. The most interesting and important was a mammoth's tusk, which came out in a good state of preservation; and besides there were finds of lignum-vitæ and stones a hundred feet below the river, showing that the ancient bed of the Thames was so much lower. Various strata of "Woolwich beds" were passed through, some of them so extremely tough as to bend the edge of the shield. But, taking it all in all, the finds were scarcely so numerous as might be expected. In its superintendence of this work of laying out a pleasant stroll under the Thames, the County Council took minute and particular care for the safety and health of the workmen employed. So successful has been this undertaking at Blackwall that already the details of other tunnels under the Thames are being discussed, and it is now almost certain that another huge boring will be begun at Rotherhithe as soon as Parliament can be got to sanction the work.

### STOCKPORT INFIRMARY EXTENSION.

IT has been decided to make an addition to the Stockport Infirmary, in the first place by continuing the present building at the north end, so as to equalise the Architecture of the front elevation, and also by erecting another pavilion of two stories at that end similar to those already existing. These enlargements will permit of a new and ample apportioning of day and sleeping rooms for the nursing staff, and, at the same time, add



of compressed air for forcing back every drop of water that happens to be in the ground at the time being bored, is believed to be able to make a tunnel through any sort of soil, and is not far short of having the ability to construct one in the very waters of the river. The pranks played by the air it blew from its iron lungs were many and curious, for, following

some twenty beds for patients, and room for the children. Messrs. Woodhouse and Willoughby, of Manchester, have been appointed Architects for the work, and we give a perspective view and plan of the design accepted by the committee. It is probable that the expense connected with the proposed additions and alterations will amount to about £8000.





EXTENSION OF STOCKPORT INFIRMARY.

MESSRS. WOODHOUSE AND WILLOUGHBY, ARCHITECTS, STOCKPORT.

## SANITARY PLUMBERS' WORK AND SANITATION.\*

MR. S. S. HELLYER

AT THE ARCHITECTURAL ASSOCIATION.

ON one of the dog-days in July of last year, when everything was in a state of dissolution, I received a letter from the honorary secretary of this Association asking me to read a paper on "Sanitary Plumbers' Work and Sanitation," and being in a melting mood, and it being "the second time of asking," I felt bound to accept the invitation. The subject is too large and the time too short to admit of any adornment, even if I had the power; but in this I am not troubled, knowing well enough how learned you all are in the art of embellishment, and that any deficiency of mine in this respect will readily enough be made good by you. Holding the strings of his client's purse, money naturally becomes an important factor with the Architect. He ever wants to accomplish so much for so little, and somehow money does not increase in value as the years go by—the wages world makes a shrinkage in it. I should like, therefore, to comfort your minds at the outset by saying—speaking obviously apart from the increase in plumbers' wages, which applies to all the other building trades—that the sanitary plumbers' work of to-day costs but little more relatively than did

### THE INSANITARY WORK OF TWO OR THREE DECADES AGO.

The additional cost for better treatment and arrangement for better ventilation of the soil-pipes and waste-pipes is largely met by the adoption of more simple methods, by the use of cheaper traps, smaller waste-pipes and soil-pipes; also by the use of fewer cisterns and cisterns of smaller size and of a less expensive character; and, further, by the difference in the market price of materials, lead especially being much cheaper now than it was a quarter of a century ago. I will give you an instance by throwing upon the screen illustrations

showing the insanitary method of treating a valve-closet thirty to forty years ago, and the sanitary method as generally practised to-day by those proficient in the craft of plumbers' work. The excess of work is so marked in the old method that I need not go into figures to show its greater cost. No doubt the many improvements which have been made in the best kinds of valve-closets have increased their cost, but this is met by the simplification of certain parts, and by the use of plainer basins, a simple white satisfying for most places now; for we no longer require to study colours in our water-closets—we have our art schools for that—nor do we now seek for closet-basins with looking-glass bottoms. I think I ought to say that there are older methods of treating

#### THE VALVE-CLOSET

than the one just shown, that being considered (half a century ago) an improvement upon the treatment it first received in the latter part of the last century and the earlier part of this. For instance, in the illustration just shown the waste-pipe from the safe is trapped independently of the closet trap, a weeping-pipe from the closet service is turned into it for charging the trap with water every time the closet is used; whereas in the earlier method the waste-pipe from the safe was connected with the closet trap, as in fact was also the waste-pipe from the cistern. In the earliest method of all, these two latter dangers were non-existent: the closets having no safes under them no waste-pipes were required; and as the water was generally pumped up into the closet cisterns, where situated above the basements, there was no such need for cistern wastes, especially as the water, instead of overflowing the cistern could run away through the wire-pipe of the service box into the closet-basin, and through the overflow pipe of the latter into the closet trap and out into the soil-pipe. In an illustration later on we shall see how this was done. But I am departing from my subject. In the old method the Bramah closet was supplied by means of a spring-valve, a spoon or shoe-valve, or a round drop-valve soldered to a lead service-box, the latter kind being the one just shown, but such details do not in any way upset our conclusions as to the greater

amount of labour involved in the old method than in the new. That carries us a long way, for it mattered not whether a valve-closet or a pan-closet were adopted; the plumber's work was just the same in both, the service-box only being a little larger in the former case than in the latter. For good houses the best plumbers used to consider the Bramah closet the proper kind for the principal water-closets, and the pan-closet for more common use and for servants' use indoors, and sometimes also for the upper servants' use in the yard or area, though the water-closet in the latter places was generally fitted with the well-known long hopper-closet. I will say nothing about the cost of the latter, excepting to remind you that it was cheap and advertising; but I do not hesitate to say that the insanitary pan-closet, with its D-trap and other belongings, cost more than the sanitary pedestal wash-down closets of to-day. In this reference to the relative cost of the modern method of plumbers' work with that of the old, I am not, of course, taking into consideration the additional comforts and luxuries, if I may so call them—elaborate baths and luxurious lavatories. If people want sitz, spray, and shower baths, they must expect to pay for them, as they do for their motor cars and bicycles. However, I should be sorry to convey the impression that because the prices of certain materials have been reduced, and the work to certain water-closets simplified, that

### PLUMBERS' WORK NOW COSTS NEXT TO NOTHING;

for there is a very important factor yet to be considered—viz., the labour—the crux which generally baffles the best of estimators. Plumbers' wages in London are at the rate of about one-fifth more than they were a quarter of a century ago, and I should think four-fifths more than when the Queen began to reign. The men do not receive this amount of increase in their weekly wage, for they do not work so many hours now. I am saying nothing against this advance in wages. Intelligent, industrious labour should be properly paid for. The first great requisite in a house is its water supply, for, in my opinion, as I said twenty years ago, no house can be considered safe to

\* A paper read at the Architectural Association on Friday last.



live in which is supplied with unwholesome water. If it were possible to get at the actual facts it would often be found that many a case of illness, and death, arose from bad water rather than from bad drains, from water supplied in an impure state, or which had been allowed to become contaminated in its storage. Therefore, when water has to be stored great care should be taken to see that it cannot be rendered impure by its surroundings, cannot be contaminated by the effluvia from water-closets, the emanations from ventilating-pipes, soil-pipes, and drains, or from the vitiated air of bedrooms and living-rooms. One hardly expected to have required any further restrictions, but our accountant actually saw two hobbledehoy's bathing in a cistern the other day. The illustration before you faithfully represents what (I fancied from his face when he told me) amused him as much as astonished him.

#### A PROPER CISTERN-ROOM

should be provided with lights and openings to and from the external air, and the cisterns should be so arranged that they may be readily and periodically cleansed. For this latter purpose—in addition to any overflow-pipe required by the water company—a cleansing waste-pipe should be so fixed that the cistern, or cisterns, may not only be emptied, but rinsed out with clean water from the ball-valve. To prevent the possibility of such pipes becoming conductors of bad air to the cisterns, great care should be taken to see that their discharging ends are kept well away from open traps, sinks, gullies, and places where foul air could enter them. It ought to be superfluous to say this after so much that has been written on the matter, but only very recently I came upon an error of the kind we are now considering in a nobleman's mansion, the work having been done but a year or two ago. I will show it upon the screen. The cistern-waste is taken into the head of a long length of 3in. cast-iron pipe, which, at the time I saw it, was in a very foul state, receiving as it did, the discharges from a general sink. That the waste-pipe from the sink would become fouled was pretty well understood by the authorities, for it was trapped rightly enough, though it was not ventilated; but neither the cistern-waste nor the overflow-pipe from the bath had any trap in them, although they delivered into the same head as the sink-waste. Of course trapping these pipes would be of no value, for there would be no water passing through them to keep the traps charged. I could add to such examples and give others of a more serious kind, we shall see some instances of how the cistern water can be contaminated later on in connection with other matters; but I must pass on to consider the important method of supplying cisterns with water. Apart from the great saving in cost by having a constant supply instead of an intermittent, enabling as it does the use of smaller rising-mains, and cisterns of a smaller size, and fewer in number, there is the great advantage of keeping the communication-pipes from the companies' mains always charged with water, and thus preventing them from becoming communication-pipes in another sense—from becoming, in fact, air tubes or passages for communicating disease germs. In the case of an intermittent supply, under favourable circumstances, directly the water is turned off from the main in the street the lower cisterns on the system would be supplied as they were drawn from by the water left in the mains; and it requires no great effort of one's imagination to conceive of

#### STREETS SUFFICIENTLY SLOPING

for such pipes to be quickly emptied, and to remain so daily for perhaps twenty hours out of the twenty-four. In such cases—the rising-mains in large houses being often of 1½in. bore, and even larger—the air, infected or otherwise, would pass at times even through such restricted passages from one part of a house to that of another; and also from one house to another under favourable circumstances. As the water subsided in the communication-pipes air would enter them through the open ball-valves, nature abhorring a vacuum. And

the air which would be thus sucked into the pipes would come, of course, from the air which surrounded the cisterns, and where such cisterns were in open contact with the air from bedrooms and water-closets, as shown on the screen, which represents a suburban house, of which there are perhaps hundreds like it, it could hardly be pure and might be dangerous. The upper cistern is practically quite open to the bedroom, for a badly fitted door would be no barrier, and the lower cistern is not only exposed to the air of the scullery, but also to the water-closet which opens into the scullery. No doubt any air currents set up through the empty main in the street and the communication-pipes to the houses would be induced by

#### THE DIFFERENCE IN THE TEMPERATURE

of the different houses, one house being often much warmer than another. Fortunately, there is a redeeming point in most things, and notwithstanding that specifications direct that rising-mains shall be laid in a manner to empty themselves, they are not often so treated, circumstances intervene, and "the best laid schemes o' mice and men gang aft a-gley"; the street main, for instance, stands higher than the point of ascension of the rising-main. But in cases where houses stand on much higher levels than the street main, no doubt such communication-pipes would empty back into the main in the street or road, and in streets or roads with a steep fall, as shown, the main with the water turned off would soon become empty. With a constant supply the main and the communication-pipes would practically remain always charged with water, and no such risk as we have been considering would be likely to take place.

#### CISTERNS WITH A CONSTANT SUPPLY

can be of much smaller size than when the supply is intermittent; and generally one cistern in such cases suffices for a house with a fair-sized family. The size, of course, must depend upon circumstances. It should be equal to the keeping of all the services from it going at one time, or the service-pipe to it must be of a bore sufficiently large to supply the water at about the same speed that it can be drawn from the cistern. Where there is only one cistern in a house, and it is also made to supply the hot-water circulation, the cold-water services from it for all other purposes should be so connected that a body of water is always retained in the cistern to keep the hot-water system going, in case the water should be turned off from the main for a little while; especially should this be the case when the hot-water circulation is on the tank system. Also, with a constant supply there is the further advantage of being able to draw directly from the company's main, and the water supplied to the table in this way will be found to be much cooler and nicer in every way, provided that the water in the company's main is pure and wholesome. For this purpose ½in. lead pipe will be found to be quite large enough.

#### WHEN THE WATER IS SOFT,

and would be likely to act on lead, block-tin or tin-lined lead pipe should be used, or tin-lined wrought-iron pipe, if the water company will allow it. Where the water would act on lead it would also act on galvanised iron, therefore the storage cisterns in such cases should be of cast iron or wrought iron lime-whited inside, and the cisterns for storing water for dietetic purposes would be nicer in earthenware, white enamelled inside. Great care is required in selecting the course for the service-pipe—the communication-pipe from the company's main. The pipe should never be laid under or near a soil drain, or in any trench in which bad or surface water could collect; for even though there may never be any restriction in the pipe to allow water surrounding it to be sucked into it, in case of any hole or defect in the pipe such water may find its way into it when the water is turned off from the main, and be forced up into the cisterns when the water is turned on again. Where such pipes cannot be kept at least 2ft. under ground, then, in positions where they

would be liable to very severe frost, they should be laid in a trough or box made of creosoted wood filled up to the top edges of the sides with hot pitch, with which might be mixed a little Stockholm tar and some sharp sand. No lead or iron pipe should be allowed to come

#### IN CONTACT WITH LIME,

and when such pipes pass through clay soil they should be well tarred over or be embedded in ashes or cocoanut fibre, which will also be helpful in protecting them from frost. If plumbers' work inside our houses ended here we should not have much to fear from noxious gases in our homes, but civilisation calls for certain conveniences to be placed indoors, and I must confess that it is most comforting to one's mind, if feeling a little "out of sorts" on going to bed, to know that if taken ill one will not have to light a lantern as in the olden times and go out into the night air. Now I know of no reason beyond that of incapacity why a water-closet should not be fixed inside a house with absolute safety, safer and sweeter, in fact, than a night-stool in one's bedroom, the use of which, when all the servants are in bed, would leave its presence painfully present for the rest of the night. But it is not so much a question of a night-stool *versus* a water-closet, or a privy or water-closet situated out of doors *versus* a water-closet indoors; for the outside convenience, by bad arrangement, may render it and the air surrounding the house

#### MORE UNHEALTHY

than even an insanitary water-closet indoors. The important question is: Can a water-closet be so fitted up that it may be used with absolute safety in any position or place it may reasonably be required, either outside or inside a house? Personally speaking, if I could not answer that question in the affirmative, I should not be here to-night. Living on an island, we naturally believe in isolation. We isolate all clean water-pipes, such as safe-wastes, cistern-wastes, and overflow-pipes, by making them discharge into the open air. We also isolate all dirty water waste-pipes, such as bath-wastes, sink-wastes, and lavatory-wastes, by exposing their discharging ends to the air outside the house, and in this matter we stand ahead of all other nations, not excepting even America. In some cases we also isolate soil-pipes, by "disconnecting" them from old and filthy soil-drains, safeguarding them from the air in the drain, and giving to each soil-pipe a separate inlet and outlet for

#### CONTINUOUS VENTILATION.

We go further than this, for we not only isolate the drain of one house from that of another, by disconnecting both from the common sewer, but in some cases we disconnect one section or wing of a building from that of another, excluding any infected air which may be in one section from another, and providing independent ventilation to each section, taking care, however, that no length of drain shall remain unventilated. And we not only isolate the main carriers, the sanitary wings are now isolated from the general building. And the water-closet apartments are not only isolated, but the water-closets. The "Corbel" and the "Bracket" closets have been specially introduced to isolate them from the floor as well as from the walls, an illustration of which is now before you. But isolation is not everything, our ships of war still count for something. A water-closet may be as isolated as a sentry-box, and yet be dangerous, for in this sanitary age no water-closet can be pronounced sanitary in the highest degree which cannot be used and left in itself and in all its parts as clean and wholesome as it was before usage. To compare various points and features of the great variety of water-closets and flushing-cisterns which now exist would require several evenings, and to attempt this to-night would only tend to the confusion of our minds on a subject simple enough in itself, but which, owing to the multifarious patterns of the many manufacturers, has become a little complicated.

(To be continued.)



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
May 26th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ON the first page of this issue we give an illustration of the service of gold altar-plate which has been accepted by the authorities of St. Paul's Cathedral in commemoration of the sixtieth anniversary of the accession of Queen Victoria, and which will be formally presented to them on June 20. The set, the pieces of which have been designed and manufactured by the Goldsmiths' and Silversmiths' Company, consists of four chalices, two flagons, and four patens, and all the gold used in the making of the service is of 18-carat. The ornamentation of the chalices consists of cherubs of the orthodox type, intermingled with vines and foliage in the style of some of the internal decorations of the metropolitan Cathedral. Very ornate is the relief work executed on the base and stem of the Communion cups, which are Italian in shape, with curved lips, and partly burnished. The patens are without ornamentation, but on the reverse side of each one is the sacred monogram encircled by the crown of thorns. The crosses on the lids of the flagons were modelled after that which surmounts the dome of St. Paul's. The gift is from Mr. Hooley. We understand the work has been done by two English goldsmiths, and no doubt from a point of workmanship leaves nothing to be desired.

As there were no "Old Masters" at the Royal Academy last winter, such an exhibition as that which is now open at Messrs. P. and D. Colnaghi's, in Pall Mall East, is all the more welcome. It is small, but good; a distinct advance upon its predecessor of last year. It consists of thirty-two Dutch and English pictures, including three beautiful sketches by Rubens, who, of course, is not strictly admissible among Dutch masters. Of these last the most important is a fine portrait of the Artist's father, by Rembrandt, signed and dated 1631; one of the not infrequent additions that eager search is making to Dr. Bede's list. It is flanked by two excellent little "laughing boys," by F. Hals, full of the master's characteristic energy, humour, and virtuosity. Two interesting equestrian groups (evidently portraits) by T. de Keyser, of which one is signed, are fine specimens of the later manner of this rare master; and a portrait by A. de Gelder, the latest of Rembrandt's pupils, comes very near to his great teacher. The English pictures include three fine half-lengths, the "Madame Le Brun" (the singer) by Gainsborough, the "Miss Clements" by Sir T. Lawrence, and the "Mrs. Fletcher" by F. Cotes, all as good as they can be in their different ways; and there is also the delicious "head of Gainsborough Dupont," the last work of his illustrious uncle. A charming head by Hoppner, a good small Bonington, Romney's "Mrs. Willett," and the admirable Crome from the James Price sale, are also included in this well chosen group of pictures.

IN all the City thoroughfares along which the Jubilee procession will pass active preparations for the decoration and illumination

of the streets and houses are now being made. Especially is this the case in Cornhill, Cheapside, and Mansion House Street. The arrangements at the Bank of England promise to be of a very elaborate character. The roof of the Bank will be conspicuous by the display of an emblematical group of figures, below which will appear in coloured lights the motto "She wrought her people lasting good." Messrs. Pain and Sons, St. Mary Axe, have, we believe, been entrusted with the decoration of London Bridge, the Monument, and Temple Bar. The decoration of the "Griffin" will be confined to a floral display, as there is a general consensus of opinion that canopies, triumphal arches, and all street erections of an elaborate character will be out of place, so strong is the desire of all concerned that nothing shall be allowed to interfere with the view of the pageant. The Royal Exchange will have its massive columns treated in coloured lamps, while the whole outline will be picked out in white and red lamps. The treatment of the Mansion House will probably be somewhat similar in style, though the illumination will be in greater detail. The contract for the decoration of Cheapside as far as the Mansion House will probably be placed with Messrs. Piggott Brothers, of Bishopsgate.

Nor only the disciples of Turner, but every lover of beauty, will greet with delight the completion of the peerless Liber Studiorum, which the master was obliged, from lack of funds, to leave unfinished. The issue of the engravings hitherto unpublished fittingly signalises the close of the nineteenth century. Mr. Frank Short, in undertaking the reproduction of sixteen important plates, has proved that his work can fairly stand beside that of the earlier engravers, whose proofs were under the Artist's supervision. His appreciative rendering of the spirit and magic harmony of Turner's pictures is the more remarkable from the slightness of the original drawings. The engravings, which are all mezzotint, are on view at the Rembrandt Gallery, 5, Vigo Street.

LECTURING on "Building Contracts" at Bristol in connection with the Master Builders' Association, Mr. F. E. Weatherly, barrister-at-law, pointed out peculiarities which distinguished building contracts from ordinary contracts. The Architect, he said, was valuer, judge, and master of the situation. Moreover, he was agent of only one party of the contract, and his decisions and valuations could not be attacked except for fraud. To counteract this enormous power of the Architect, clauses were inserted in the building contracts limiting the power, and giving in cases of certain disputes the right to refer to arbitration. In Bristol and the West all things no doubt worked smoothly between the Architect and builder, but the powers given to Architects by the common forms of building contracts were precisely what might cause friction—even ruin to builders and disaster to employers in cases where an Architect was young and inexperienced. The Architect did not guarantee that his drawings were correct, that his plans were feasible, that his calculations were accurate. He could not bind his principal by verbal representations varying his contract. The builder had no remedy where an Architect made an error in favour of employers, but where it was in favour of the builder the employer had a remedy against the Architect. The builder was absolutely at the mercy of the Architect unless he could show fraud, which was very properly a terribly difficult charge to support. One point builders had to fight for was that the drawings and plans should be guaranteed by the Architect or his employer. He understood that the Builders' Association had drawn up arbitration clauses which they desired to have adopted, but these had not been accepted by the Institute of Architects.

MANY are the uses—and abuses—of advertising, and those interested in either should visit an exhibition of posters opened last week at St. Bride's Institute, Fleet Street. The exhibition is under the direction of Messrs. Hore and Co., and embraces a wide collection of original designs for posters by Mr. Louis J.

Rhead. Mr. Rhead's skill and taste are essentially decorative, and the esteem in which his work is held in America must be greatly fostered in this country, too, by such an exhibition as that under notice. Massing and balance of colour, the well-defined lines, and other technical virtues that should appertain to that branch of pictorial expression for advertising purposes, are most happily combined in the work of Mr. Rhead, who is equally effective with the most brilliant of positive colours as with quieter tertiaries. A design for a musical magazine suggests a symphony, in its fine scheme of yellows against a green background. Another poster for the Gentleman's Magazine has the central figures robed in red amidst floral surroundings, and their sisters in blue; "Modern Light" is contrasted with an almost poetical "ancient flicker"; "Old Irish Whisky" is green with shamrocks and accompanying emerald tints; a design proposed to advertise flower seeds is really imaginatively conceived; while for the "Seven Ages of Smoking" a row of heads commences with the Indian, and from Raleigh, and the comfortable visage of an old Dutchman, reaches, shall we say, the decadence of the science, in the modern "masher."

A NUMBER of workmen engaged in making excavations in connection with the building operations near to Belfield House, Musselburgh, have unearthed two stone coffins, about 6ft. from the surface, containing human remains. The cists, which were of rude and primitive workmanship, were of angular shape, and measured about 3ft. in length and about 18in. at greatest breadth, and 2ft. deep. The peculiar shape of the coffins is accounted for by the remains having been placed in a sitting posture, in which they were found. The remains were in a remarkably good state of preservation. Sir William Turner, Anatomy Professor in Edinburgh University, believes they are those of Romans, and have lain in the earth for over 1800 years. In December last no less than five coffins containing remains were unearthed at the same spot, which is now believed to have been a Roman place of sepulture.

THE progress of the restoration of the grand Church of St. Bartholomew the Great reached a most important stage last week, when the restored Lady Chapel was reopened and dedicated. In few of the great historical Churches of the land had desolation wrought such havoc as in this, unquestionably the most interesting, after the Abbey, in all London, and but little behind any that could be named in the three kingdoms. Since 1863, the tide of pious restitution has been gradually and steadily filling up the waste places of profanity and vandalism, and now, though the nave has gone beyond hope, the stately choir, something of the transepts, and at last the Lady Chapel have been brought back to a state which is both religiously and Architecturally becoming. Like the grand Norman Church at Shoreham, like the beautiful Abbey Church at Pershore, like scores of the profaned and despoiled fanes that were butchered to make a courtier's holiday in the remarkable secular era of the sixteenth century, St. Bartholomew's Church only begins now at what was originally the entrance to the choir from the vanished nave. But forge and fringe factory have also disappeared for ever, and the massive and imposing remains of Rahere's grand Church no longer do dishonour to the memory of the pious founder, nor to the loyalty of English Churchmen. Between 1863 and 1866 the good work was inaugurated by the lowering of the floor to its original level, the removal of the pews and the completion of the apse on the ground floor level, the story above being occupied by the famous fringe factory. In 1884, the fringe factory, which projected 20ft. into the east end of the Church, covering the remains of crypt and Lady Chapel, was purchased for £6500, the apse was restored, the Church re-roofed, and the blacksmith's forge purchased. The present rector, the Rev. Sir Borradaile Savory, Bart., succeeded in 1887, and has vigorously carried on the work of his



predecessors. Under his auspices good work has been done with the south transept, the boys' school has been removed from the north triforium, and new schools built adjoining the Church; the north transept has been recovered from the blacksmith and turned into a small morning chapel, porches have been built, the triforia opened out, the crypt restored and adapted for a mortuary chapel, and lastly, after many minor but important details of restoration, the Lady Chapel has been restored, after more than 350 years of secularisation. The whole of the restoration has been carried out under the able superintendence of Mr. Aston Webb.

ONE class of painters can have, this season at all events, no cause to grumble. Not within living memory have London decorators been so busy. Other trades will have their turn by-and-by. The house-painters have been the first to reap the Jubilee harvest. Everything has to be finished before May is over. It is depressing to think that of all the thousands that will be thus spent there will be scarcely any permanent advantage to the appearance of London. The house-painting, of course, is good so long as it lasts. We know how transitory is that splendour. For the rest, the work in its result will be literally ephemeral. It is a kind of relief, however, to note that for the occasion the Marble Arch has been thoroughly cleaned. The familiar gateway just now almost looks like marble. One permanent improvement to an important bit of London thoroughfare will henceforth date with the Diamond Jubilee.

DR. DAVID MURRAY, President of the Archaeological Society of Glasgow, has issued his address to the society in the form of a pamphlet, pleading for an archaeological survey of the United Kingdom. Government spends large sums on the preservation and protection of records, or the reproduction of charters, but neglects the monuments which illustrate or supplement these records. For the interpretation of our Runic monuments we have to thank a Dane, Professor Stephens, of Copenhagen; for a record of our Roman inscriptions we have to look to Germany or Canada. Artistic objects are cared for by the Science and Art Department, but other objects, such as Roman altars, are passed by. The provisions of the Ancient Monuments Act have not been applied as they ought, in Dr. Murray's opinion, the Government having declined to accept many monuments which it was desired to bring under the operation of the Act.

AN equestrian statue of Maria Theresa, the famous ancestress of the House of Habsburg-Lorraine, was recently unveiled in Presburg on the Danube, the old Hungarian coronation city, in the presence of the Emperor and almost all the members of the Imperial house. The monument shows the energetic Empress in the coronation robes, with the Imperial crown on her head, mounted upon a fiery steed, and attended by a Hungarian magnate in his national dress, and by a warrior of the Hungarian insurrection. The monument is intended as a historical reminiscence of the memorable Reichstag of 1741, in which the young Empress fled from her enemies to the Hungarians, and with her firstborn in her arms—he who became the popular Joseph II.—appealed to them so successfully that the members of the Reichstag spontaneously drew their swords, and burst into the enthusiastic cry: "Vitam et sanguinem demus! Moriamur pro rege nostro Maria Theresia!" A young Hungarian sculptor—Fadrusz—as yet unknown to fame, is the author of the monument, which is entirely of white marble, and has been placed upon the Coronation Hill upon which the Kings of Hungary pointed their swords in the four directions of the compass, and vowed to protect the kingdom against all enemies.

Nor many people are aware of the existence of the Russell Institution, in Great Coram Street, and yet it possesses literary and artistic treasures of no small value. The ground lease expires this year, and the contents of the building are to be sold.

Among them is Haydon's vast canvas, "Xenophon's First View of the Sea, in the Retreat of the Ten Thousand." There is a peculiar history attaching to this work of the ill-fated painter. It was won by the seventh Duke of Bedford in a raffle during 1836. In that year it was valued, unframed, at 800 guineas, and the lottery consisted of eighty shares at ten guineas each. Among the participators were, it is stated, William IV., the Duchess of Kent, her Majesty the Queen (then Princess Victoria), the Duke of Sutherland, the first Lord Durham, familiarly known in the north as "Radical Jack," on account of his advanced opinions; and Lord Francis Egerton. The Duke of Bedford, who had three shares, won the picture and presented it to the Russell Institution, which was at that time a prominent feature of his Bloomsbury estate. The picture is 11ft. 6in. long and 9ft. 6in. high. It was exhibited, among other canvases by Haydon, at the Egyptian Hall in 1832.

DREUX, where the mortal remains of the Duc d'Aumale were laid to rest, was first used as a place of sepulture for the d'Orléans family by the Duc de Penthièvre at the close of the last century. During the Revolution the mausoleum was razed to the ground, and the remains of those interred in it scattered to the winds. A mortuary chapel in neo-Grecian style was erected on its site by the Duchesse d'Orléans, the wife of the Duc de Penthièvre, on her return from exile. This chapel was enlarged by Louis Philippe. The majority of the numerous tombs the building now contains are of great beauty. The Architecture, as might be expected from the period, affords a confused but not offensive medley of Gothic, Byzantine, and Lombard styles. Statues of saints adorn the porch, which is flanked by two slender towers, and an angel of the Resurrection guards the sanctuary. The dome, topped by a cross, corresponds to the circular shape of the interior, which is broken by two side chapels and an apse behind the high altar. Eighteen oak stalls, in double row, enclose the limited central space, and light is admitted through good modern stained glass, from designs by Ingres.

At a meeting of the Society of Arts, held last week at the Institution in John Street, Adelphi, a paper was read by Dr. Percy Frankland on "The London Water Supply." The lecturer pointed out that, although the conditions of supply were much as they were when he discoursed on the subject in 1884, science had moved onwards, and the discoveries in bacteriology had opened up new fields of investigation. It was now recognised that, at any rate, typhoid fever and Asiatic cholera might be communicated by water, and various questions in connection therewith had to be considered. The results of his investigations led him to conclude that the processes of storage and filtration, as practised on the London supply, constituted two very powerful bacterial barriers which were interposed between the rivers on the one hand and the service mains on the other. Owing to these barriers it must obviously be very improbable that any particular micro-organism, whether harmful or harmless, present in the original river-water, should reach the water consumer. Of late years an enormous amount of new and important information touching the hygiene of water had been collected. This new knowledge had wrought a great change in expert opinion throughout the world, and this change of opinion had been greatest in respect of precisely that type of water which constituted the major part of the present metropolitan supply, viz., river water which has been subjected to storage and filtration. Bacteriological investigation had shown that river waters by suitable storage and filtration could be rendered of excellent quality for the supply of towns, and that the extent to which such surface waters could be deprived by means of these processes of their bacterial life was altogether beyond what was to be expected. Careful search had also revealed the mechanism by means of which this remarkable purification was effected; it had shown what dangers this mechanism was exposed to, how these dangers

might be guarded against, and how the efficiency of the mechanism might be maintained and even improved. Bacteriology has thus become of priceless value to the water engineer.

THE Princess of Wales is exhibiting, at the annual show of the Home Arts and Industries Association, at the Royal Albert Hall, a piece of furniture of very novel design, which can be used as bookshelves or a rack. The beautiful embossed and gilded Cordova leather work which covers each end is her own handicraft, and harmonises admirably with the iridescent golden green with which it is enamelled. Princess Victoria has sent a quaint little stool, of which she has worked the cover in a dainty incised design of birds, cherries, and foliage upon leather, and signed "Victoria, '97." From the Duchess of York comes a heart-shaped occasional table, with the top ornamented by herself in poker-work in a curious but decorative device of grotesque birds and dragons, intertwined with ribbons. With these exceptions, however, the Alexandra School at Sandringham, whose exhibits are always one of the chief attractions of the exhibition, is unrepresented this year, on account of the serious illness of Fraulein Nödel, the accomplished directress.

At the concluding meeting of the Edinburgh Association of Science and Art for the session, held in the Scottish National Portrait Gallery, the President, Mr. George Somerville, read a paper on "Improvements in the Manufacture of Iron and Steel during the Reign of Queen Victoria." Mr. Somerville, in introducing the subject, referred to J. B. Neilson's invention of the hot blast, and the great economy in fuel for melting crude iron, to the demand for a heavy class of forgings caused by the development of railways and ocean steamships, to Nasmyth's invention and application of steam hammer, to Armstrong's successful manufacture of big guns up to 100 tons, to Bessemer's new steel process, followed by Siemens-Martin manufacturing mild steel, and the latest process of manufacturing nickel steel, which had a breaking strain of 50 compared with iron, which was only 20 tons per square inch. A full description was given of the various processes, the visit of the members of the Association to Messrs. Beardmore's Parkhead forge was referred to, where the Siemens-Martin process was seen producing plates and heavy shafts—notably a 70-ton steel forging ready for turning—also a more recent visit to Messrs. Denny's, Dumbarton, where the party saw the plates being used for shipbuilding, and heavy boilers, 1½ in. thick, to stand a pressure of 200lb. per square inch, being four times the thickness and able to bear twenty-five times the pressure of those in operation at the beginning of the Victorian era.

THE Society of Miniature Painters, while declining competition with the exhibition of famous portraits in New Bond Street, affords an appropriate opportunity of actually comparing the work of the present day with the standard of the old masters. Its second exhibition, at Messrs. Graves's gallery in Pall Mall, indicates that there is still a goodly following of the Art in which English painters have always held a distinguished place. Among the exhibits several clever studies by Mr. Lee Hankey are prominent. Mr. A. Williams, the president, shows work noteworthy alike in execution and rendering of character, and Mr. Cecil Quinell has some remarkably fine portraits. The contributions of many other members also repay careful study.

ENGINEER VOSS, of the shipbuilding firm of Blohm and Voss, in Hamburg, Germany, has completed plans for a giant ocean greyhound that is intended (he says) to cross from Southampton to New York in sixteen hours, which means a speed of 190 miles per hour. The inventor bases his calculations on a multiplicity of screws. The greatest number of screws now employed in shipbuilding is three. Voss means to use ten screws, and whereas the existing three-screw steamers carry their



propellers aft, set in the form of a triangle, with the middle screw a little lower than the others, the Hamburg inventor proposes to furnish both sides of his ship with five screws each, distributed at regular intervals from bow to stern. By this means he hopes to give the ship the greatest possible amount of stability and to prevent her from rolling. His plan presupposes that the screws will remain steadily in the water and be enabled to do their work uninterruptedly.

ALL the land required for the new University College Hospital, Gower Street, has now been secured, and the questions of light and air settled with the adjoining owners. The demolition of one-fourth of the houses on the site of part of the addition will be commenced in the course of the week. This will in no way interfere with the usual work of the hospital. Mr. Alfred Waterhouse has succeeded in rearranging the plans, so that a much finer entrance is made for the outdoor patients, this being a particular request of Sir Blundell Maple, who is anxious that sufferers, while waiting to see doctors, should be comfortably provided for.

THE Metropolitan Asylums Board, at its meeting on Saturday, resolved, subject to the approval of the Local Government Board, to purchase from the City Corporation, for the sum of £53,000, the plot of land facing the Victoria Embankment, at the corner of Carmelite Street, with frontages of 93ft. to the Embankment, and 191ft. to Carmelite Street, as a site for offices for the managers.

#### NEW THEATRE AT PLYMOUTH.

PLANS of the new theatre of varieties which is to be built near the dividing line between Plymouth and Stonehouse have now been approved of. The building is designed by Mr. William Henry Arber, of the firm of Wimperis and Arber, of 25, Sackville Street, Piccadilly. It will have a frontage of 140ft. on Union Street, and will run back with a similar length frontage in Phoenix Street. The style adopted is free Renaissance, and it is intended to be executed in chesnut terracotta. The façade is to be highly embellished with rich modelling. Taking the central bay first, the grand entrance is carried up the full height of the building—four storeys—in one composition, surmounted by a pediment containing the amalgamated arms of the Three Towns. The main portion of this gable is richly modelled, and contains two life-size historical figures, supporting a metal shield. Below this there is to be an artistic wrought-iron sign, bearing the name of the house. At the springing of the roof is

#### A FINE OVERHANGING CORNICE,

supported by carved medallions, over an enriched frieze. The three main storeys are composed of three different orders of Architecture. The vestibule and balcony are lighted by three large semi-circular arch openings. The vestibule is two storeys high, and will form a very fine feature of the design. It will contain a handsome double marble staircase, and the walls will be painted in design. The main entrance will be for the stalls and grand circle. It will contain the usual box and managerial offices. Across the full width of the building there is to be an arched portico, supported on cantilevers, so as to cause no obstruction in the street. On the right of the main entrance there is a grand hall, a portion of which will be used for flower and confectionery stalls, whilst on the left will be the entrance to the pit. The gallery entrance is to be in Phoenix Street. On either side of the grand entrance, and on the first tier, will be two large, semi-circular panels, to be filled in with Doulton vitrified frescoes, representing David Law's celebrated pictures, the sailing of the Armada, and its ultimate destruction by the fire-ships of Hawkins and Drake. The building is to be

#### FLANKED BY TWO TOWERS.

One of these is in the shape of a lighthouse beacon, in which there will be accommodated

an electric flash light, which will be visible over the Three Towns. A special feature throughout the construction is that it will be fireproof. The curtain will be of asbestos, the gallery served by three concrete stairways, and there are also to be three staircases for the grand circle, and ample emergency exits in both streets. A pass staircase for the firemen and staff may also be used as an additional emergency exit. The interior is designed with two tiers, gallery and grand circle, the sitting accommodation being estimated at 2000. The two balconies are horseshoe in form, and on both the ground and the first tier there will be eight boxes. The roof, which is also to be fireproof, will be surmounted by an elliptical dome, finely coffered. The style of decoration generally will be painted subjects and trophies, the former illustrative of naval and military progress from the days of the old galleons and armour-clad soldiers down to the present. The proscenium arch will be surmounted by a very fine panel illustrative of a sea fight. The dimensions of the proscenium are to be about 40ft. square, which is as large as that of almost any theatre in London, with the exception of Drury Lane. The stage will be 80ft. wide by 40ft. deep, and is to be fitted with all modern appliances,

#### CONSTRUCTED CHIEFLY OF IRON;

large scene dock, grid, doorways for scenery or for the admission of performing animals, the lighting and ventilation being into Phoenix Street. The top story of the building will contain a board-room or caretaker's or manager's flat, approached by a separate staircase from Phoenix Street, the high-pitch roof being utilised for the construction of painting or workrooms. The Great Western Hotel, which adjoins the site of the new theatre, is to be incorporated in the design, so that the whole façade will be made to harmonise.

THE Fine Art Society has given a commission to Mr. T. M. Henry, the painter of the wreck of the Birkenhead, to paint a picture of the wreck of the Warren Hastings.

AT Wigan it has been decided to obtain £40,000 in voluntary subscriptions for the erection and equipment of a technical school for the town and the surrounding townships, and at a meeting held early in the month nearly £10,000 was promised. At another meeting further subscriptions amounting to close upon £3400 were announced.

THE new swing bridge over the Dee at Queensferry, Hawarden, erected at a cost of £13,000, contributed by the Flintshire and Cheshire County Councils and the adjacent landowners, including Messrs. Herbert and Henry Gladstone, the trustees of the Hawarden estate, is still in the hands of the contractors, but it is expected that it will be completed in time for the formal opening on Whit Monday.

THE King of Siam performed the opening ceremony of the Khorat Railway, recently completed between Bangkok and Ayuthia. The new railway, although only a section of the Nagara Rajasima line, would be one of the most important of all the railways in the kingdom. All the railways to be constructed in the future, both to the north and east of Siam, would converge on that section as the main line common to them all.

CONTRACTS were let, at a meeting of the Leeds Waterworks Committee last week, for laying a 22in. main from the Weetwood filter beds to the Headingley pumping station, and for the laying of a 32in. main from Sheepscar along Roundhay Road to the new Harehills service reservoir. For the former work, the tender of the Staveley Coal and Iron Company was accepted, the amount being £2860. For the putting down of the Roundhay Road main, Messrs. Young and Co.'s quotation of £1338 was accepted. When this work is done, complaints of an inadequate water supply to the higher districts will, it is expected, be heard no more. It was reported to the Committee that the construction of the Eccup embankment was proceeding satisfactorily. Efforts are being made to have it completed by the date of the annual visit of the members of the Council to the waterworks in July.

#### LONDON IMPROVEMENTS.

##### THE HOUSE OF COMMONS COMMITTEE.

A SELECT Committee of the House of Commons, presided over by Mr. Rankin, has just had under consideration the London County Council (Improvements) Bill, the chief objects of which are to empower the Council to make a new river embankment, a new street, and various street improvements. The Bill, which involves the question of betterment, also provides for the widening of the Strand by the removal of Holywell Street.—Mr. Freeman, Q.C., for the promoters, explained that the Bill authorised the London County Council to make four distinct improvements, namely, extending the embankment from Battersea Bridge to the point where Lot's Road and Cremorne Road meet. This would enable Cheyne Walk, which was very narrow and had a great deal of traffic along it, to be considerably widened. The foreshore between the line of embankment and Cheyne Walk at low water was a mudbank, which the medical officer of health had frequently reported to be dangerous by reason of its insanitary condition. The Chelsea Vestry was so favourable to the scheme that it had taken the almost unprecedented course of agreeing to contribute one-fourth of the total cost. The next improvement was that for making a northern approach to the Tower Bridge. The great difficulty was that at the north of the bridge, though

#### THE STREETS WERE VERY NARROW

and congested, they were passed over by exceedingly important railway work, which he believed was now used by the Blackwall, the Great Northern, the London and North-Western, the Tilbury, and the Midland Companies. This locality could not be avoided in any scheme in this direction. The County Council, however, took the advice of the best engineers, and they were informed that the improvement could be carried out, but that it would take a long time, and that the cost would be great. The best street for carrying the traffic was one leading from the bridge, by Little Tower Hill to Great Prescott Street, whence at a subsequent date it would probably be extended, and form part of the scheme of getting to Whitechapel High Street. This street as originally laid out would have taken a large slice of the Royal Mint, which could only be done with the assent of the Office of Works, but he was glad to say that after discussion this matter had been satisfactorily arranged. As to the next improvement he said it was perfectly well known to the Committee that for a considerable number of years past a very prominent question had been the absolute necessity of obtaining a new street from Oxford Street or Holborn to the Strand, and there was a pretty general consensus of opinion that that street should pass into the Strand somewhere near Waterloo Bridge. Up to the present time enormous difficulties had intervened, partly physical and partly financial. In addition to the fact that such a scheme would involve considerable engineering work, and enormous expense connected with theatres and other large buildings, was the fact that there were very large areas of insanitary and bad property to the rear of the Strand and Wellington Street, which, before carrying out the scheme, should be first dealt with under the Artisans' Act. The present proposal, which was rather an instalment, was to sweep away the whole of the island of houses between the churches of St. Mary-le-Strand and St. Clement Danes, and between Holywell Street on the north and

#### THE STRAND ON THE SOUTH.

The present was a very fitting time to carry it out, for it so happened that most of the leases of that island of houses were now falling in. The fourth improvement was of a similar character to the last, but related to the island of houses at the corner of Tottenham Court Road and Oxford Street, known as Bozier's Court, which formed an exceedingly objectionable block to the traffic, and which could be very easily dispensed with. The road was



very narrow there, and there seemed to be no question that it would be an exceedingly desirable thing that it should be removed, the only point being who should pay for it. After discussion with the local authorities, the County Council came to the conclusion that it would be justified in effecting the improvement, and in charging it upon the metropolitan rates. Counsel proceeded to explain to the Committee the part of the Bill relating to the raising of a large proportion of the cost by what was generally known as the betterment clause, which applied to all four improvements. The general principle was very simple, and probably commended itself to everybody, viz., that if particular property of private individuals was improved by the outlay of public money, a proportion, at any rate, of the benefit so conferred upon the property should be returned to the public who had undertaken the expenditure.—Mr. A. R. Binnie, engineer to the County Council, gave evidence as to the objectionable condition of the mudbank at Chelsea, and said his estimate of the cost of the new embankment was £38,000.—Resuming the consideration of the Bill, Mr. Andrew Young, valuer to the County Council, said his estimate for acquiring the property and rights necessary to make the embankment was £26,000. He held that the present case was essentially one for the application of the betterment principle for the improvement in the value of property that had followed the making of Chelsea Embankment to the east of Battersea Bridge.—Mr. Caröe, Architect to the Ecclesiastical Commissioners, living at 94, Cheyne Walk, said from his western window there was a view which he believed was unique, and the loss of which would be

#### A SUBSTANTIAL INJURY,

not only to the neighbourhood, but to London. It was from his house that Mr. Whistler painted some of his best views of Chelsea Reach. The house that Turner died in was in Cheyne Walk, and the balcony he built for observing and painting the Reach still remained. Among the signatures to the petition against the scheme were those of Lord Ripon, Lord Lovelace, Lord Monteagle, Sir Edward Poynter, P.R.A., Sir Alfred Wills, Lady Victoria Grosvenor, Sir Walter Besant, and a number of Royal Academicians, including Mr. Briton Riviere, Mr. Waterhouse, and Mr. Aitchison.—Mr. David Murray said that the Reach should be preserved as far as possible in its present condition; it was very beautiful, and frequently formed the subject of pictures. The embankment would be an obstruction to the foreshore and quite out of keeping with the class of buildings there.—The Chairman said the Committee had visited the locality at Chelsea that morning, and had come to the unanimous conclusion that the preamble of the Bill relating to this part of the County Council scheme had not been proved.—The Committee then took into consideration the second proposal of the County Council for the making of a suitable

#### APPROACH ON THE NORTH TO THE TOWER BRIDGE

by the construction of a road 60ft. wide extending from the bridge to Great Prescott Street. This road, which would involve a portion of the site of the Royal Mint, was intended to form a convenient and wide means of communication between the bridge and Commercial Street, and to relieve the present congestion of the traffic between these two points. Great difficulty had been experienced in designing any new thoroughfare owing to the fact that it must very considerably interfere with the extensive lines, depôts, &c., of several railway companies which existed there. As a consequence there was a great deal of opposition to the present proposal, which was greater in consequence of the fact that it is proposed to raise part of the cost by the exercise of the betterment principle. The cost is estimated at £60,000 for works and £159,000 for land and property.—Mr. John Wilson, engineer to the Great Eastern Railway Company, said part of the scheme was to place a bridge of steel 60ft. wide where a brick arch 40ft. wide, belonging to the Great Eastern Company, now stood.

The bridge at this place carried eleven lines of railway, and in a working day there were some 600 trains passing in and out of Fenchurch Street Station. The traffic was greater here than at almost any other spot in the world, and he did not think the County Council realised all the difficulties of undertaking the work it proposed.—The Committee, having heard the arguments of counsel appearing for the Great Eastern, London and Blackwall, London and North-Western, Great Northern, and Central London Railway Companies, who opposed the scheme, decided to

#### APPROVE THE PREAMBLE OF THE BILL

in regard to the Tower Bridge approaches. They also found that railways, as such, were not to be exempted from the operation of the betterment clauses, except as far as their running lines—those lines which were not sidings—were concerned. Proceeding to take into consideration that part of the Bill which proposes to widen the Strand by removing the block of houses lying between the Churches of St. Mary-le-Strand and St. Clement Danes, the Committee heard the evidence of Mr. Andrew Young, valuer to the County Council, who stated that the owners of the Hotel Cecil had been so impressed with the necessity of widening the Strand that they had promoted a private Bill for that purpose at their own cost, but their proposals did not go so far as those of the County Council.—For the opponents of the Bill, Mr. A. Ventris, surveyor to the Strand Board of Works, stated that unless the whole block of houses on the north side of Holywell Street, which were of poor class, and had small frontages, came to be owned by one person or authority, there would be great difficulty in making them of the character suitable to the importance of the new street. The rateable value of the property to be removed was £10,865; of the island of houses between Holywell Street and Wych Street, £7670; and of the remainder of the betterment area, £74,087. The area of the island between Holywell and Wych Streets was 39,740 square feet, and the property to be removed 32,560 square feet. If the Strand were only widened to 80ft., which would be ample, instead of as proposed, 24,750 square feet of area, at present taken for thoroughfare, would be available to build upon.—Mr. Robert Reid, land agent and auctioneer, said, in his opinion, if this scheme were carried out there would be an enormous expenditure of public money without any corresponding advantage, because it would merely make

#### A LARGE OPEN SPACE

between the two Churches which would narrow down very considerably at each end, and the open space would thus be of little more use than the present thoroughfare. The principle of recoupment rather than of betterment should be applied in the present case. As the block of houses between Holywell Street and Wych Street must be dealt with in the near future, it would be wiser and cheaper to postpone the scheme till it could form part of a comprehensive improvement.—Mr. Robert Vigers, surveyor and land agent, said the present was not a case to which either the principle of betterment or that of recoupment should be applied. He did not think the improvement would benefit the property on the south side of the Strand, because it would cause pedestrians to walk along on the north side. It might thus even damage the southern property. He quoted several instances, including those of New Oxford Street and Queen Victoria Street, in which actual loss had resulted from street improvements. He favoured the promotion of a more comprehensive scheme, embracing the improvement of Wych Street, and obviating the waste involved in the present proposals.—Mr. Blurton, a tradesman, of Holywell Street, said he considered that if the island of houses facing his premises were removed he would be considerably injured.—Mr. Baggallay, Q.C., then addressed the Committee on behalf of the Strand District Board of Works, urging that the present proposal was not the best way, either from a physical or from a financial point

of view, of effecting the improvement which all parties agreed was necessary at this part of the Strand, and that, if they were to apply the betterment principle to this case, it would add very much to the cost hereafter of carrying out any improvements in

#### EXTENSION OF THE PRESENT PROPOSALS.

He asserted that a far better scheme could be devised by which the Strand could be widened to 80ft., which was all that was necessary, and Wych Street to 40ft., there being still left a considerable area which could be used for recoupment. As to the betterment principle, he argued that it was most undesirable that it should be applied in any Bill again until its working under the Tower Bridge Southern Approach Act had been tested and approved.—Mr. Littler, Q.C., for the Duke of Norfolk, then addressed the Committee in opposition, and Mr. Freeman, Q.C., replying for the County Council, said all parties were agreed that in any scheme for the improvement of this part of London this block of houses must go; and on its merits, apart from the question of betterment, he claimed that the present scheme was a proper and reasonable one.—The Chairman said: The Committee consider that the preamble of the Bill, so far as relates to the Strand improvement scheme, has been proved. With regard to the principle of betterment, they are also of opinion that it is not in itself unjust, but in the present scheme they consider it can only be justly and usefully applied to those properties which have a frontage upon the north side of Holywell Street. They also consider that the new street, being of great width, will require refuges in the middle of it in various places, and they also wish to call the attention of Mr. Freeman to the necessary alteration—without suggesting what it should be—of sub-clause 1 of clause 41, which is the definition of the area over which betterment should be placed.—The Committee then proceeded to consider the part of the Bill relating to the widening of Tottenham Court Road at the Oxford Street end by the removal of the island of houses lying between Tottenham Court Road and Boziers Court. By this arrangement the western side of Boziers Court will become the western side of Tottenham Court Road.—The Chairman, after a brief consultation with the other members of the Committee, said: Under the present circumstances the Committee consider the preamble on this part of the Bill has been proved.—The Committee then adjourned.

The Edinburgh committee entrusted with the arrangements for celebrating the Queen's Diamond Jubilee has resolved to proceed with the erection of a special pavilion at the Royal Infirmary, the sum aimed at being £50,000.

A PUBLIC inquiry was held at the Municipal Offices, Harrogate, on the 18th inst., by Mr. Rienzi Walton, on behalf of the Local Government Board, with respect to the application of the Corporation for the loan of £22,500, with which to purchase the Spa Estate.

ARTISTS will hear with regret of the death of Mr. R. A. Brownlie, whose humorous drawings signed "R. A. B." had earned considerable popularity and appreciation. Mr. Brownlie was a Scot with a keen sense of humour, and he translated this humour into a style of draughtsmanship peculiarly his own.

A MOVEMENT for the restoration of the Twickenham Old Parish Church tower, all that remains of the original building, erected, it is supposed, under the superintendence of William of Wykeham, about the middle of the fourteenth century, has been set on foot in celebration of the Queen's reign.

ON account of an unexpected delay in the process of production, the publication of the second volume of Mr. Edwin O. Sach's work, "Modern Opera Houses and Theatres" (B. T. Batsford), due this month, will have to be postponed until June. Owing to this later issue the author has, however, now been able to include some plates of Mr. Tree's new theatre lately opened, and also of the new Opera Comique at Paris, which is nearly completed.



## Professional Items.

**ABERDEEN.**—The Town Council has passed the following plans of new buildings:—Yard and shed at Allenvale, for the Allenvale Granite Company, per Mr. Duncan Hodge, Architect; alterations at No. 14, Stafford Street, for Mr. W. C. Thomson, per Mr. William Ruxton, Architect; stone-polishing mill on the east side of King's Crescent, for Mr. William Rae, per Mr. William Smith, Architect; alterations at No. 51, Fountain Hall Road, for Mr. Peter Morton, per Messrs. James Garvie and Sons, builders; alterations at Nos. 15 and 17, South Mount Street, for Mr. Alexander Riddell, Coull; additions at No. 15, Roslin Terrace, for Mr. William Greig; mason alterations at No. 33, Bon-Accord Street, for Mrs. McLean, Bon-Accord Street, per Messrs. James Garvie and Sons, builders; alterations and additions to St. John's Church, for the Vestry, per Mr. Arthur Clyne, Architect; two dwelling-houses on the south side of Ashvale Place, for Mr. A. J. W. Storie, per Mr. John Cameron, builder; two dwelling-houses on the west side of Forest Road, for Mr. John Morgan, builder; workshop on the east side of King Street, for Mr. John Kirton, per Mr. William Smith, Architect; workshop on the east side of Canal Road, for Mr. William Mollison, per Mr. Duncan Hodge, Architect; locomotive shed in connection with the Gasworks, at Cotton Street, for the Town Council, per Mr. Alexander Smith, engineer; mission hall on the west side of West North Street, for the Belmont Congregational Church.

The committee which has charge of the arrangements in connection with the proposed new Free Church at Mile End has resolved to proceed with the work, and has agreed to consult with Dr. Rowand Anderson, referee as to the designs, as to having the basis of these specifications drawn out in order that offers may be taken in for the work. It has been left for a future meeting to determine whether a hall shall be first built and used for a short time, or whether it will be more advisable to proceed at once with the erection of a Church.

**BALLINTUBBER.**—The foundation-stone of the new Church of St. James at Ballintubber was laid a few days ago. The building is in the Italian style, and will consist of nave, transepts, chancel, sacristy, and organ gallery. The measurements comprehend a building of 102ft. in length, of 61ft. in breadth, and 27ft. across the transepts. There are, in addition to the high altar, two side altars, a three-light chancel window, and ten windows at each side of the nave. The contractor is Mr. John Whelan, of Strokestown.

**BLACKBURN.**—The foundation-stone of new day schools in connection with St. Anne's Roman Catholic Church, Blackburn, was laid a few days ago. The building, which is being erected by Messrs. Keeley and Sons, contractors, Blackburn, from plans prepared by Mr. Oswald C. Hill, will be of two stories. The infants' and boys' departments, and two classrooms for boys, will be on the ground floor, which will be fire-proof, while upstairs will be the girls' school. Accommodation will be provided for 1000 scholars, and, including furnishing, the building will cost £7000.

The new organ just erected in the Primitive Methodist Chapel, Montague Street, was opened recently. The organ has been erected by Mr. Edwin Smith, of Blackburn.

**BLAIRGOWRIE.**—Estimates have just been accepted for the erection of a block of self-contained dwelling-houses in David Street, from plans by Mr. Robert Reid, Architect. The following are the contractors:—Mason work, Bailie Hill; joiner, Mr. David M'Ritchie; slater, Mr. William Craigie; plumber, Mr. Robert Kidd; plasterer, Mr. Joseph Bell; all of Blairgowrie.

**BRISLINGTON.**—The directors of the Great Western Railway have decided to erect a passenger station on their main line at St. Anne's

Park. The station buildings themselves will consist of "up" and "down" platforms, 400ft. in length, having booking-offices, waiting-rooms, covered footbridge, and every modern convenience. The main approach will be by a 36ft. road turning out of the public highway at the southern end of St. Anne's Wood, and approaches are to be given by two specially-constructed footways leading to the upper parts of the estate, which is being laid out in broad avenues for the erection of a most attractive class of small villa residences. The contractor for the new station is Mr. Samuel Rober'son.

**CARNOUSTIE.**—The Police Commissioners decided some time ago to erect new Municipal Buildings at the corner of High Street and Lochty Street, and invited several Architects to send in competitive drawings. The result was that those prepared by Mr. James P. Bruce, Commercial Street, Dundee, and Carnoustie, were selected. The main entrance to the building will be from High Street. On the ground floor accommodation is provided for all the burgh officials, and also for the Inspector of Poor. Here, too, is the strong room, and on the same floor is also a large lavatory, isolated from the main building. On the first floor, access to which is got by a large handsome staircase, is situated the council chamber, a commodious room measuring 30ft. by 20ft., and also a committee-room, 14ft. by 20ft., and a retiring room for the commissioners. Rooms, with all conveniences, are provided here, too, for the caretaker. The elevation to High Street is a free treatment of Renaissance.

**COLNE.**—Mr. W. P. Hartley, J.P., of Aintree, has offered to build and furnish a cottage hospital for Colne, the cost of the land and building to be about £3000, on condition that the people of Colne subscribe a similar amount for an endowment fund.

**DARLINGTON.**—An inquiry has been held by an Inspector of the Local Government Board with reference to a proposal of the Darlington Corporation to borrow £30,000. The evidence of the Borough Accountant and Borough Surveyor was that the gas supply was becoming inadequate to the town's requirements, and permission was sought to the borrowing of the above amount for present and future enlargements. The works had cost up to the end of last year £105,267, of which £30,267 remained unliquidated. The works had been built to produce 600,000 cubic feet of gas per day, but they had produced as much as a million and a quarter cubic feet in one day.

**DUNDEE.**—Two of the principal buildings in course of construction in the centre of Dundee are now nearing completion. The masonry of the new Post Office should be practically completed within the next ten days. That of the west front is already finished; the corner towers are ready for their domes; and the south face requires but little additional work. The joiners have begun the roofing of some of the back premises, but the roofing of the main structure will not be commenced until next week. At the new Prudential Assurance block in Meadowside, the offices on the upper flats will be ready for occupancy at the approaching term. The Company itself, however, which is to occupy the ground floor, will not enter the new premises until August at the very earliest. Progress at the Pearl Assurance buildings is meantime delayed on account of the non-arrival of the granite. A large amount of the stonework has already been hewn in the builders' yard, so that when the granite comes to hand operations will be rapidly pushed forward.

**EDINBURGH.**—Mr. James Gillespie is the Architect for the St. Andrews University new medical building, the plans of which have been passed. The building provides accommodation for the departments of materia medica, practical physiology, botany, and anatomy. Each department consists of a laboratory, lecturer's room, and museum. In the front block there are also cloak-rooms for the students, lecturers' common room, and a room for the janitor. The anatomical section occupies the most of the

back block, and comprises a lecture theatre, a large practical anatomy room, a preparation room, cellars, and a lift to the preparation room. Ample cloak-rooms for the students are also provided. The building is to cost about £10,000, and the funds are being provided by the Marquis of Bute.

The building of a new fever hospital at Colinton Mains has been commenced. This hospital is designed to give accommodation for 600 patients, and the cost is calculated at £400 per bed, so that exclusive of the site the building will involve an expenditure of about a quarter of a million pounds. The area proposed to be occupied by the hospital and the administrative offices extends to over 30 acres, but there is a desire on the part of some members of the Corporation that this area should be considerably extended. The hospital has been arranged on the pavilion system, something similar to the Edinburgh Royal Infirmary. There will be about a score of pavilions, seven of which will be set apart for scarlet fever patients, who form the largest number of infectious cases. The Architect is Mr. Robert Morham.

**FARSLEY.**—The Farsley District Council has adopted a plan and particulars, prepared by Mr. W. D. Gill, Architect, for the proposed widening of the main street of Farsley, which is crooked, and in some places narrow. The scheme provides for the widening of the street on the west side, and the cost is estimated at £10,872.

**GOMERSAL.**—Memorial stones have been laid in connection with the erection of new classrooms for the Wesleyan Sunday School, West Lane, Gomersal. The new class-rooms, together with a fence wall to the extended burial ground, and a few other improvements, are expected to cost about £1100, towards which £500 has already been raised.

**GRAYS.**—A new elementary school is about to be erected at Grays from the designs of Mr. Christopher M. Shiner, of Walbrook, E.C.

**LEEDS.**—The Meadow Lane Gas Committee has approved of plans for an extension of the exhaustor-house, and for additions to the station meter-house, in order to accommodate another meter. It has also been resolved to obtain tenders for hydraulic mains for the new retort-house. The tender of Messrs. Clayton, Son, and Company, Leeds, for travelling cranes and lime elevator has been accepted at £620.

Builders are very busy in Leeds just now. New houses are in course of erection in every direction, and still more are in contemplation. The Building Clauses Committee had recently no less than 116 plans of new dwellings to consider. These were chiefly for cottage property in Bramley, Beeston, Hunslet, Holbeck, Headingley, and the other suburbs. The plans also included several semi-detached villas that are proposed to be built in New Leeds.

The plans for the erection of the proposed Empire Palace Theatre, two arcades, and a number of shops upon a site on the east side of Briggate have now practically received the approval of the Leeds Building Clauses Committee. At a meeting of the committee, Mr. Batley, the chairman, stated that the promoters of the scheme had expressed themselves willing to amend their plans in any reasonable way in order to meet the wishes of the committee. He had suggested to them a few detail alterations which would render the music hall safer for visitors in case of an outbreak of fire. The committee endorsed Mr. Batley's action, and, subject to the suggestions being adopted by the promoters, the plans were passed. It is expected that the work will be commenced at once, and that it will be completed with all possible expedition.

**LEITH.**—Among the improvements which the Leith Dock Commission is at present carrying out is a building for the marine police. The structure, which has been erected at the Constitution Street entrance to the Albert Dock, takes the form of a cottage surmounted by a turret. It is built of red freestone, and



contains an inspector's room, muster room, and cell accommodation. Messrs. J. Lamb and Son are the contractors.

**LLANDAFF.**—It is the intention of the Dean and Chapter to provide a new organ at Llandaff Cathedral, conditionally on their effecting the sale of the one at present in use. The old instrument is of the Gray and Davison make, and was erected in the Cathedral about thirty years ago. It is a three-manual organ, and is in good condition.

**MARSDEN.**—The enlargement of premises and new suite of vestries at Marsden Wesleyan Chapel is rapidly progressing. The present building was erected in 1871, and consists of a chapel 54ft. by 42ft., with small north gallery, with an assembly-room, and five small class-rooms on the ground floor. It is proposed to lengthen the chapel 15ft., the sitting accommodation being increased about 130 sittings, and to add an organ recess, minister's vestry, choir vestry, and lavatories. The increased school accommodation will be for 220. The new buildings will be substantially built of local stone, in character with the existing chapel. The work is being carried out by the following contractors:—Masons, Whitehead, Fielding, and Bradbury; joiner, James Schofield; plasterer, painter, and concreter, John Bottomley; plumber, F. Goodall; ironfounders, R. Taylor and Sons, all of Marsden; and slaters, Pickles Bros., of Huddersfield, from the plans and under the superintendence of Messrs. John Kirk and Sons, Architects, Huddersfield and Dewsbury. The total outlay will be about £2000.

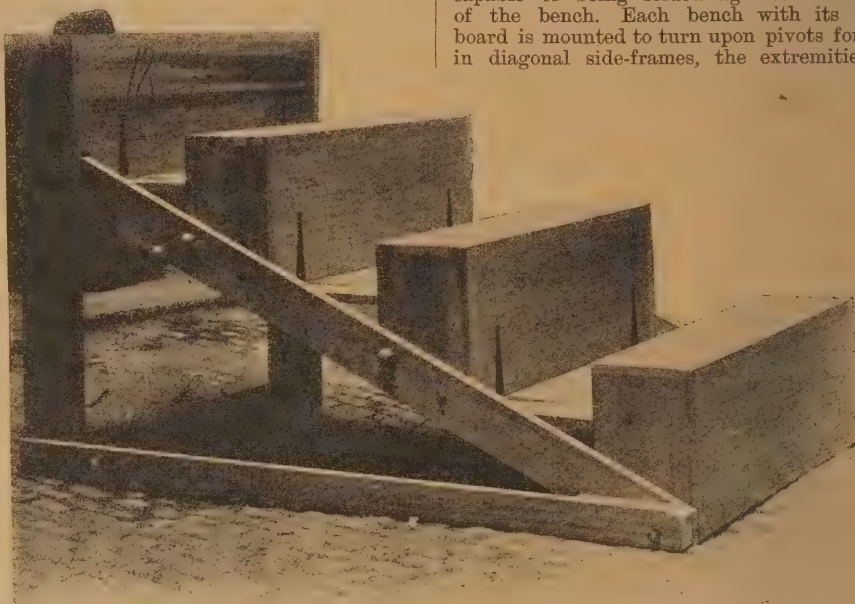
**NOTTINGHAM.**—The buildings of the Prudential Assurance Company, Limited, which form the junction of King Street and Queen Street, Nottingham, are now open. The principal entrance, surmounted by a tower and spire, occupies a commanding position. The steep gradient which affected both the plan and the elevation has been cleverly utilised by the Architects, Messrs. A. Waterhouse and Son. There are spacious entrances to the building on each side of the upper end of the slope, from King Street and from Queen Street; and in King Street is the entrance to the high-class restaurant now opened to the public by Messrs. Spencer. This restaurant, which is fitted in the latest and most comfortable style, is in the basement of the building, and has a most attractive approach. The triangular hall, access to which is given from the main entrance, is covered by a glass roof, and galleries run along the sides of the hall to the various offices. Mr. J. Hutchinson is the builder.

**SHEFFIELD.**—The new premises of Messrs. Nicholson, Greaves, Barber, and Hastings, occupy a prominent position at the corner of Fargate and High Street. The frontage of the premises is in the French Renaissance style. The entrance vestibule is paved with marble mosaic of bold design, and has a handsome tile dado. The system of ventilation adopted comprises a Blackman's 50-tube heater and a fan driven by an electric motor, capable of supplying 150,000 cubic feet of fresh air per hour at any desired temperature. Messrs. Flockton, Gibbs, and Flockton designed and planned the building, and Mr. James Fidler is the contractor.

**STONEHAVEN.**—The Stonehaven Golf Clubhouse, now being erected on a very picturesque site almost directly opposite the old Cowie Church, is to be built of timber, lined outside with 9in. by 3in. plowed boarding, with fillets on joints with hollows on edges, and the walls and ceilings inside will be lined with narrow, bevel-jointed linings with wooden cornices. The dimensions of the clubhouse are 42ft. 6in. by 18ft. 6in., having clubroom, ladies' room, and ample lavatory, &c., accommodation. The roof will be slated with red slates, having buff terra-cotta ridging and terminals. Contractors for the work are: Masons—William Smith and Co., Stonehaven; carpenters—Robert Thomson and Sons, Stonehaven; plumber—Alexander Mathieson, Stonehaven; slater—George

Davidson, Aberdeen; painter—Edward Copland, Aberdeen.

Plans have been sanctioned for the erection of additions to St. James's Episcopal School, Stonehaven. These comprise new class-rooms, retiring-rooms, cloak-rooms, lavatories, also new staircase. The elevation, which is of Gothic design, will be a decided Architectural addition to the town. The work, which is to be commenced at once, will be carried out by the following contractors:—Masons—Messrs. William Smith and Co., Stonehaven; carpenters—G. Mitchell and Son, Stonehaven; slater—C. Maitland, Aberdeen; plumber, E. Pithie, Stonehaven; plasterer—A. Cormack, Stonehaven; painters



THE COLOSSEUM PORTABLE FOLDING STAND. OPEN.

and glaziers—Barron and Son, Aberdeen. The Architect is Mr. J. Augustus Souttar, Aberdeen.

**WALTON.**—The foundation stone of the new Presbyterian Church of England, Walton, was laid on the 15th inst. The building scheme includes the purchase of the site, erection of the lecture hall, with requisite committee rooms, &c., and Church. The lecture hall, where the services are at present carried on, has been completed at an inclusive cost of about £2000, and the new Church will be completed by the contractors on or before the 1st of March next. The cost of the Church and hall is estimated at £5500, the acquirement of the site and the probable purchase of an organ bringing up the total to £6600. The sole contractors are J. and G. Chappell; Mr. J. MacDermot is the mason, and Mr. R. G. Sykes the Architect.

**WHEATLEY.**—Mr. S. Meacock, Chairman of the Wheatley School Board (Doncaster), recently opened new schools at Wheatley. The land cost £675, but owing to a quarry having to be filled up the net cost was £993. The contract amounted to £3060, which is equal to £6 16s. per scholar. The builders were Messrs. Mullins and Richardson, and the Architects Messrs. Athron and Beck, of Doncaster.

The foundation stones of a new Wesleyan mission hall were laid at Derby on Saturday, the 15th inst.

The contract for the construction of the railway extension by the Barry Company into the Rhymney Valley has been let to Messrs. Price and Wills at an estimated cost of £300,000.

The engineering experts called in by the Tyne Commissioners to report upon the damage to the North Pier at the mouth of the Tyne, caused by the severe gales last winter, assert that it will be necessary to reconstruct the whole pier at an estimated cost of £300,000.

## Trade and Craft.

"THE COLOSSEUM" PORTABLE FOLDING STAND.

The accompanying illustrations represent a patent folding stand which has just been opportunely brought out by Messrs. S. J. Waring and Sons, Limited, of Oxford Street. It is the invention of Mr. C. Dexter Barker of their staff, and is designed for use in shop windows for the accommodation of persons viewing the Royal Procession. The benches, as one illustration shows, are arranged one behind another with a gradual ascension, and attached to each bench is a hinged footboard capable of being folded against the front of the bench. Each bench with its footboard is mounted to turn upon pivots formed in diagonal side-frames, the extremities of

which are also pivotted in vertical supports. Thus the erection or taking down of the stand, even to an unskilled person, is a matter of only a few minutes, the whole structure, when folded, occupying a height corresponding approximately with the width of the benches, and only slightly exceeding in length that of the diagonal side-frames—a stand which will, therefore, pass through any ordinary door or window without difficulty. They are perfectly rigid and strong when open, and being a durable structure, can be used subsequently as grand-stands in tennis courts or recreation grounds. Messrs. Waring supply them in various sizes, in deal—plain, stained, painted, grained, or covered in baize. The cost of a stand to seat twelve is £3 12s. The use of "The Colosseum" will, at any rate, obviate the necessity of having workmen about, and prevent the disappointment consequent upon labour and materials—which will certainly be at a premium when the Greater Jubilee draws a little nearer—being not forthcoming.

STUART'S GRANOLITHIC STONE COMPANY, LIMITED.

A work which should reach the hands of engineers, Architects, and others interested in the construction of fire-resisting buildings, has just been issued by Stuart's Granolithic Stone Company, Limited, which indicates the extent to which this system is now being adopted in all classes of buildings throughout Europe and America. Mr. P. Stuart, F.R.S.A., inventor of the system, and the managing director of the Company, in developing the production of the granolithic material, has obtained the most widespread recognition of its merits as a light, strong, fire-resisting flooring, and the fact that over three million feet of the material has been used in constructions of one kind or another indicates in a practical way its value in building works. Numerous illustrations are given in the work under notice of the Company's extensive premises at Limehouse, London, and of various remarkable tests to which the material has been subjected. Those interested



in the foundational part of the operations will note some excellent views of the crushing mills at Dalbeattie; and thence will pass conveniently to the elaborate views of buildings in which granolithic flooring, staircases, &c., have been laid—the great Jenner block in Princes Street, Edinburgh, being a notable example, whilst the City of Manchester Municipal Technical Schools, Birmingham Municipal Technical Schools, and the new Town Hall, Brighton, may also be mentioned. The later illustrations take one to the Continent and to America, where also the granolithic stone is used for many purposes, from street paving to the elaborate internal decorations of imposing public buildings.

## FIREPROOF WOOD.

The Prince of Wales recently witnessed a trial of a fireproof wood on the waste ground behind the Tate Museum, where Millbank Prison formerly stood. Two model houses of wood were erected, precisely similar in design, but whereas one was constructed of ordinary material, the other was made of wood treated by the process it was intended to illustrate. On the windward side of each a pile of faggots was heaped and saturated with paraffin oil, so as to make a good blaze, and at the appointed hour a light was set to each simultaneously, with the result that the ordinary wooden building was soon ablaze, and collapsed in about twenty minutes, while the other suffered no more harm than the blistering off of the paint and the charring of the woodwork immediately in contact with the flames. We believe this is the first time that wood treated by the non-inflammable process has been tried in England, though, according to the printed history which was distributed, it has long been used in America, and has become compulsory in the United States Navy, and for many kinds of buildings. The process seems to consist of first extracting mechanically all the natural sap and gases of the wood, and then replacing them under pressure with some non-inflammable chemical substance, possibly silicate of soda or an ammonium salt. The wood has a caustic taste due to the substance with which it is impregnated, but is otherwise indistinguishable from ordinary wood. It takes a perfect polish, as the panels which were exhibited show, and it is said to work without difficulty or injury to tools.

## ELECTRIC TRACTION FOR GLASGOW.

When the Glasgow Corporation took over the tramways it was on the understanding that

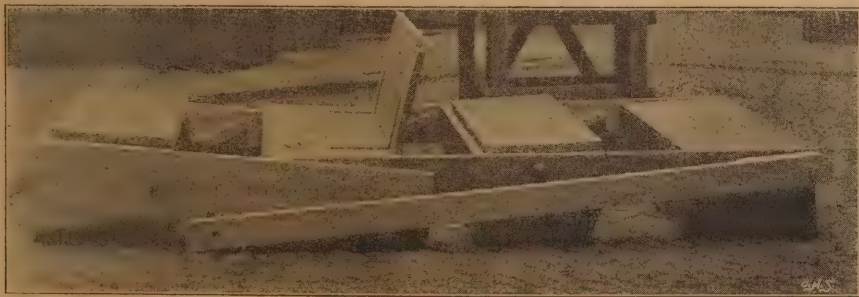
Now the report from twelve cities in the United States showed, for the electric overhead system, a cost, with one exception, of 2d. per car-mile; in most cases it was really from 1½d. to 1¾d. per car-mile, while two of the more recent companies formed—in Montreal and North Chicago—were working for ¾d. per car-mile. Even at 2d. per car-mile Glasgow stands to save £60,000 per annum, while at the same time increasing the receipts, for instead of forty-passenger vehicles there will be used electric motor-cars accommodating eighty passengers. The Corporation has decided to have a separate station rather than generate the current at the lighting station.

## MESSRS. WINSTONE AND CO. LIMITED.

That important feature of the ordinary room, the fireplace, has, within recent years, been the subject of considerable experiment, with the view of obtaining the best means of simple common-sense combustion. The success which has been attained is emphasised by the catalogue of Messrs. Winstone and Co. Limited, Finsbury Pavement, E.C., containing as it does illustrations of almost every pattern of stoves, mantels, and ranges. The designs vary in their degree of beauty, for of course the great point with cooking-stoves and the like is to ensure a quick, clear, red-hot fire with the greatest economy of fuel, and the minimum of smoke and dirt. At the same time Messrs. Winstone and Company have happily combined "modern Art" with their modern improvements, and a great number of their mantels and stoves cannot fail to impress one with their beauty, and often with their novelty. Fancy glazed tiles and enamelled decorations are pleasingly introduced in carrying out what in themselves are pleasing designs. And we would specially mention the wooden chimney-pieces, the material of which has undergone special drying process to prevent otherwise possible shrinkage. These wooden chimney-pieces are made in pine, mahogany, walnut, &c., and at prices far below what was at one time thought possible. Heating stoves, radiators, &c., are also catalogued by Messrs. Winstone and Company.

MR. ROBERT WILLEY, 33, New Bridge Street, is the Architect whose plans have been adopted for the enlargement of St. John's Schools, Ealing Dean, for the Educational Association of Ealing.

AN inquiry was recently held concerning the application of the Keighley and Bingley



THE COLOSSEUM PORTABLE FOLDING STAND. SHUT.

some means of mechanical traction should be adopted. The improvements almost daily reported in electric traction suggested caution, and in August, 1895, a committee of the Corporation was appointed, and it sent deputations over the Continent, and afterwards to the States, with the result that all opposition to the trolley system was dissipated in their minds. Sheffield, Belfast, Leeds, Blackburn, Dublin, and other places have been even more active, but now the Corporation has agreed to fit an independent line from the centre of the city through St. Rollox to Springburn, at a cost of £20,000, so that the efficiency and economy may be tested. Horse haulage in Glasgow cost, as a rule, 4d. per car-mile, but a failure of the crop in the States runs up fodder charges.

Joint Hospital Board to borrow £1900 for the removal of the temporary smallpox hospital. The new site has cost £1000.

At Cliffe, near Rochester, the Parish Church of St. Helen, which has been restored at a cost of nearly £3000, was opened on Saturday, the 15th inst.

MR. SKEUTT, of Belper, is about to erect a tower and clock at that place, in commemoration of the Diamond Jubilee. They are to cost about £4000.

The foundation stone of a new Church at Walton has been laid at the corner of Rice Lane and Orrell Lane. About £5500 has already been collected, but another £1000 will be required to cover the cost of the erection of the Church and the lecture hall.

## SOCIETY MEETINGS.

**The Architectural Association.**—The scrutineers' report on the election of officers for 1897-98 was read at the meeting of the Architectural Association—the last of the present session—held under the presidency of Mr. Beresford Pite on Friday night. They stated that 305 voting papers were used, and of this number 4 were invalid. The officers were elected as follows, the figures representing the number of votes:—President: Mr. Hampden W. Pratt, 292. Vice-presidents: Mr. Banister F. Fletcher, 288; and Mr. Arthur H. Hart, 295. Committee: Messrs. Beresford Pite, 237; G. H. F. Prymne, 222; R. S. Balfour, 219; F. G. F. Hooper, 214; F. T. W. Goldsmith, 182; W. H. Seth-Smith, 176; H. B. Creswell, 163; C. de Gruchy, 159; T. W. Aldwinkle, jun., 144; and W. D. Caroe, 142. Hon. treasurer: Mr. Hampden W. Pratt, 297. Hon. librarian: Mr. C. H. Freeman, 297. Hon. secs.: Mr. E. Howley Sim, 294; and Mr. G. B. Carvill, 295. The above will form the committee. The other officers elected were as follows, each having received 301 votes: Hon. solicitor, Mr. W. H. Jamieson; hon. assistant librarian, Mr. E. W. M. Wonnacott; hon. auditors, Mr. M. Carbutt and Mr. H. P. G. Moule; assistant secretary, Mr. D. G. Driver.—A vote of thanks was accorded to the scrutineers, whilst similar compliments were paid to Mr. E. T. Hall, who had granted the Association permission to inspect the Park Hospital, Lewisham; to the Entertainments Committee and to Messrs. Carvill & Co. for the soirée play; and to the Royal Institute of British Architects, it having, it was announced, for the sixth year made a grant of £100 towards the educational scheme of the Association.—The President also announced the award of the travelling studentship of the Association, the Prizes Sub-Committee "having unanimously recommended that Mr. E. H. Evans should be elected, for, though the finished drawings of Mr. Evans and Mr. Waring show great care, yet Mr. Evans's drawings made on the spot were so superior that the decision could not be doubtful. Mr. Waring is commended for his care in finished work, but is advised in future to devote more time to study on the spot." Messrs. S. Bridges, J. S. Collings, and G. L. Elkington were elected members of the Association, and Messrs. Arthur Cates and S. C. Baker were reinstated members.

**Devon and Exeter Architectural Society.** The members of the Devon and Exeter Architectural Society recently visited the extension works at Keyham. Some little time was spent in looking over the plans. The two basins will measure 35½ acres and 10 acres respectively, the larger being the closed basin, and the smaller the tidal basin. There will be three docks, the largest of which will be a foot or two short of 750ft., and capable of docking the largest ship at present afloat. The other two docks to be built will measure about 500ft. long. The work is, as yet, in its initial stage, having only been commenced in March, 1896. The extensive nature of the excavations and the system of "timbering" proved deeply interesting features.

The annual meeting of the above Society was held at Devonport on the 15th inst., Mr. Arnold Thorne, President, in the chair. The Hon. Secretary (Mr. Harbottle Reed) presented the annual report, which, among other matters, referred to the Plymouth, Devonport, and Stonehouse Branch having received the support of the Society in its action with regard to paid officials undertaking private work. It was encouraging to be able to report that the Council were asked to make suggestions with regard to a competition for designs for a drinking fountain and clock tower at Exeter, and several of the suggestions had been adopted. The Plymouth, Devonport, and Stonehouse Branch had made a vigorous start, and during the year past several lectures have been given to its members. The roll of membership now stood as follows:—Members, 1897, 48; 1896, 43; associate members, 1897, 11; 1896, 13; associates, 1897, 16; honorary members, 1897, 4; 1896, 3; total, 1897, 79; 1896, 75. One member and one associate member had retired. The



adoption of the report was moved by Mr. Cole, seconded by Mr. King, and carried. A satisfactory balance in hand was shown in the statement of accounts presented by the hon. treasurer (Mr. O. Ralling). A prize, given by the Society for measured drawings, won by Mr. J. H. Vincent (Plymouth) was presented by the president (Mr. Thorne), who then gave an address, in which, after traversing some questions of professional practice, he said he would ever remember with gratification his experience of the last two years, and he was glad that upon him devolved the pleasing duty of proposing as his successor Mr. James Hine, of Plymouth.—Mr. Luff seconded the nomination, and Mr. Hine was duly elected.—Mr. Hine thanked the members for electing him.—Mr. Priestley Shires proposed that thanks for his past services be tendered to the retiring President, who had shown so much interest in, and worked so hard for, the benefit of the Society, and especially in attending so many meetings.—Mr. King seconded, and the vote was accorded.—Mr. Thorne briefly replied.—Mr. Cole seconded the hearty vote of thanks, which Mr. Harbottle Reed acknowledged.—Messrs. C. King, Chairman of the Three Town Branch, Plymouth, Mr. G. S. Bridgeman (Paignton), and Mr. C. J. Tait (Exeter) were elected members of the Council. Luncheon was partaken of at the Royal Hotel, Devonport. A visit was made to the harbour extension works at Keyham, where the members were received by Mr. Elliot, Superintendent Civil Engineer, who conducted the party over the site, and explained the works being carried out by Sir John Jackson, whose contract will probably amount to about £3,000,000. Some idea of the extent of the operations in progress was gained from inspecting the excavations, which are sunk in the rock to a depth of over 60ft., for the dock walls adjoining the large basin. The latter will have a water surface of about 35½ acres.

**The Surveyors' Institution.**—At a meeting of the Surveyors' Institution last week, held under the presidency of Mr. Daniel Watley, Mr. H. Chatfeild Clarke moved the following resolution:—"That this meeting desires and trusts that the Council will forthwith consider the advisability of presenting a dutiful address on behalf of the Institution to the Queen's Most Excellent Majesty to congratulate her upon the completion of the sixtieth year of her glorious reign." Mr. Clarke remarked that it was hardly necessary that he should say much in support of the resolution, the terms of which, he felt certain, would meet with entire approval. They, one and all, both as surveyors and Englishmen, were proud of their Queen, and rejoiced that Her Majesty's glorious reign had been prolonged for so many years. He submitted a draft of a suitable address.—The motion was seconded by Mr. Philip E. Pilditch and unanimously agreed to.—A discussion afterwards took place on the paper read by Mr. J. H. Redman on "Some legal incidents of tenancies of urban property as illustrated by recent decisions." Those taking part in the discussion were Messrs. P. E. Pilditch, F. K. Murton, H. Chatfeild Clarke, Howard Martin, T. W. Wheeler, Q.C., J. H. Sabin, C. H. Bedells, and W. H. Warner.

**Essex Archaeological Society.**—The Essex Archaeological Society visited Mersea a few days ago to inspect the remains of a large Roman building, recently discovered near West Mersea Hall. East Mersea Church, with the remains of the large earth-work surrounding it, was inspected, and a short paper on the early history of the moat was read by Mr. H. Laver, F.S.A., who also pointed out the supposed site of the camp to which the Danes retreated after their defeat by Alfred, A.D. 897. West Mersea Church was also visited, and attention was directed to the evidences of the Saxon character of the tower and to its position on the site of a Roman villa, and to the probability of the base of the font being formed of a portion of a column of a Roman building, and also to the fact that much of the stonework of the building is certainly of Roman masons' work. After this inspection a move was made to the recently uncovered Roman building, which is of extreme interest from its

size and the solidity of its construction. It is suggested that upon the recently discovered foundations a private theatre was built somewhere about the second century by the owner of the villa near by. The site of the theatre is said to be the only one discovered in the country.

## Correspondence.

### ROYAL ACADEMY EXHIBITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Owing to a clerical error, Mr. Arthur R. G. Fenning's name was omitted from the catalogue of architectural illustrations now in the Academy, as being joint Architect with me of the design for the new Presbyterian College at Cambridge.

In justice to him, I shall, therefore, feel greatly obliged if you can find space to insert this letter in your next issue.

Yours obediently,

W. HOWARD SETH-SMITH.

46, Lincoln's Inn Fields, W.C.

May 11th, 1897.

### R.I.B.A. ELECTIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—In reference to a letter published last week by one of your contemporaries in which my candidature is mentioned, kindly permit me through your columns to state that I gave up practice, not two years ago, but so far back as 1888, and further that it is incorrectly stated that I am engaged by the London County Council in a capacity inconsistent with the profession of Architecture; were it otherwise I should have been liable to suspension or expulsion under the provisions of bye-law 22 of the R.I.B.A.

The Register of Fellows and Associates contains the names of about sixty Architects who are officials in Her Majesty's service or engaged upon the staff of County Councils and other public authorities (exclusive of Metropolitan District Surveyors and members in public employment who give private addresses); it is not at all unreasonable to find that some of these prefer to be represented by one of themselves on the R.I.B.A. Council, rather than exclusively by practising Architects.

Two allied societies of the R.I.B.A. have each only three members of the Institute on their lists of members, and yet each society may return a member for the Council; Architect-officials in public service, therefore, should have further representation.

Yours faithfully,

Hampstead, N.W. GEORGE H. BIBBY.

May 22nd, 1897.

### THE LATE GEORGE GILBERT SCOTT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR—I am sincerely glad to find from your kindly notice of my late friend, Mr. G. Gilbert Scott, that his works are to be illustrated in the Architectural Review. I have been more than surprised at the way his death has been passed over in the architectural papers. It seems incredible that so great an Architect should have been allowed to pass away without a word of recognition.

I have not had the good fortune to see his Church at Norwich, but I know the others you name, and entirely agree with your estimate of them, and I also know several of his works in village Churches which are equally vigorous, refined, and original.

I am, Sir, yours faithfully,

C. HODGSON FOWLER, F.S.A.

The College, Durham,

May 20th, 1897.

### CHELSEA EMBANKMENT.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—It would be curious to enquire whether it was sentiment or a desire to administer a rebuff to the London County Council which induced a Committee of the House of Commons to decide that so much of the preamble of the Bill promoted by the Council for the extension of Chelsea Embankment was not proven. The

Bill, at the outset, encountered considerable opposition from Artists, who, in the friendly columns of the Times newspaper, vented their griefs, and complained that the Council was about to deprive them of a happy hunting ground for the picturesque, but the *coup de grace* was given to this part of the Bill by Mr. W. D. Caröe, who, in his evidence, explained that he had taken the house in Cheyne Walk formerly occupied by Mr. Whistler solely on account of the view from the windows, which, he considered, would be destroyed if the proposed Embankment were carried out, and produced a sketch taken from his house the day before by Mr. W. L. Wyllie, which appeared to convince the Committee, as they at once threw out that portion of the Council's Bill relating to the Embankment. Who will say after this that the House of Commons is indifferent to sentiment? Lawyers aver that there is no property in prospect, but the House of Commons Committee appear to hold the doctrine that the people of Chelsea are entitled to retain their present prospect from Cheyne Walk, in spite of the London County Council and the Vestry of Chelsea.

The action of the Council and the Vestry recalls the adjuration in Mason's heroic epistle to Sir William Chambers:

Haste, bid yon livelong terrace re-ascend,  
Replace each vista, straighten every bend;  
Shut out the Thames.

and it is a matter for congratulation that this action has been defeated.

H. J.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS and SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two. Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St  
Strand, W.C.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—For the construction of pipe-sewers, &c. Walker-road and several other roads, for the Town Council. Mr. Wm. Dyack, Burgh Surveyor, Town House, Aberdeen.

R. M'Kay, Abergeldie-road ... £84 15 9

R. M'Kay ... Orchard-street ... 43 15 6

Morningside-road ... 536 1 1

AUDENSHAW.—For sewerage, kerbing, flagging, and paving Whitehead-street, Church-street, and West-street, for the Audenshaw District Council. Mr. J. H. Burton, Surveyor, 2, Guide-lane, Hootley Hill.

T. Cooper ... £912 5 9

H. Kinder ... 868 1 2½

R. Fish ... 844 1 10

Worthington and Pownall, Manchester ... £238 9

\*Accepted.

BANSTEAD.—For erecting new schoolroom and alterations to girls' school at the Banstead Schools, Surrey, for the managers of the Kensington and Chelsea School District. Mr. Cecil A. Sharp, Architect, 39, Fenchurch-street, E.C. and 24, Grainger-street West, Newcastle-on-Tyne. Quantities by Mr. S. B. Beale, 3, Princes-street, Westminster.

General Builders, Dashwoods, Ltd. ... £1,983

Ltd. ... £2,350 0

F. Smith and Son ... 1,975

Stevens and Sons ... 2,050 0

S. Hart ... 1,967

Balchin & Shopland ... 1,997 0

Akers and Co. ... 1,967

E. T. Burnand, Wallington, Surrey ... 1

J. B. Potter ... 1,985 0

\*Accepted.



**BELFAST.**—For the erection of the West Belfast Orange Hall and caretaker's residence, Shankill-road, for the Committee. Mr. Wm. Batt, Architect, Garfield-chambers, Royal-avenue, Belfast:—  
 J. Kidd ... £2,550 0 0  
 J. Killen ... 2,500 0 0  
 W. Campbell and Son ... 2,500 0 0  
 Fitzpatrick Bros. ... 2,400 0 0  
 M. Hearst ... £2,450 0 0  
 J. Hemmingway ... 2,413 0 0  
 Campbell and Sowry ... 2,301 9 6  
 \* Accepted.

**HELPER.**—For the erection of an isolation hospital, Cricklane, for the Corporation. Mr. M. Hunter, Architect, Bridge-street, Belper. Quantities by Mr. John Watson, Cognin-chambers, Hull:—  
 Gwom and Co. ... £7,170 0 0  
 Attingley ... 7,132 7 0  
 Bodell and Sons ... 7,008 15 0  
 Ford and Co. ... 6,850 0 0  
 Walker & Slater ... 6,800 0 0  
 J. F. Price ... 6,780 0 0  
 H. Robinson\* ... £6,466 5 6  
 W. Moss and Sons, Loughborough ... 6,480 0 0  
 H. Jordan ... 6,123 10 0  
 W. Shaw\* ... 5,550 0 0  
 \* Withdrawn. \* Accepted. \* Excluding heating. \* Excluding roads, drainage, and heating.

**BLSTON (Staffs).**—Accepted for the erection of four houses, Willenhall-road, for Mr. W. Bishop. Mr. J. Mason, Architect, 86, Darlington-street, Wolverhampton:—  
 Benj. Guest, Wolverhampton ... £1395 10

**BLACKBURN.**—For the erection of a laundry at the workhouse, for the Union Guardians. Mr. Jas. Aspinall, Architect, Victoria-street, Blackburn:—  
 Masonry and Bricklaying.—R. Webster, Blackburn ... £1,409 0 0  
 Joinery.—J. Highton and Son, Blackburn ... 304 0 0  
 Slating.—W. Foster and Sons, Padham ... 174 0 0  
 Plumbing.—P. Walsh and Son, Blackburn ... 105 0 0  
 Painting.—W. Dickinson, Blackburn ... 40 14 6

**BLACKBURN.**—For the erection of chimney at electricity works, Jubilee-street, for the Corporation. Mr. E. M. Lacey, Engineer, 10, Delahay-street, S.W.:—  
 R. B. Hilton and Son ... £1,545 0 0  
 James Hilton ... 1,445 14 0  
 Mylce & Warner ... 1,234 0 0  
 John Cronshaw ... 1,150 0 0  
 W. J. Woolf Cronshaw, 28, Montague-street, Blackburn\* ... £950 0  
 \* Accepted.

**BLAENGARW (Wales).**—For the erection of an hotel, for Mr. J. T. Salathiel. Mr. S. J. Williams, Architect, 23, Montague-terrace, Aberdare:—  
 Evans Bros. ... £4,420 0 0  
 Griffiths and Co. ... 4,173 14 4  
 John Lees ... 3,700 0 0  
 C. H. Cooksby ... 3,700 0 0  
 Evans and Lake ... 3,375 0 0  
 Thomas Roberts ... 3,345 0 0  
 Samuel Davies & Son, Blaengarw, Bridge-end\* ... £3,150 0 0  
 Isaac Rees ... 2,940 0 0  
 \* Accepted.

**BRISTOL.**—For additions, &c., to business premises, for Messrs. Ashman and Co. Mr. Jas. Hart, Architect, Liverpool-chambers, Corn-street, Bristol:—  
 E. Walters ... £2,995  
 G. Humphreys ... 2,843  
 Enos Gay ... 2,840  
 Corolin and Son ... 2,790  
 Wilkins and Gosling ... 2,555  
 H. Forse ... £2,100  
 Hughes and Weeks ... 2,317  
 Geo. Downs ... 2,300  
 John Perrott\* ... 2,298  
 [All of Bristol.] \* Accepted.

**BURSLUM.**—For the erection of Catholic schools, Burslem. Messrs. R. Scrivener and Sons, Architects, Hanley:—  
 Smith ... £3,330  
 Yoxall ... 2,388  
 Foster ... 2,742  
 Cornes ... 2,699  
 Godwin ... 2,699  
 Longden ... 2,699  
 Grant and Sons ... 2,575  
 Cooke, Burslem (accepted) ... £2,554  
 Bennett ... 2,429  
 Walley & Wooliscroft ... 2,345

**CARSHALTON.**—For pulling down and rebuilding shop premises and stabling at High-street, Carshalton, Surrey, for Mr. A. N. Morgan. Mr. Cecil A. Sharp, Architect, 59, Fenchurch-street, London, and 24, Grainger-street West, Newcastle-on-Tyne. Quantities by Mr. Sydney B. Beale, 3, Princes-street, Westminster:—  
 Stewart and Son ... £2,585  
 Sydney Hart ... 2,567  
 T. Smith and Sons ... 2,490  
 E. T. Barnard ... 2,450  
 B. Pope and Co. ... 2,413  
 Akers and Co. ... £2,337  
 J. B. Potter ... 2,275  
 H. Clarke ... 2,133  
 Balchin and Shopland, Sutton, Surrey\* ... 2,127  
 \* Accepted subject to certain modifications and reductions.

**CLACTON-ON-SEA.**—For the erection of a residence, Wellesley-road, for Mr. R. Wood. Mr. James W. Martin, Architect:—  
 J. W. Dixon ... £1,038  
 Shillitoe and Sons ... 990  
 Ernest West ... £900  
 A. J. Linzell (accepted) ... 881

**CATERHAM (Surrey).**—For south-west extension of the Congregational School ("Viney Memorial Wing.") Mr. Alfred Conder, Architect, Palace-chambers, Westminster:—

	Estimate	Estimate	Total.
No. 1.	No. 2.		
J. Chapman ...	£1,650	2850	£2,000
Stimpson and Co. ...	1,440	320	1,760
L. H. and R. Roberts ...	1,396	297	1,693
Holloway Bros. ...	1,352	281	1,633
J. Smith and Sons ...	1,230	250	1,480
Akers and Co. (accepted) ...	1,109	216	1,325

**CLACTON-ON-SEA.**—For the erection of a residence in Pier-avenue, for Mrs. M. Sutton. Mr. James W. Martin, Architect:—  
 Ernest West ... £1,393  
 Myall and Ellis ... 1,275  
 J. W. Dixon ... 1,235  
 M. Potts ... £1,202  
 H. J. Linzell\* ... 1,198  
 \* Accepted.

**CROYDON.**—For the George-street extension of Mr. J. Alder's premises. Mr. A. Broad, Architect, 3, High-street, Croydon. Quantities by the Architect:—  
 S. Hart ... £6,987  
 Johnson and Co. ... 6,758  
 Holloway Bros. ... 6,709  
 J. Smith and Sons ... 6,540  
 Edwards and Medway ... 6,493  
 D. W. Barker ... 6,400  
 E. J. Saunders ... 6,397  
 E. P. Bulled and Co. ... £6,323  
 W. H. Loden and Son ... 6,240  
 S. Page ... 6,175  
 W. H. Lascelles & Co. ... 6,150  
 W. Smith and Son ... 6,119  
 A. Bullock\* ... 5,884  
 \* Accepted.

**THE SMOKELESS FIRE Co. Ltd.,**  
 Sole Proprietors of Marsh's Patents  
 FOR THE  
**COMPLETE COMBUSTION**  
 OF FUEL.  
 Ranges, Steam Boilers, Water Heaters, &c.  
 100, SHAFTESBURY AVENUE, LONDON, W.

**BILLS OF QUANTITIES, &c.**  
 Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.  
**J. L. ALLDAY,** SHAKESPEARE PRESS, BIRMINGHAM.

## HOISTING APPLIANCES

OF ALL KINDS.  
 Catalogue, 40 Pages, Free.

## WESTON AND OTHER Pulley Blocks

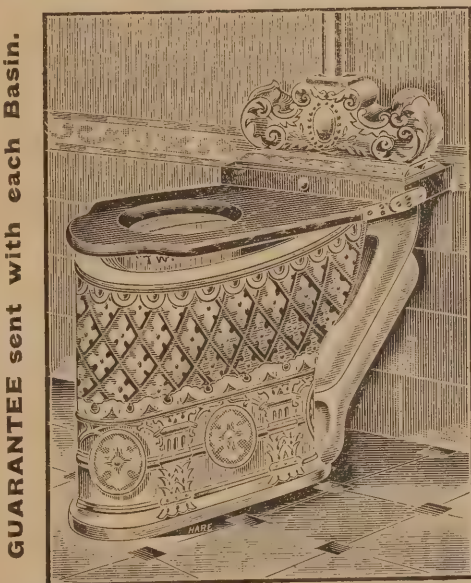
in Stock, with any length of  
**CHAINS.**

Chain Maker on Premises for Repairs, &c.

**LONDON HOIST AND CHAIN Co.**  
 32, Norton Folgate, E.C.

## "ECLIPSE" PATENT GLAZING.

THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.  
 Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.  
 MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.  
**MELLOWES & CO.** Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
 Telegraphic Addresses—"ECLIPSE, SHEFFIELD." "MELLOWES, LONDON."



**TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.**

Perfect Sanitation, Healthy Houses  
 OBTAINED BY ADOPTING THE  
**"TWYCLIFFE"**  
 Patent Pedestal Syphon  
 W.C. Basin.  
 A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.  
 Advantages claimed for the  
**"TWYCLIFFE" Syphon:**  
 Perfect safeguard against sewer gas and the evils arising therefrom.  
 Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.  
 Practically noiseless in action.  
 Simple in construction, reliable in action.  
 No complicated mechanism to get out of order.  
 Easily fixed as an ordinary Basin.  
 High-Class Article of Superior Material, Workmanship and Construction.  
 Recommended & Specified by Architects & Sanitary Engineers.

## HOMAN & RODGERS, ENGINEERS.

ORIGINAL PATENTEES OF ALL GIRDERS FORMED OF JOISTS AND PLATES  
**CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).**  
**FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS,**  
 USED IN OVER 2000 BUILDINGS.

ROOFS,  
 BRIDGES  
 PIERS,



GRANITIC  
 PAVING STEPS,  
 ASPHALTE.

SECTION OF  
**LONDON** { OFFICES: 17, GRACECHURCH STREET, E.C. | **MANCHESTER** { OFFICES: 10, MARSDEN STREET.  
 { WORKS: NINE ELMS LANE, S.W. | { WORKS: WEST GORTON.  
 { Telegraphic Address: "HOMAN RODGERS, LONDON." | { Telephone No. 1026, Avenue. | { Telegraphic Address: "NAMOH, MANCHESTER." | { Telephone No.  
**FIRECLAY BRICK WORKS, PARKSTONE, DORSET.**



ENFIELD.—For erecting a residence, Essex-road, Enfield, for Mr. A. G. Fidler:—  
A. Porter ... £1,600  
Gibson Bros. ... 1,270  
Humphries ... 1,196

FEATHERSTONE (Yorks).—Accepted for the erection of business premises and manager's house, for the Pontefract Industrial Society, Limited. Mr. Wm. Hurst, Architect, Pontefract:—

Bricklaying and Masonry.—A. Sutton, Featherstone ... £425  
Carpentry and Joinery.—David Jackson, Pontefract ... 424  
Plumbing, &c.—Joshua Snowden and Son, Ossett ... 100  
Slating.—George Spurr, Pontefract ... 72  
Plastering.—T. Senior, Pontefract ... 20

Total ... 1,041

[Painting included in Carpenter and Joiner's contract.]

HANLEY.—For the erection of shop premises, Marsh-street, Hanley, for Mr. G. F. Paddock. Messrs. R. Scrivener and Sons, Architects, Hanley:—

Tompkinson & Bettelley ... £3,207 0  
Bagnall ... 3,095 0  
Ellis ... 3,064 0

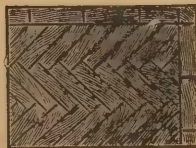
HOOLEY HILL.—For the erection of six houses in Nelson-street. Mr. J. H. Burton, Architect, Hooley Hill:—

All trades except Plumber and Glazier.  
R. Whitell ... £1,780 0  
Jabez Gibson and Son ... 1,600 0  
Exors. Thomas Storer ... 1,600 0  
J. Whitehead ... 1,588 0  
James Ridyard ... £286 0  
Henry Rigby ... 75 0  
G. H. Coop, Ashton-under-Lyne ... 68 9 6

KENDAL.—For the erection of six dwelling-houses, The Sound. Mr. John Hutton, Architect, Kendal. Quantities by Mr. John Hutton:—

Walling and Masonry.—James Howie, Kendal ... £557 15 6  
Slating.—James Bailey, Penrith ... 107 4 8  
Joinery.—Wm. Matthews, Kendal ... 494 0 0  
Plastering.—Steele and Co., Kendal ... 98 0 0  
Plumbing, Painting, and Glazing.—Wm. Jackson, Kendal ... 163 16 0

Total ... £1,420 16 2



### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM JOINERY WORKS,

Clapham Junction, S.W.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,  
48, HAMMERSMITH ROAD, W.

KINGSTON.—For the erection of male infirmary, nurses' home, and porter's lodge, for the Guardians of the Kingston Union. Mr. W. H. Hope, C.E., Architect. Quantities by Mr. Guy M. Nicholson:—

Perry and Co. ... £19,353  
Oldridge and Sons ... 18,969  
Whitehead and Co. ... 18,726  
F. and F. H. Higgs ... 18,587  
Pattinson and Son ... 18,450  
Wheatley and Sons ... 18,155

LEEDS.—For the erection of a police-station and branch free library, Upper Wortley, for the Corporation:—

J. T. Wright, Leeds ... £2,066

[Subject to approval of Council.]

LONDON.—For pulling down and rebuilding the "Anchor" Public-house, Old South Lambeth-road. Mr. John Hamilton, Architect:—

W. Shummur ... £1,143  
Snewin Bros. and Co. ... 1,125  
Edwards and Medway ... 1,110

LONDON.—For erecting three shops and dwellings in High-street, Ponder's End, for Mr. G. Stiles. Mr. Frank Doley, Architect, 19, Great Winchester-street, E.C.:—

W. Newman ... £1,498  
T. Almond and Son ... 1,450

LONDON.—For the construction of sewers, &c. (contracts 7, 8, 9, 10), for the Shoreditch Vestry. Mr. T. Rush Dixon, C.E., Town Hall, Old-street, E.C.:—

E. Parry ... £3,336 16 4  
Hy. Cox ... 3,114 19 1  
F. Jackson and Son ... 2,908 0 5  
Pedrette and Co. ... 2,545 15 5

[Surveyor's estimate, £2,003.]

LONDON.—For alterations to the "Ship" Tavern, Hackney:—

Harris and Wardrop ... £2,955  
Tomes ... 2,991  
Todd ... 2,839

LONDON.—For the erection of conveniences at Hilby Fields, for the London County Council:—

H. J. Stephens ... £752 8 8

LONDON.—For the construction of a brick sewer, Bedfordbury, for the Vestry of St. Martin-in-the-Fields, Westminster. Mr. Chas. Mason, C.E., Town Hall, Charing Cross, W.C.:—

Pedrette and Co., Queen's-road, Finsbury Park (accepted)  
J. H. Neave ... £719 6  
C. W. Killingback and Co. ... 690 10  
H. Dunkley and Co. ... 688 0

LONDON.—For manual training centre at Atley-road (Old Ford) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

J. Grover and Son ... £755 0  
E. Lawrance and Sons ... 719 6  
W. Irwin ... 690 10  
Staines and Son ... 688 0  
E. Triggs ... 682 10  
W. Subinur ... 676 0  
C. Cox ... 674 0  
G. S. S. Williams and Son ... 662 0  
R. A. Yerbury and Sons ... 653 0  
J. T. Robey ... 590 0

\* Recommended for acceptance.

LONDON.—Provision of half-glazed partition in auditor's room at Head Offices of the Board, for the London School Board. Mr. T. J. Bailey, Architect:—

W. Hornett ... £102  
T. Cruwys ... 98

\* Recommended for acceptance.

LONDON.—Exterior painting at Boundary Lane Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

J. F. Ford ... £374  
T. Hooper ... 325  
H. J. Williams ... 315  
W. V. Goad ... 298

\* Recommended for acceptance.

LONDON.—For painting exterior of the Capland-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

E. T. Folley ... £197 0  
W. Hornett ... 197 0  
T. Cruwys ... 192 0  
H. C. Clifton ... 190 0

\* Recommended for acceptance.

LONDON.—For additional heating apparatus at the Chickens-street (Whitechapel) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

G. Davis ... £236  
W. Simmons ... 189  
Wenhams and Waters ... 185  
Vaughan & Brown, Ltd. ... 178

\* Recommended for acceptance.

LONDON.—For improving heating apparatus at Cook's-ground (Chelsea) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

W. G. Cannon & Sons ... £180 0  
J. C. and J. S. Ellis, Ltd. ... 176 0  
Vaughan and Brown, Ltd. ... 170 0  
Price, Lea, and Co. ... 75 0

\* Recommended for acceptance.

LONDON.—For providing three halls for all departments, and for other work at the school in Knapp-road, Bromley, for the London School Board. Mr. J. T. Bailey, Architect:—

C. Miskin and Sons ... £9,680 0 0  
J. Shillitoe and Son ... 9,620 0 0  
J. Longley and Co. ... 9,525 0 0  
G. E. Wallis and Sons ... 9,483 0 0  
Lathey Bros. ... 9,328 0 0  
E. Lawrance and Son ... 9,272 0 0  
Kilby and Gayford ... 9,225 0 0  
G. S. S. Williams and Son ... 9,098 0 0  
R. A. Yerbury and Sons ... 8,954 0 0  
B. E. Nightingale ... 8,945 0 0  
W. Shummur ... 8,828 0 0  
Stimpson and Co. ... 8,857 0 0  
G. Munday and Sons ... 8,718 18 2  
Treasure and Son ... 8,700 0 0  
C. Cox ... 5,496 0 0

\* Recommended for acceptance.

LONDON.—For erection of two iron buildings in Edge-combe-road (third site, Camberwell-grove), for the London School Board. Mr. T. J. Bailey, Architect:—

Humphreys, Ltd. ... £938 0 0  
Croogon & Co., Ltd. ... 927 10 0  
T. Cruwys ... 770 0 0

\* Recommended for acceptance.

LONDON.—For providing water-closets for girls' and infants' departments, and water-closet for the school-keeper; facing-up flank walls of public-house and school-keeper's house, and building new buttresses; forming new entrance

LONDON.—For manual training centre at Carlton-road (Kentish Town) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

C. Cox ... 676 0  
E. Lawrance and Sons ... 666 0  
Dove Brothers ... 655 0  
P. T. Chinchin ... 653 0  
W. Irwin ... 646 10  
G. S. S. Williams and Son ... 635 0  
R. A. Yerbury and Sons ... 613 0  
Coxley and Drake ... 595 0  
E. T. Folley ... 575 0

\* Recommended for acceptance.

LONDON.—For painting exterior of the Capland-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

E. T. Folley ... £197 0  
W. Hornett ... 197 0  
T. Cruwys ... 192 0  
H. C. Clifton ... 190 0

\* Recommended for acceptance.

LONDON.—For additional heating apparatus at the Chickens-street (Whitechapel) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

G. Davis ... £236  
W. Simmons ... 189  
Wenhams and Waters ... 185  
Vaughan & Brown, Ltd. ... 178

\* Recommended for acceptance.

LONDON.—For improving heating apparatus at Cook's-ground (Chelsea) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—

W. G. Cannon & Sons ... £180 0  
J. C. and J. S. Ellis, Ltd. ... 176 0  
Vaughan and Brown, Ltd. ... 170 0  
Price, Lea, and Co. ... 75 0

\* Recommended for acceptance.

LONDON.—For providing three halls for all departments, and for other work at the school in Knapp-road, Bromley, for the London School Board. Mr. J. T. Bailey, Architect:—

C. Miskin and Sons ... £9,680 0 0  
J. Shillitoe and Son ... 9,620 0 0  
J. Longley and Co. ... 9,525 0 0  
G. E. Wallis and Sons ... 9,483 0 0  
Lathey Bros. ... 9,328 0 0  
E. Lawrance and Son ... 9,272 0 0  
Kilby and Gayford ... 9,225 0 0  
G. S. S. Williams and Son ... 9,098 0 0  
R. A. Yerbury and Sons ... 8,954 0 0  
B. E. Nightingale ... 8,945 0 0  
W. Shummur ... 8,828 0 0  
Stimpson and Co. ... 8,857 0 0  
G. Munday and Sons ... 8,718 18 2  
Treasure and Son ... 8,700 0 0  
C. Cox ... 5,496 0 0

\* Recommended for acceptance.

LONDON.—For erection of two iron buildings in Edge-combe-road (third site, Camberwell-grove), for the London School Board. Mr. T. J. Bailey, Architect:—

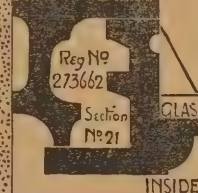
Humphreys, Ltd. ... £938 0 0  
Croogon & Co., Ltd. ... 927 10 0  
T. Cruwys ... 770 0 0

\* Recommended for acceptance.

LONDON.—For providing water-closets for girls' and infants' departments, and water-closet for the school-keeper; facing-up flank walls of public-house and school-keeper's house, and building new buttresses; forming new entrance



DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS



WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.

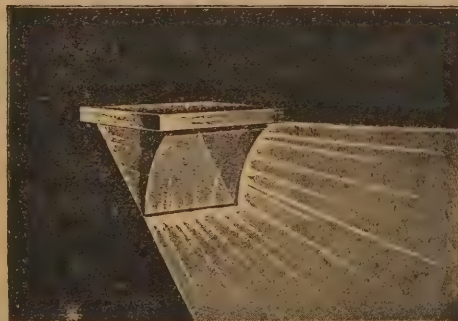


# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL FOR TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.



## "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation falling on anything which happens to be below.

## WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

## WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



and iron staircase to the boys' department; providing partition between boys' and girls' covered playground under school, &c.; and inclosing, draining, and tar paving the additional land, &c. at the Horseferry-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 T. Nicholson ... £1,625 E. Triggs ... £1,572  
 T. G. Wade ... 1,600 Lathey Bros. ... 1,358  
 W. and H. Castle ... 1,569 F. G. Minter\* ... 1,187  
 \* Recommended for acceptance.

LONDON.—For exterior painting of the Lyndhurst-grove Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 T. Hooper ... £225 H. Mallett ... £140  
 H. Line ... 222 Johnson and Co. ... 213  
 J. F. Ford ... 163 H. Somerford and Son ... 121  
 W. V. Goad ... 149 J. Garrett and Son ... 120  
 E. Triggs ... 145 Rice and Son\* ... 119  
 \* Accepted.

LONDON.—For painting exterior of the Marsh-lane Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 W. Horneft ... £153 10 0 W. Banks ... £115 14 6  
 C. Foreman ... 144 0 0 W. Holding & Son ... 98 10 0  
 G. Barker ... 130 0 0 Jones and Groves\* ... 62 14 0  
 \* Accepted.

LONDON.—For exterior painting of the Monson-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 A. Black and Son £240 0 0 W. Banks ... £164 19 0  
 S. E. Musgrave ... 245 13 0 Holliday & Green ... 161 0 6  
 G. Barker ... 190 0 0 wood ... 161 0 6  
 H. J. Williams ... 182 10 0 Jones and Groves ... 121 8 0  
 J. and A. Oldman ... 188 0 0 (accepted) ... 121 8 0

LONDON.—For making good brickwork of adjoining property to Netley-street site, Hampstead, for the London School Board. Mr. T. J. Bailey, Architect:—  
 Lathey Bros. ... £174 E. T. Folley\* ... £157  
 \* Accepted.

LONDON.—For painting exterior of Ninehead-street schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 J. and A. Oldman ... £130 0 0 W. Holding & Son £92 15 0  
 S. E. Musgrave ... 128 13 0 Jones and Groves\* 67 6 0  
 A. Acworth ... 98 0 0 \* Accepted.

LONDON.—For exterior painting of Oban-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 T. H. Jackson ... £255 0 0 S. H. Corfield ... £269 0  
 D. Gibb and Co. ... 338 0 0 A. W. Derby ... 265 0  
 J. T. Robey ... 310 0 0 C. W. Walest ... 261 0  
 J. Kybett ... 271 0 0 J. T. Holliday ... 225 10  
 \* Accepted.

LONDON.—For additional heating apparatus to Sydenham Hill-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 J. C. & J. S. Ellis, Ltd. £75 0 0 Comyn, Ching, and Co. £67 10  
 J. F. Clarke and Sons 68 0 Duffield and Co.\* 62 0  
 J. Fraser ... 68 0  
 \* Recommended for acceptance.

LONDON.—For painting exterior of St. Clement's-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 S. H. Sealey ... £225 0 0 W. Brown ... £94 0  
 R. E. Williams & Sons 149 10 0 E. Flood ... 80 0  
 G. Neal ... 135 0 0 F. T. Chinchin ... 80 0  
 C. Gurling ... 119 0 0 W. Chappell ... 72 10  
 E. T. Folley ... 97 0 0 W. R. and A. Hides\* 71 15  
 \* Accepted.

LONDON.—For extending low-pressure hot-water apparatus to laboratory and drawing class-room (third floor) at Tottenham-road Pupil Teachers' Centre (Enlargement), for the London School Board. Mr. T. J. Bailey, Architect:—  
 G. Davis ... £130 0 0 Cannon and Sons ... £70 0  
 J. C. and J. S. Ellis, Limited ... 85 0 0 Clarke and Sons ... 64 0  
 J. and F. May ... 79 10 0 Vaughan and Brown ... 50 10  
 Price, Lea, and Co. ... 75 0 0 Gray, and Co.\* 49 0  
 \* Accepted.

LONDON.—For exterior painting of Wirtemberg-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 R. E. Williams and Sons ... £138 10 0 E. B. Tucker ... £71 19 0  
 Star and Son ... 89 19 6 Rice and Son ... 69 15 0  
 H. Brown ... 78 0 0 J. Garrett and Son\* 57 0 0  
 \* Accepted.

LONDON.—For carrying out works for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor:—

Sewerage Work, Nightingale-lane, Hornsey. Workman's Dwelling Scheme:—  
 Pedrette and Co. ... £1,338 F. A. Jackson and Son, Ltd., Finsbury Park, N.\* 4980  
 J. A. Dunmore ... 1,193  
 T. Adams ... 1,040

For Making-up St. Ann's-road. Second Section.  
 Pedrette and Co. ... £102 12 4 F. A. Jackson and Son, Ltd., Finsbury Park, N.\* 600 0 5  
 T. Adams ... 60 9 2

For Surface-water Sewer, Mossell Hill.  
 Pedrette and Co. ... £2,920 T. Adams ... £1,678  
 Wilkinson Bros. ... 2,291 F. A. Jackson and Son, Ltd., Finsbury Park, N.\* 1,378  
 J. Bloomfield ... 1,576  
 J. Jackson ... 1,815  
 W. Griffiths ... 1,744

For New Sewers, &c., Folkland-pool.  
 Pedrette and Co. ... £339 F. A. Jackson and Son, Ltd., Finsbury Park, N.\* 221  
 W. Griffiths ... 237  
 J. Bloomfield ... 238  
 J. Jackson ... 239  
 T. Adams ... 223

For Sewerage Work, Jackson-lane, Highgate.  
 Pedrette and Co. ... £594 J. Bloomfield ... £350  
 Wilkinson Bros. ... 451 F. A. Jackson and Son, Ltd., Finsbury Park, N.\* 242  
 W. Griffiths ... 441  
 T. Adams ... 399  
 J. Jackson ... 367

For Surface-water Sewer, Highbury-street and Birkbeck-pool, Highbury.  
 Pedrette and Co. ... £298 T. Adams ... £222  
 W. Griffiths ... 235 F. A. Jackson and Son, Ltd., Finsbury Park, N.\* 201  
 J. Jackson ... 227  
 J. Bloomfield ... 224

MONMOUTH.—For the erection of sewage disposal buildings (Contract No. 2) for the Town Council. Messrs. Bramwell and Harris, Engineers, 5, Great George-street, Westminster, S.W.:—  
 Myles & Warren ... £9,247 15 0 John Perkins ... £5,235 0 0  
 Alfred King and Sons ... 6,198 0 0 Gravel and Co. ... 1,964 0 0  
 W. Griffiths ... 5,490 5 3 H. Snell ... 4,213 0 0

MORLEY (Yorks).—For the erection of a house for Mr. Sharp. Mr. G. B. Clegg, Architect, 2, Peel-street, Morley:—  
 Masonry.—J. Akeroyd and Son, Birstall  
 Joinery.—J. Akeroyd and Son, Birstall  
 Slating.—J. Atkinson and Son, Leeds  
 Plastering.—G. A. Firth, Morley  
 Painting.—D. Wilby, Birstall

NEWCASTLE STAFFS.—For erecting "St. George's Institute," Newcastle. Messrs. R. Scrivenor and Sons, Architects, Hanley:—  
 Baznall ... £2,383 T. Godwin ... £2,590  
 Gallimore ... 2,200  
 1,224 S. Wilton, jun., New-castle\* 1,209  
 1,172  
 A. Bennett ... 2,150 S. Wilton, jun.\* 2 198  
 2 186  
 \* Accepted.

PAIGNTON.—For the erection of new banking premises for Lloyd's Bank, Limited. Mr. W. G. Conding, Architect, of Paimton. Quantities by Mr. Vincent Catermole Brown, of Paimton:—  
 H. P. Rabich ... £3,565 H. Webster and Sons ... £9,540  
 E. Westlake ... 3,500 C. and R. E. Drew ... 3,525  
 R. E. Yeo ... 3,585 E. P. Bovey, Torquay\* 3,247  
 \* Accepted.

PONTYPOOL.—Accepted for the erection of school buildings, Park-terrace, for the Trevelin School Board. Messrs. Lansdowne and Griggs, Architects, Newport, Mon.:—  
 W. and A. Davies, Abersochan, near Pontypool £1,120

ST. ALBANS.—For erecting nineteen cottages at St. Albans, for Mr. G. Young. Mr. T. Foster Woodman, Architect, St. Albans:—  
 C. Miskin ... £4,885 0 0 J. and W. Savage ... £3,820 0  
 J. T. Bushell ... 4,322 10 0

SNARESBROOK ESSEX.—For residence, Woodford-road. Snarebrook, for Mr. F. W. Ayres. Messrs. Gordon, Lowther, and Gunn, Architects:—  
 Williams and Son ... £3,596 W. Lawrence ... £3,635  
 Munday ... 3,799 W. Shurmer ... 3,533  
 Patman & Fotheringham ... 3,688 Joliffe ... 3,350  
 Sabey and Son ... 3,613 Snowdon Bros. and Co. ... 3,218

SOUTH SHIELDS.—Accepted for the erection of new wards and making extensions to the Ingham Infirmary, Westoe, South Shields. Mr. Henry Grierson, Architect, Albany-chamber, South Shields. Quantities by Mr. J. Savage, Newcastle:—  
 Goodwin and Son, South Shields ... £5,928

SOVERBY BRIDGE.—Accepted for the erection of West End Congregational new Sunday-school. Mr. S. Wilkins, Architect, Soverby Bridge:—  
 Maitland—Wm. Suncliffe, Soverby Bridge  
 Joinery, &c.—Lewis Whittaker, Norland, Soverby Bridge  
 Plastering, Glazing, and Lighting.—Jas. Stafford, Soverby Bridge  
 Slating and Plastering.—Geo. Whiteley, Soverby Bridge  
 Painting.—E. Whitehead and Co., Soverby Bridge

STONEHAVEN.—Accepted for additions to Episcopal Schools, Stonehaven, N.B. Mr. J. Augustus Soutar, Architect, 42, Union-street, Aberdeen. Quantities by Architect:—  
 Maitland.—W. Smith and Co., Stonehaven £203 15 0  
 Corporation.—R. Mitchell & Son, Stonehaven 130 3 0  
 Plastering.—A. Cornack, Stonehaven 32 6 11  
 Painting and Glazing.—Barron and Son, Aberdeen 14 18 0  
 Slating.—C. Maitland, Aberdeen 27 17 8  
 Plastering.—E. Pirnie, Stonehaven 27 10 0  
 Slating ... 48 18 0  
 £538 8 7

TWERTON-ON-AVON.—For erecting a school, for the School Board. Messrs. Silecock and Reay, Architects, Bath:—  
 W. Cowlin and Sons ... £5,500 J. Long & Sons, Bath\* £7,665  
 Hayward and Wootter ... 7,500  
 \* Accepted.

WALLINGTON.—For the erection of a pair of cottages in Taylor-road, for Mr. G. Rogers. Mr. C. E. Salmon, Architect:—  
 F. J. Barnard ... £204 W. Brown ... £417  
 Howe and White ... 89 H. Clark accepted 745

WARRINGTON.—For the erection of two houses, &c., Oxford-lane, for Messrs. J. and T. Edwards. Mr. L. O. Williams, Architect, 10, Victoria-street, Liverpool:—  
 F. W. Winst, contractor, Latchford amended quantities £570

WESTCLIFF-ON-SEA.—For the erection of superstructure of "Queen's Hotel," for Mr. Wazstaff. Mr. James Thompson, Architect, Bank-chambers, Strand:—  
 R. Gosh ... £2,054 15 3 F. Dunsen ... £20,000 0 0  
 E. West ... 21,000 0 0 Davis & Leancy 20,724 0 0  
 T. Mitchell ... 21,000 0 0 A. E. Symes ... 20,000 0 0  
 Paterson and Sons 21,000 0 0 Stratford\* 20,000 0 0  
 Jones and Sons 21,000 0 0  
 \* Accepted.

WEST HAM.—For making-up, paving, &c., Balmoral-road and five other roads, for the Town Council. Mr. Lewis Ansell, Borough Engineer, Town Hall, Stratford, E.:—  
 T. Adams ... £2,008 0 2 J. Jackson, Plaistead ... £1,735 15 3  
 W. Griffiths ... 1,875 5 5  
 \* Accepted.

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required. For particulars and testimonials apply CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

R.I.B.A. EXAMS. PREPARATION.—personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## McNEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.) McNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

F. McNEILL & CO., Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

## THE SUNBURY LINCRUSTA-WALTON. WALL DECORATION.

NOVELTIES for 1897—DADOES, FRILLINGS and CEILINGS at 1s. a yard, 2lin. wide.

CHEAP DECORATIONS, DELICATE COLOURINGS, supplied by all Decorators, Furnishers, or Builders in the United Kingdom.

LINCRUSTA WALTON, tested and triumphant, "King of Wall Hangings," the only Wall Decoration on the Market.

SOLID in colour, SOLID in relief, and SOLID in value.

Write for Price List, Illustrations of "JUBILEE" and "NATIONAL EMBLEMS," &c., to

FREDK. WALTON & CO. Ltd., Sole Patentees and Manufacturers,

Telephone, 3769.

2, NEWMAN ST., OXFORD ST., LONDON, W. Telegrams: "Lincrusta-Walton," London.



**CIVIL SERVICE TECHNICAL EXAMS.**  
—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

Price 3s.

**GLOSSARY OF TECHNICAL TERMS**  
used in Architecture and the Building Trades.  
By GAVIN JAMES BURNS, B.Sc., F.S.I.  
Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

**APPOINTMENTS VACANT.**

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**THE LONDON (TELEPHONE { Holborn, }  
DRAWING & TRACING OFFICE, { No. 1011. }  
98, Gray's Inn Road, Holborn, W.C.**

(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS,  
PERSPECTIVES, SURVEYS,  
COMPETITION DRAWINGS,**

Black Line PHOTO-COPIES and Blueprints.  
Quantities, Specifications **LITHOGRAPHED.**  
**MODELS, DIAGRAMS, &c.**

Estimates by return of post on receipt of full particulars to the MANAGER.

**JOINERS WANTED.** Permanency to  
Suitable Men.—Apply, THE JEVON CO., Erdington  
Horticultural Works, Birmingham.

**ASSISTANT (Architect's) WANTED.** Preference given to one acquainted with dilapidations. —Apply by letter, with references and salary required, to K., care of Messrs. Waterlow's, 8, Birch-lane, E.C.

**ASSISTANT ARCHITECTURAL  
DRAUGHTSMAN WANTED.** State full particulars of past experience and salary.—Address, N. 526, at Shelley's Advertising Offices, 38, Gracechurch-street, E.C.

**ASSISTANT COUNTY SURVEYOR,  
HAMPSHIRE.**

The County Council invite APPLICATIONS for the Appointment of ASSISTANT COUNTY SURVEYOR. Salary, £200, with travelling expenses.

Candidates must have a general knowledge of the duties of County Surveyor, and must not be more than 35 years of age. Application form and conditions of appointment may be obtained from the undersigned. Applications (with copies of not more than three

**LONDON PLATE-GLASS INSURANCE CO. LTD.**

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

**MODERATE RATES. PROMPT REPLACEMENTS.  
SURVEYS AND ESTIMATES FREE.**

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited

Liberal Terms for Business Introduced.

**WOOD BLOCK FLOORING.**

**MASTIC** for laying above supplied in any quantity.

W. BRIGGS, Chemical Works, DUNDEE,  
SOLE MAKER OF

**"Tenax" Building Rock Composition**  
For Wall Cavities.

**PILKINGTON'S**

WORKS:

CLIFTON JUNCTION,  
NEAR MANCHESTER.

**MANUFACTURERS OF HIGH CLASS TILES.**  
For Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR

**CHURCHES, PUBLIC BUILDINGS AND****PRIVATE RESIDENCES.**

London Show Rooms:

Lyric Chambers, 45, Whitcomb Street W.C.

Manchester Show Rooms

37, Cross Street

testimonials), stating age, present occupation, and past experience, written on the application form, must be addressed to me, and endorsed "Assistant County Surveyor," and delivered at The Castle, Winchester, on or before MONDAY, JUNE 14th, 1897.

The Candidate elected will be required to enter upon his duties on SEPTEMBER 1st, 1897.

Personal canvassing is prohibited.

The Castle, Winchester, H. BARBER,  
May 17th, 1897. Clerk of the Council.

**CITY of SHEFFIELD.**

The Highway and Sewerage Committee require the SERVICES of a competent BUILDING INSPECTOR in the City Surveyor's Office.

The salary will be £120 per annum.

Particulars of duties can be obtained on application to the City Surveyor, Mr. C. F. WIKE, C.E.

Personal canvassing is prohibited.

Applications, accompanied by testimonials and addressed to the Chairman of the Highway Committee, are to be sent to the City Surveyor's Office, Town Hall, not later than FRIDAY, JUNE 4th, 1897.

Preference will be given to those candidates who have passed the examination of the Incorporated Association of Municipal and County Engineers.

By order,

H. BRAMLEY,

Town Clerk's Office, Sheffield,

May 19th, 1897.

**BARKING TOWN URBAN DISTRICT COUNCIL.**

An ASSISTANT REQUIRED in the Surveyor's Department to act as Time and Storeskeeper, and Accounts Clerk. Applicants must have had similar experience.

Salary £100 a year, increasing by annual increments of £10 to a maximum of £120 per annum.

The person appointed must be between the ages of 25 and 40 years, and will be required to reside in the district and devote his whole time to the duties of the office. Applications, with copies of not more than three recent testimonials, must be sent in to the undersigned on or before MONDAY, MAY 31st.

Definition of duties can be obtained upon application to me.

Public Offices,  
Barking, Essex.E. H. LISTER,  
Clerk to the Council.

May 19th, 1897.

**APPOINTMENTS WANTED.**

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**YOUNG ARCHITECT, A.R.I.B.A.,**  
DESIRES to ASSIST others  
in the

PREPARATION OF DRAWINGS

at his own office.

G. SCORER, 28, Newman-street, W.

**ARCHITECT'S JUNIOR ASSISTANT**  
desires RE-ENGAGEMENT. Good draughtsman, details, tracing, levelling, surveying, &c. First-class Advanced Building Construction Certificate. Excellent testimonials. Salary 24s.—H. HAYTER, Gosport-street, Lymington, Hants.

**ASSISTANT (Surveyor's practical) desires**  
Town RE-ENGAGEMENT. Quantities, measuring-up, accounts, and usual routine. Moderate salary.—C., 16, Darwent-road, Anerley, S.E.

**CLERK of WORKS** seeks RE-ENGAGEMENT. Twenty years' experience. Completing large job under well-known Architect. Reference to past and present employer.—A. B. C., 44, Blackfriars-road, S.E.

**TO MONUMENTAL and GENERAL**  
MASONRY, Stone, Marble, and Granite Merchants. MANAGER, of many years' experience, with thorough practical and theoretical knowledge of the trade in all its branches, desires an APPOINTMENT. Well up in designs, details, quantities, estimates, and office routine. —Address H. W. C., care of Albrechts, 43, Upper Marylebone-street, W.

**ARCHITECT'S JUNIOR ASSISTANT**  
desires ENGAGEMENT. Neat draughtsman, inking-in colouring, tracing can help with quantities. Salary 20s.—Box 496, Office of the BUILDERS' JOURNAL.

# HAMILTON & CO.'S PAINTING BRUSHES,

GRAINING

TOOLS, &amp;c.

TRADE

SEMPER  
IDEM

MARK.

For Prices apply to Lead and Glass, Varnish, and Oil  
and Colour Merchants, Ironmongers, &c.

Manufactory: 96, CLERKENWELL ROAD, LONDON, E.C.

**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
W. GODWIN & SON, Loughborough Works, WITHINGTON,  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND  
SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.





# Surveying and Sanitary SUPPLEMENT.

MAY 26TH, 1897.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.\*

(Continued from page 1.)

By ALEXANDER DREW.

No. V. OF SERIES.

WE have now seen how the scantlings, or section of the simple struts and ties can be determined, but in turning to the case of compound members, as they may be called, or members which have to resist bending as well as tension or compression, the matter is found to be more complicated, and demands very different treatment. Here the question of Bending Moments and Resistance Moments must be introduced, and it may be well to consider these for a little. If we imagine the case of a wooden beam resting horizontally on supports placed at either end, and any load be applied in the centre of the beam, the tendency of this load will be to bend it downwards in the centre. The amount of bending, or the value of this bending tendency, will depend on the value of the load, and also on the manner in which the load is applied; when this is a single load and placed in the centre of the span, it exercises a greater bending tendency than if it were applied at any other point, or than if it were more or less distributed over some length of the beam. Fig. 27 shows three variations of this loading, and one of these, or a combination of two, will meet almost any variation likely to be required. The three variations are marked (a), (b), and (c), and alongside each is noted the simple formula by which the maximum bending tendency for that particular loading can be at once determined; any combination of these will simply mean the addition of the separate maximum Bending Moments to get at the total required.

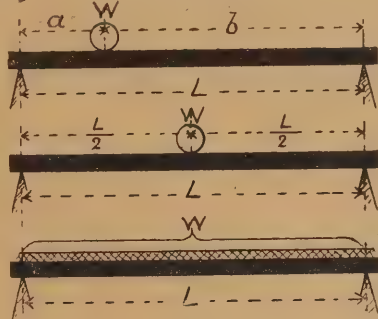
Returning to a consideration of the wooden beam first noted; when a moderate load is applied, say at the centre, it is found that the beam yields to a certain extent, and if the load be removed, it recovers itself at once. The resistance which this beam offers to being bent is due to the Resistance Moment which is called into play by the application of the load, and we must now turn our attention to its value, and to some means of calculating this. Fig. 28 represents a very simple form of beam or cantilever, supporting a single load W, and an examination of the condition of affairs in this case will probably help to explain what is meant by Bending and Resistance Moments. Let this beam be assumed as connected to the wall by two spikes, marked A and B, at the upper and lower edges only; the depth over all being represented by D; the distance from the centre of the beam to the outer edges by y and x, and the total length from wall to centre of weight by L. For purposes of calcu-

lation this beam may be considered as consisting of a strong rod with a short tee end, as represented in heavy lines on the diagram; and taking moments about the point O, midway between the spikes A and B, the moment of the weight about this point will be equal to  $W \times L$ .

This value then is the Bending Moment of the weight W, and L being the full length of the beam, this is the maximum Bending

spikes only as above assumed, will be kept the full section throughout. Here complications are introduced, and a full explanation would require more time and space than can possibly be allowed to it at this time; a brief description will be attempted, but the student is referred to some of the numerous theoretical text-books which treat this point fully. Keeping the condition shown in Fig. 28 in view, it will be readily perceived that should

Fig. 27. - Loading. -



- Bending Moment (B.M.) -  
(maximum)

$$= \frac{W \times a \times b}{L} \dots (x)$$

$$= \frac{WL}{4} \dots (y)$$

$$= \frac{WL}{8} \dots (z)$$

Moment. The tendency of the weight W is to draw out the upper spike A, and press the lower one B further into the wall; or it may be said that the weight is supported by reason of a certain tension and compression resistance exerted by the upper and lower spikes respectively. In a simple case of this kind the resistance offered by these spikes can be readily calculated by taking moments about the point O, for we have already seen at Fig. 14 that where equilibrium occurs, the sum of the moments must be equal to one another; so that the moment of the stresses in the spikes about this point O must be equal to, and of opposite

another pair of spikes be introduced half way between the points A B and the centre point O, these will to a considerable extent assist the outer spikes to resist the Bending Moment of the weight W; and of course should a further number of spikes be added, they in their turn will also assist. In no case will any of these have so great an effect, or be strained to such an extent as the two original outer spikes; in fact, the stress or strain on any spike will be proportionate to its distance from the centre, at which point no strain such as we are considering will occur at all. Thus the real condition of affairs may be best imagined by

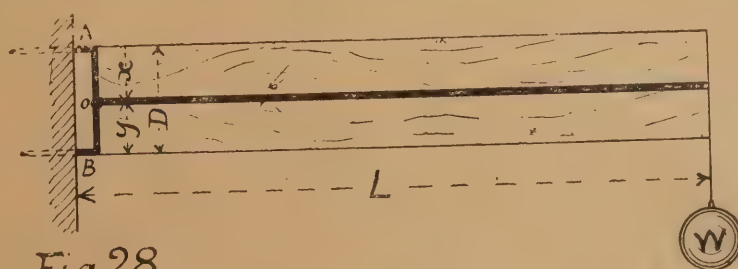


Fig. 28.

value to the Bending Moment due to the weight W. Thus if the stress on the spikes A and B be represented by F and f, the moment of each of these about O would be equal to  $F \times x$  and  $f \times y$ , and the equation for a simple case of this kind becomes

$$WL = (F \times y) + (f \times x) \dots (6)$$

But a simple case such as that just noted will seldom if ever occur in practice, where the beam instead of being connected by two

considering the whole section of the beam at the wall to consist of an innumerable number of these imaginary spikes, each being strained to a greater or less extent, and so helping to resist the Bending Moment due to the weight W. Where the section of the beam is symmetrical, and the material is such that its tensile and compressive elasticity may be practically assumed as equal to one another (this latter condition is generally assumed as

\* A lecture delivered before the members of the Edinburgh Architectural Association, and exclusively published in the Builders' Journal.



directly the case for steel or wrought iron), the neutral axis occurs at the centre of the depth; the tension and compression strains begin on either side of this imaginary line, and gradually increasing to a maximum at the outer edges.

To accurately determine the total Resistance Moment for such a beam as is now being examined, it would be necessary to consider the section at the wall as consisting of an innumerable number of these imaginary spikes, to calculate the stress of each of these as has just been indicated by equation (6), and add all these values together. Such a calculation would be extremely tedious, even to arrive at an approximate result, if gone about in this detailed manner; but by making use of a certain mathematical value called the "Moment of Inertia," the calculations for most practical sections are considerably simplified.

Taking the section of the beam as rectangular, the neutral axis (or axis where no strain occurs) would be represented by a straight line drawn horizontally through the centre of the section; if now this section be assumed as divided up into a number of small rectangles, and the area of each of these little rectangles be multiplied by the square of its perpendicular distance from this neutral axis, and all these values added together, the result will be a certain number, which will be more or less proportionate to the total stress which takes place when a beam of that section is bent. The smaller these rectangles are taken the more approximate will be the result, and if it were possible to take each of these little rectangles as infinitely small, an accurate result would be arrived at. By the use of higher mathematics, a simple formula has been arrived at for many of the simpler sections met with in practice, by means of which this accurate

allowable, the section of the beam must either be increased, or the load diminished to keep this value within its correct limit.

Fig. 29 indicates the manner in which the rafter of a roof truss would tend to yield under such intermediate loadings as are being now considered. Referring to the several skeleton outlines shown in Fig. 26, the rafter in No. 1 would yield in the manner shown at A; that is to say, assuming, as is very likely to be the case in practice, that the rafter at apex and shoe is more or less free to turn, the curve may be assumed to be roughly that of an arc of a circle. In such trusses as sketched in Nos. 2 and 3, where the rafter would be in one length, the curve assumed would be somewhat as shown at B; here it will be noticed that at the centre support the rafter is bent in the opposite direction to that near the outer supports, and the whole length is thus thrown into three curves, the outer portions being bent downwards, while the centre portion is bent in an upward direction. This being so, it will be readily seen that the strains throughout such a rafter must vary considerably; for a considerable distance from either end the upper portion is in compression, while the lower portion is in tension; but for some distance on either side of the centre the bar is strained in the reverse manner, that is to say, the upper portion is in tension, while the lower is in compression. There is necessarily some point between the centre support and each end where these opposite strains meet and change sign or condition, these points are generally known as the *points of contrary flexure* (change in direction of bending). Here the Bending Moment is zero, but increases steadily on either side of this point, reaching a maximum for the whole bar over the centre support. Could these zero points be accurately determined, the calculation for the maximum

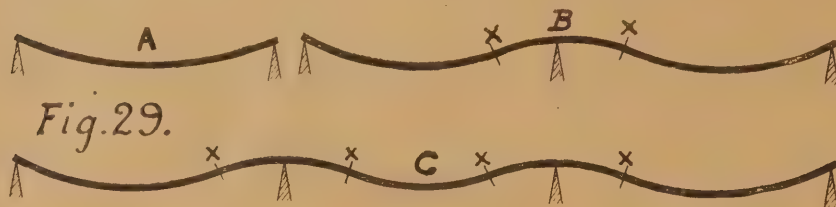
fectly straight, and the supports rigid; any deviation from this, or yielding in the points of support, very materially altering these figures; and as it is most unlikely that this exact condition will be met with in practice, where the rafter is often by no means accurately straight, and the points of supports are sure to yield to a greater or less extent under these loadings, these considerations cannot be accurately applied.

If the distance between the supports at A be the same as that between each support at B, or at C, and the same load per bay be assumed in each case, it will be found that the maximum Bending Moment, which occurs in the centre of the span at A, will be roughly equal to the maximum Bending Moment at B or C, which occurs in these latter cases over the intermediate supports, so that for *practical purposes it is sufficient to consider the rafter as jointed over each support, and calculate the maximum Bending Moment under such conditions, treating this value as the maximum possible Bending Moment for the actual rafter*; this calculation would, of course, be gone about in the manner indicated in Fig. 27.

(To be continued.)

KELSO has been much exercised of late over the proposed new water supply from Heatherhope, in the Cheviots, by gravitation. The scheme, for which the Local Government Board has been pressing, was brought forward some five years ago; and at a recent meeting of the Commissioners it was moved that the time had now come for proceeding with the works, the cost of which is estimated at £20,000. Mr. James Johnston, convener of the Water Committee, opposed it. Further delay was ultimately agreed on, in order that Mr. Johnson might prepare an alternative scheme for the better distribution of the present supply, and it was also agreed that fresh analyses be taken, so that, should the analyses again turn out unsatisfactory, the way would be clear for the new scheme without troubling with that for a better distribution of the present supply. The water has since been again analysed, and it has been agreed to submit all reports bearing on the matter to an expert for his advice.

At a meeting of the North-western and Midland Sanitary Inspectors' Association on Saturday, the 8th inst., Mr. W. Urquhart, the Chairman, after congratulating their former secretary (Mr. E. Worrall) upon his preferment to a more lucrative appointment, said that the past year of the society had been most successful; not the least pleasant feature had been the amalgamation of the Stafford Association with their own. The society now numbered over 200 members, and would be known in future as the North-western and Midland Sanitary Inspectors' Association. Regret was expressed that no progress had been made towards federation with the London Association, and he was afraid that so long as that body assumed the high-handed position it did there would be considerable difficulty in doing so. Sanitary science was making rapid progress, and it was absolutely necessary for the members to keep themselves up to date. Local governing bodies had largely ceased to look upon medical officers of health and sanitary inspectors who deviated in the slightest degree from the beaten track as cranks or faddists. He hoped that before long the Education Department would insist upon at least the rudiments of hygienic science being taught in every elementary school under their control, which, in his opinion, would be a much more deserving "grant-earning subject" than the glorified mud-pie making yclept "modelling in clay." The speaker next alluded to the small remuneration paid to sanitary inspectors compared with the risk and importance of the work which they had to perform, to the Scotch Public Health Bill now before Parliament, the Plumbers' Registration Bill, and to the proposed amendments in the Food and Drugs Act, and, as these measures all tended in the right direction, they must wish them success.



value can be at once got at; this is known as the "Moment of Inertia" for the cross section. If, then, the "Moment of Inertia" (or, as it is generally represented, I) be proportionate to the total stress throughout the section, and consequently to the total resistance which this section can offer to bending, this value, divided by the distance from the neutral axis to the outer edge of the section will give a number proportionate to the maximum stress occurring in that section—whether this maximum stress be tension or compression will depend on whether the distance be measured towards the compression or the tension side of the section. If this maximum distance from the neutral axis to the edge of section be represented by y, and the maximum stress which can safely be allowed per square inch for the material of which the beam is composed be represented by S, then:—

$$\text{Safe Resistance Moment} = \frac{S \times I}{y} \dots (7)$$

This Resistance Moment (R M) must be equal to the Bending Moment (B M) if equilibrium is to be maintained, so that should the section be known and (consequently the value for I and y also known) this may be equated with the Bending Moment, and the maximum stress on the beam (S) got at, as here noted:—

$$S' = \frac{B M \times y}{I} \dots \dots \dots (8)$$

It is hardly necessary to point out that if S be taken as the breaking stress in equation (7) the result will be the breaking Resistance Moment; the value of S' got by equation (8) gives the stress due to that particular condition; should it be in excess of the safe stress

Bending Moment would be comparatively simple; but unfortunately, these points are by no means fixed, and vary not only with any alteration in the manner of loading, but also with that of any variation in the section of the bar itself; and any attempt at accurate calculations on these lines would involve much more time and trouble than is likely to be given to it in practice.

There is another point that may be here noticed. Assuming the points of contrary flexure as at x x in sketch B, we may imagine the rafter to be formed to three lengths, with hinged joints at these points x x, and theoretically the bending stress would be unaltered. This being so, if it should happen that the load is distributed over the full length of the rafter, the centre support will be called upon to carry considerably more of this total load than if the rafter were made in two lengths and jointed at the centre; for the load over the centre portion will be entirely carried by the centre support, while one half of the load on each of the end portions will also be borne by the centre support; in fact, there will be, theoretically, 2/3ths of the total distributed load supported on this centre bar, the remaining 1/3ths being divided equally between the outer supports. Sketch C illustrates generally the manner in which the rafter of such a type of truss as that of No. 4 or 5, in Fig. 26, would yield under the conditions at present being considered, and the same argument will to a great extent hold good in this case, except that it may be noted that the extra load to be theoretically borne by the intermediate supports, though greater than if the rafter were joined over each support, is not now so much in excess as in the case of the two-span represented at B. These arguments, however, only hold good where the rafter was originally per-



MATERIALS AND CONSTRUCTION.

No. I.—TIMBER.

DEALING with the first part of this subject — materials — we must first see what those materials used in the building trade are, and then deal separately with each item. Principally they are timber, stone, bricks, terra-cotta, tile, slate, metals, glass, colours, oil, paint, varnish, lime, and cement. First of all, then, we have timber. That part of a tree which is used in building is the trunk and large branches. When we look at the section of a trunk or branch of a tree, we find it is composed of three parts—the bark or outer covering, the pith or core, or centre, and a woody substance lying between the pith and bark. In the woody substance there are two thicknesses; the one which envelops the pith is the greatest and hardest, and is usually called “heart wood.” The growth is in rings round the pith, which some assert are annular, each year producing one ring. Others say that two rings are produced annually; but the opinion generally accepted is that the layers are annual, and from this fact the age of a tree can be ascertained. The best time for felling trees is either in mid-winter, when the sap has ceased to flow, or in mid-summer, when the sap is temporarily expended in the production of the leaves. Trees should be stripped of their bark in the spring and felled in the winter. The kinds of timber suited to carpentry and joinery are amongst the hard woods. Oak is the strongest of the forest trees in this country. It is to be found in temperate climates, and not in either the torrid or frigid zones. There are two sorts of oak in our own country—the common and sessile-fruited. The former has its fruit upon long foot-stalks, and the other upon short stalks, or, as it is called, sessile. It grows slowly—it has been known at the age of one hundred years to be only one foot in diameter—its growth becoming less and less appreciable after the age of forty years. The chestnut next claims attention. Of it there are but two varieties in Europe. The mean diameter is 37in., and its average height is 44ft. It is very much like the oak, and is liable to be confounded with it. The elm is a large tree common to Europe. Its mean height is 44ft.; its mean diameter 32in. There are fifteen species. It is subject to attacks of worms, but it is not liable to split, and bears the driving of nails or bolts better than any other wood. When kept constantly wet it is exceedingly durable, and is much used, therefore, for keels of vessels, and for wet foundations, &c.. Its toughness also specially fits it for use in the manufacture of

naves of wheels, shells for tackle blocks, and for many uses in turnery, as it bears rough usage without splitting. The weight of a cubic foot when green is about 70lb., and when dry about 48lb. Walnut is a native of Persia, and is of great size. In this country it is grown chiefly as an ornamental tree. It is seldom used in England for works of carpentry, but it is highly esteemed by the cabinet-maker. The British walnut when young is white, and in that state is liable to attacks of worms. As it grows older it darkens, and also increases in strength and solidity. The walnut chiefly used is of two varieties found in America, and of the two, the Nigra, or brown walnut, is the most appreciated. According to Sandon, it weighs, when green, 58lb. 6oz., when dry, 46lb. 8oz.; but its weight by another authority is given at 42lb. Its strength to that of oak is as 74 to 100, its toughness 111 to 100, its stiffness 49 to 100.

THE BEECH.

The beech grows to a great size, and has only one variety in Europe. The colour varies from white to pale brown; it is now seldom used in carpentry owing to its tendency to cleave and its liability to be attacked by worms. The former is believed to be owing to injudicious felling. It is suitable for piles, weirs, sluices, flood-gates, and the timbering of embankments, being peculiarly adapted for works under water. The weight of a cubic foot when green is 65lb. 13oz.; when half dry, 56lb. 6oz.; and when dry, 51b. 3oz. Its strength, as compared with that of the oak, is 103 to 100, its stiffness 77 to 100, and its toughness 138 to 100. The ash, which we now come to consider, being hard and heavy, is little used for carpentry. It is white in colour, veined longitudinally with yellowish streaks, and, besides being liable to attacks of worms, rots rapidly when exposed either to dampness or to alterations of dryness and moisture. Its toughness and elasticity fit it for resisting sudden and heavy shocks, but it is too flexible and not sufficiently durable for carpentry. It weighs when green 64lb. 9oz., and when dry 49lb. 8oz. Its strength, as compared with oak, is 119 to 100, its stiffness 89 to 100, and its toughness 160 to 100. Teak is of very quick growth, and in colour it is of light brown. In its fresh state it is more or less impregnated with an aromatic oily substance, and to this it owes much of its value. It is largely used in carpentry and shipbuilding. The best kind is obtained from Malabar. Greenheart is a native of Guiana, where it is in great abundance. The trees square from 18in. to 24in., and can be produced from 60ft. to 70ft. long. It is adapted for all purposes where great strength and durability are re-

quired. The weight of a cubic foot is from 61.15 to 61.13. The wood of the poplar is soft, light, and generally white or pale yellow. Its principal use in construction is for floor boards, but it requires to be seasoned for at least two years before it is fit for use in this way. It is adapted for all purposes which require lightness and moderate strength, such as making large folding doors for barns. When kept dry it is tolerably durable. It weighs, when green, 58lb. 3oz. per cubic foot, and from 24lb. to 38lb. 7oz. when dry. It shrinks and cracks in drying, and loses about a quarter of its bulk. When seasoned it does not warp, and will not readily take fire. The wood of the maple is moderately hard, compact, and more or less veined, and is used in various departments of Architecture. It is durable when kept dry, and some of the finer varieties take a fine polish, and are used by cabinet-makers. The wood of the sycamore when young is white, but becomes yellow, as the tree grows older; sometimes it becomes even brown in the centre. It is liable to be attacked by worms, and its chief use is for dresser tops. The willow serves many utilitarian purposes. It is sawn into boards for flooring, and into scantling for rafters; in this capacity it has been known, when kept dry, to stand for a hundred years. Acacia is the locust-wood of America. In colour it is yellow, with brown veins. Experiments in England have shown that it is heavier, harder, stronger, more rigid, and more elastic than the best oak. It is used largely in America for sills of doors and for posts nearest the ground used in the framing of half-timbered houses. The acacia wood is difficult to get in large sizes, for, in districts where it thrives best, nine-tenths of the trunks do not exceed 1ft. in diameter and 40ft. in height. Its strength to that of oak is as 135 to 100. The horse-chestnut is white and soft, and unfit for work requiring strength and durability. Now we come to mahogany. The trunk of this tree is about 50ft. high and 12ft. in diameter. It takes probably not less than 200 years to reach maturity, and abounds the most, and is found in the greatest perfection, in the islands of the Carribbean Sea, Cuba, St. Domingo, and Porto Rico. St. Domingo yields the finest mahogany of the lot, that obtained from Cuba being next in point of quality, and Honduras third.

A PUBLIC inquiry has been held at Rawmarsh relative to an application by the Urban District Council for sanction to borrow £4500 for purposes of sewage disposal works. This is in addition to the sum of £22,320 which has been already spent.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
May 28	Celbridge, Ireland — Additions and Alterations, Workhouse	Guardians	Office of the Workhouse Master, Celbridge.
" 28	Elland, Yorks.—Four Houses, Gordon-street	Halifax Industrial Society	R. and E. E. Horsfall, 15, George-street, Halifax.
" 28	Marnhull, Dorset—New Bridge	County Council	Justice Room, Sturminster Newton.
" 28	Walthamstow—Lavatories and Alterations	Urban District Council	G. W. Holmes, Surveyor, Walthamstow.
" 28	West Ardsley—Stables, &c., Boyle Hall		Nelson and Savage, Sun-buildings, 15, Park-row, Leeds.
" 28	Wigton—Grammar School		G. D. Oliver, 5, Lowther-street, Carlisle.
" 28	Southam, Warwickshire—Church Work, &c.		A. J. Sinnett, London House, Southam.
" 29	Cashel, Co. Tyrone—School		Mr. O'Connor, Solicitor, Omagh.
" 29	Elland Edge, Yorks.—Stabling, &c., Royal Oak Inn		C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
" 29	Laver Breton, Essex—Enlargement of Bridge	County Council	P. J. Sheldon, County Offices, Chelmsford.
" 29	Tregerrick, Cornwall—Piggery		Farmhouse, Tregerrick.
" 29	Writtle, Essex—Alterations, &c., School Board	School Board	F. Whitmore, 17, Duke-street, Chelmsford.
" 29	Thornaby-on-Tees—Completion of Church Tower, &c.		T. H. and T. Healey, 42, Tyrrel-street, Bradford.
" 31	Crook, Durham—Enlargement of Classrooms	School Board	School Board Room, Croft-street, Crook.
" 31	Hanley, Staffs.—New Shop Fronts		J. Lobley, Town Hall, Hanley.
" 31	Hastings—School Works, Priory-road	School Board	F. H. Humphreys, 6, Trinity-street, Hastings.
" 31	Levenshulme, Lancs.—Council Offices, Stables, &c.	Urban District Council	J. Jepson, Union-road, Stockport.
" 31	London, N.—Workmen's Dwellings (108)	Hornsey Urban District Council	E. J. Lovegrove, Engineer to the Council, Hornsey.
" 31	London, W.—Stable Buildings, &c.	Paddington Vestry	G. Weston, Vestry Hall, Harrow-road, W.
" 31	St. Leonards-on-Sea—School	Hastings School Board	Elworthy and Son, London-road, St. Leonards-on-Sea.
" 31	Trevelin, Pontypool—Partitions, Floor, &c.	School Board	Lansdowne and Griggs, Architects, Newport.
" 31	Sandhurst—Workshops, &c., Royal Military College	War Department	Offices, R.E., South Aldershot.
" 31	Pudsey—Board School, Primrose Hill		Peterson and Lawson, 1, Bank-street, Bradford.
June 1	Brockhampton, near Fawley—Rebuilding Church		Austin and Paley, Architects, Lancaster.
" 1	Drogheda—Workmen's Houses (6)	Corporation	Office, Borough Surveyor, Drogheda.
" 1	London, E.C.—Underground Conveniences	Commissioners of Sewers	Engineer to Commission, Guildhall.
" 1	Barton-on-Humber—Additions, &c., to St. Peter's Church		Vestry, St. Peter's Church, Barton-on-Humber.
" 1	Keighley—Nurses' Home, Infirmary		J. Judson & Moore, York-chambers, Cavendish-st., Keighley.
" 2	Haverton Hill—Engine Shed, Coaling Stage, &c.	North-Eastern Railway Company	W. Bell, Architect, York.
" 2	Knutsford—Alterations, &c., to Hospital	Guardians	R. J. M'Beath, Birnam House, Sale.
" 3	Canterbury—Buildings, Northgate-street		W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 3	Londonderry—Premises, Ferryquay Gate	E. Colhoun	T. Johnson, 11, East-wall, Londonderry.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—Continued.</b>			
June 3	Woking—Schools	School Board	Offices, Clerk, 4, The Broadway, Woking.
" 3	Castlebar—Additions and Alterations	Rev. P. Lyons	W. G. Doolin, Dawson-chambers, Dublin.
" 4	Llangollen—Additions, Alterations, &c.	School Board	Davies and Moss, 11, Regent-street, Wrexham.
" 5	Bridport—Hospital, Works, &c.	Corporation	F. Cooper, Borough Surveyor, Bridport.
" 7	Morecambe—Chimney (129ft.), &c.	Urban District Council	J. Bond, Council Offices, Morecambe.
" 8	London, S.W.—Branch Library, Balham	Streatham Public Libraries Commrs.	S. R. Smith, 14, York-buildings, Adelphi, W.C.
" 8	Strabane, Ireland—Cottages (13)		J. E. Sharkie, Poor Law Office, Strabane.
" 8	Gloucester—New Works at School	Technical School Commissioners	Waller and Son, 17, College Green, Gloucester.
" 12	Surrey—Pulling Down and Rebuilding Hotel	Ashby and Company	W. Menzies, Englefield Green, Surrey.
" 15	Ireleth, Askam-in-Furness—Classroom, Ireleth School		R. P. Nelson, Dalton.
No date,	Aldershot—Building R.E. Office, &c.	War Department	R.E. Office, North Camp, South Aldershot.
"	Dukinfield—Semi-Detached Villas	A. King	J. Eaton, Sons, and Co., Architects, Ashton-under-Lyne.
"	Holbeck, Leeds—Ten Houses	T. Cromack	F. W. Rhodes, Architect, Upper Wortley, Leeds.
"	Charmminster—Four Pairs Cottages	Dorset County Asylum Visitor	G. T. Hine, 5, South-street, Dorchester.
"	Bury, Lancs.—Mission Room		T. Nuttall, 20, Market-street, Bury.
<b>ENGINEERING—</b>			
May 28	Manchester—Coal Charging Machinery, &c.	Gas Committee	C. Nickson, Gas Department, Town Hall, Manchester.
" 28	Donegal—Reservoirs, &c.	Guardians	J. L. Devenist-Meares, Town Hall, Newry.
" 29	Wakefield—Precipitating Tanks, &c.	Corporation	R. Porter, Town Hall, Wakefield.
" 29	Wakefield—Pumping Engine, &c.	Corporation	R. Porter, Town Hall, Wakefield.
" 29	Walsall—Tank, Pleck Gasworks	Corporation	J. R. Cooper, Bridge-street, Walsall.
" 30	Hebden Bridge—Two Cast-iron Culverts	Urban Council	J. Newton and Son, 17, Cooper-street, Manchester.
" 31	Lonrridge—Sludge Pressing Machinery, &c.	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
June 1	Ashby-de-la-Zouch—Waterworks	Urban Council	G. and F. W. Hodson, Engineers, Loughborough.
" 2	Petersfield, Hants—Reservoir	Urban District Council	H. T. Keates, Surveyor, Petersfield.
" 4	Manchester—New Elevators and Screens	Corporation	City Surveyor, Town Hall, Manchester.
" 5	Pontypridd—Coke Elevator, &c.	Urban District Council	T. Newbigh and Son, 5, Norfolk street, Manchester.
" 5	Sheffield—Corrugated Iron Roof, &c.	United Gaslight Company	F. W. Stevenson, Engineer, Commercial-street, Sheffield.
" 9	Hemsworth—Covered Service Reservoir, &c.	Rural District Council	J. H. Taylor, 10, Victoria-road, Barnsley.
" 12	Haslingden—Tanks, &c.	Sewerage Board	H. L. Hinnell, 41, Corporation-street, Manchester.
" 17	Madrid—Dredging	Spanish Government	Ministry of Public Works, Madrid.
" 21	Queenstown—Waterworks	Town Commissioners	Town Commissioners' Office, Town Hall, Queenstown.
<b>IRON AND STEEL—</b>			
May 28	Valetta, Malta—Pipes, &c.		Superintendent of Public Works, Ma'ta.
" 31	Edinburgh—Tramway Rails, &c.	Corporation	W. N. Colam, 1, Parliament-square, Edinburgh.
" 31	Erith—Pipe Sewers, Manholes, &c.	Urban District Council	G. Chatterton, 46, Queen Anne's-gate, S.W.
June 7	York—Permanent Way, Material, &c.	North-Eastern Railway	J. Snowdon, Central Station, Newcastle-on-Tyne.
" 7	York—Iron and Steel Turnings, &c.	North-Eastern Railway	E. H. Clark, Stores, Gateshead.
" 7	York—Bar and Plate Iron, Metal Castings, &c.	North-Eastern Railway	E. H. Clark, Stores, Gateshead.
" 8	Oswestry—500 Tons of Cast-iron Chairs	Cambrian Railways Company	G. Owen, Company's Engineer, Oswestry.
" 9	Hemsworth—Cast-iron Water Main Pipes	Rural District Council	J. H. Taylor, 10, Victoria-road, Barnsley.
" 9	Hemsworth—Socket Sluice Valves, Hydrants, &c.	Rural District Council	J. H. Taylor, 10, Victoria-road, Barnsley.
<b>PAINTING—</b>			
May 28	Cartmel—Painting	Rev. T. M. Remington	Daniell, Binyon, and Chapman, Solicitors, Ulverston.
" 31	Armley—Painting and Decorating Chapel		J. Bannister, 4, Town-street, Armley.
" 31	St. Albans—Painting, &c.	Corporation	Office, City Surveyor, St. Albans.
June 1	Arlecdon and Frizington, Cumberland—Painting	School Board	J. R. Thompson, 18, Scotch-street, Whitehaven.
" 14	New Swindon—Cleaning and Decorating	G.W.R. Mechanics' Institute	The Secretary, New Swindon.
" 15	Wanstead—Painting	School Board	School Board Offices, Wanstead.
No date,	West Ham—Painting, Repairs, &c.	School Board	W. Jacques, 2, Fen-court, E.C.
"	London—Painting Hyde Park and Kensington Barracks	War Department	R.E. Office, 41, Charing-cross, W.C.
"	South Aldershot—Painting	War Department	R.E. Office, South Aldershot.
<b>ROADS—</b>			
May 28	Brighton—Wood Paving	Town Council	F. J. C. May, Town Hall, Brighton.
" 28	Colchester—Materials, &c.	Rural District Council	J. Ennals, Surveyor's Office, Colford.
" 29	Rebington, Cheshire—Road Diversion	Joint Railway Committee	Engineer, L. and N.W. and G.W. Railway Cos., Birkenhead.
" 29	Alloa, Scotland—Footpath	Landward Committee	Clerk, Parish Council-chambers, Alloa.
" 29	Bar-kisland, Yorks.—Leading Dross	Urban District Council	J. B. Holroyd, Surveyor, Bar-kisland.
" 31	Filand, Yorks.—Sewering, Paving, Channeling, &c.	Urban District Council	G. Hepworth, 11, Bradford-road, Brighouse.
" 31	Leeds—Horse Hire and Material's	Rural District Council	H. H. Hodgson, 46, Spencer-pace, New Leeds.
June 1	Pootle, Lancs.—Improvement Works	Corporation	Borough Engineer's Office, Town Hall, Pootle.
" 1	Bromley, Kent—Wood Paving (about 260 yards)	Urban District Council	Council's Surveyor, District Council Offices, Bromley.
" 1	Carshalton—Material's, &c.	Urban District Council	W. W. Gale, Surveyor, Carshalton.
" 1	Folkestone—Materials	Corporation	J. White, Borough Engineer, Folkestone.
" 1	Northfleet, Kent—Materials	Urban District Council	S. Honeycombe, Surveyor, Northfleet.
" 1	Lower Bebington, Cheshire—Materials, &c.	Urban District Council	Offices of the Council, Lower Bebington.
" 1	Urmston, Lancs.—Paving, &c.	Urban District Council	C. C. Hooley, Council Offices, Urmston.
" 1	London, S.E.—Road Materials, &c.	Lewisham Board of Works	Offices, Catford, S.E.
" 1	Tottenham—Repairs to Tar Paving	Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
" 2	Partford—Road-making, &c.	General Investment Company	Offices of the Company, 49, Windmill-street, Gravesend.
" 9	London, N.—Roads	Vestry of St. Mary's	J. Patten Barber, Vestry Hall, Upper-street, Islington, N.
" 12	Arnold, Notts.—Paving, &c.	Urban District Council	Office of W. H. Higginbottom, King John's-chambers, Bridlesmith-gate, Nottingham.
" 14	Wolverhampton—Road Works, &c.	Public Works Committee	J. W. Bradley, Town Hall, Wolverhampton.
" 24	Eccles—Materials, Flag Rock Kerbing, &c.	Highway Committee	Office, Borough Engineer, Town Hall, Eccles.
No date,	Hull—New Streets, Sculcatcs-lane		T. B. Thompson, 15, Parliament-street, Hull.
<b>SANITARY—</b>			
May 23	Fenrthstone, Yorks.—Sewerage Works	Urban District Council	G. and F. W. Hodson, Engineers, Loughborough.
" 31	Bishop Auckland—Sewer, &c. (453 yards)	Rural District Council	C. Johnson, 1, Cradock-street, Bishop Auckland.
" 31	Erith, Kent—Sewerage Works	Urban District Council	G. Chatterton, 46, Queen Anne's-gate, S.W.
" 31	Oporto, Portugal—Sanitary Improvement Works	Corporation	Municipal Town Hall, Oporto.
June 2	Middleton, Lancs.—Sewer (2236 lineal yards), &c.	Corporation	H. L. Hinnell, 41, Corporation-street, Manchester.
" 2	Blaydon—Scavenging, &c.	Urban District Council	R. Biggins, Office of the Council, Blaydon-on-Tyne.
" 3	Wilmslow—Sewers (about 1700 yards)	Urban District Council	J. Bowden, 14, Ridgefield, Manchester.
" 9	Portishead—Sewerage Works	Urban District Council	T. J. M. Flower, Carlton-chambers, Bristol.
" 14	Southend-on-Sea—Sewerage Works	Corporation	J. Mansergh, 5, Victoria-street, S.W.
" 24	North Bierley—Sewerage Works	Urban District Council	P. Ross, Council Offices, Wibsey.
No date,	Eccles—Sewer Construction, &c.	Highways Committee	Office, Borough Engineer, Town Hall, Eccles.
"	Sandhurst—Drainage	War Department	R.E. Office, North Camp, South Aldershot.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 5	Sheffield—Plans for Proposed New School	£15 £10	Sheffield School Board.
" 7	Hipperholme, Yorks. Designs for Offices	£10	Urban District Council.
" 16	Morecambe—Designs for Hotel	£100, £50, £23, £15	Baxter and Abbott, Back-crescent, Morecambe.
July 1	Elne, France—Water Supply Scheme	£20 (merged £10)	La Marie, Elne, Pyrenées Orientales.
" 20	Howth—Presbyterian Church	50, 30, 20 guineas	Rev. J. Wilson, 4, Rhoda-villas, Howth, Co. Dublin.
" 31 1898	Bootle—Designs for Technical School		Corporation.
Jan 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.





**The Influence of Colour.** OF late years, following the lead set by medical men who started the theory of ameliorating, if not curing, certain forms of insanity by means of blue glass windows in asylums, a considerable amount of attention has been given to the psychological influence of colour, not only in our nature, but in other respects. As colour must ever be a prime factor in the thoughts of an Artist, be he painter or musician, we purpose, in the following lines, dealing somewhat briefly with the subject of the influence of colour. As there are many upon whom music has no effect, and to whom melody is an entirely lost charm, so there are many whose faculties are entirely dulled by the influence of colour, which exercises an influence which has now been developed by scientists into a well defined fact. There are many instances on record in the medical world where diseased brains have been treated with very good result by the proper and judicious employment of colour in the home surroundings of the person affected. It is not, however, with the medical side of the question of the influence of colour that we have to deal here, but rather with its general effect in the decoration of the house walls with which we are daily brought into contact. It is a fact beyond all contradiction that the influence of colour in health is not understood as it should be by the general public. It is not so long since that a writer called attention to the impropriety, not to say stupidity, of employing great expanses of depressing and cold French grey on the walls of schoolrooms and other public buildings, protesting that this tint exerted a bad and undesirable influence on the mind, and that it had not cheapness, neatness, nor cleanliness to recommend it over some half-dozen other colours that might be employed. If the public were rightly educated in the proper employment of tints, such a circumstance would be almost a matter of impossibility. As most of our readers may perhaps be aware, French white is composed of a mixture of white, Prussian blue, and vermillion, or, alternately, of white, lampblack, and Indian red, with, of course, the blue or black in the largest proportions. Blue, as the merest art or decorative Artist knows, possesses the quality known as coldness in colouring, and this is communicated in a more or less degree to all the colours with which it is compounded or surrounded, or in any way brought into connection, whether in compounding or otherwise. The complementary of the cold blue is the warm orange, which represents the maximum of heat attained by the gradually ascending series of warm tints. Midway between the cold blue and the hot orange the medium is found at purple yellow and yellowish green. Simple as the matter ought to be, when once it has been ascertained what are the colours which are hot and which are cold, to arrange suitable colourings for the interiors of buildings of any kind, it yet seems almost a matter of impossibility to impress this very wholesome and elementary fact upon the minds of the majority of our decorative Artists. A room decorated in warm or hot colours always presents a cheerful and inviting appearance, while if it is done in blue, grey, or other cold tones it appears cold and uninviting, and a person never longs to stay for any length of

time in such rooms save on a very hot, sunshiny day, when at noon or the afternoon the cool effect is inviting; and this fact has been demonstrated by experiment to be true, as great a difference as four degrees having been found in the temperature of violet and red by passing the prismatic colours slowly and gradually before a finely graduated thermometer at the bulb. Light is the natural stimulus of the healthy eye, and is more pleasing to it than any single colour, no matter what the conditions under which it is seen. It is composed of the three primary colours—yellow, red, and blue—in such finely graduated proportions as to neutralise each other. Now, experience has demonstrated that if a single colour, say red, be alone presented to the healthy eye, the organ soon

more fatigue than blue and yellow, and these again more than grey and white. Balzac, as we all know, had some curious speculations respecting colour as denoting a woman's character. He says that quarrelsome women prefer orange or green; those who wear yellow hats or don black without cause are not to be trusted; white is worn by coquettes; pink by gentle and thoughtful women; pearl grey by those who consider themselves unfortunate; and lilac by over-ripe beauties. These are only speculations, but there is really a basis of fact in them. The influence of colour is a subject which should far more engage the attention of our students in Art industries than it does at the present day, and we hope that these few lines will be of some service in that direction.



SHEFFIELD NEW TOWN HALL: CHIMNEYPiece IN MAYOR'S PARLOUR. E. W. MOUNTFORD, ARCHITECT. PHOTOGRAPH BY BEDFORD LEMERE AND CO.

experiences a very uneasy feeling—as of irritation, heat, and annoyance, when it needs to have presented to it such other colours as will neutralise its effect. This is, of course, not possible with paint, but the Art decorator can and should, produce the equivalents of the yellow and blue of the prism in green. Hence the two colours which will harmonise with red are yellow and blue, or their equivalent, green, if only one colour is admissible. Thus it will be seen that the primary colours would be very suitable in sick wards if only they were properly employed. The cool greens and greys are restful, but they are likewise wearying and monotonous, as all flat colourings are apt to prove. M. Kolbe, a Russian doctor, writing on this subject of the influence of colour, states that red and green produce

#### The late Mr. Charles James Phipps.

DEATH has just deprived theatre Architecture of one of its best-known exponents. The late Mr. Charles James Phipps, during a life extending over sixty-two years, erected many monuments, both in London and the provinces, which will serve to perpetuate his memory. For a period of over forty years he followed his Profession with credit and distinction, and the news of his death, which occurred a few days ago, will be received with widespread regret. It is theatre Architecture which has principally claimed Mr. Phipps' professional time and skill, and a melancholy interest centres in the fact that what is perhaps the greatest achievement of his busy life has only been accomplished at its close. Born at Bath in the



year 1835, Mr. Phipps was articled to Messrs. Wilson and Fuller of that city. He remained with them until 1857, when he commenced to practise on his own account, his first important work being the rebuilding of Bath Theatre in 1862, after its destruction by fire. He gained the commission in a competition, which, seemingly, had a most important bearing on his future career, for from this by no means humble start he rapidly came to the front in the practice of Architecture as exemplified in our theatres. Her Majesty's Theatre in the Haymarket is, no doubt, his largest work. Among his other works in London may be mentioned the Carlton Hotel, adjoining Her Majesty's Theatre, and still in course of erection from his plans; the Lyric Club and Prince of Wales's Theatre in Coventry Street, the Gaiety, Savoy, Comedy, Shaftesbury, Princess's, the Queen's (Long Acre), the Vaudeville, Strand, Sadler's Wells, and the Variety (Hoxton) Theatres; and the Queen's Hall (conjointly with Mr. Knightly). The most prominent of his work in the provinces includes the Royal and Lyceum Theatres in Edinburgh, and theatres at Dublin, Belfast, Cork, Londonderry, Bristol, Plymouth, Exeter, Northampton, Nottingham, Worcester (two), Liverpool, Swansea, Torquay, Leicester, Portsmouth (two), Brighton, Eastbourne, South Shields, Leamington, &c. And it is amongst this work in the provinces that, generally, Mr. Phipps' best designs are met with, as, owing to advantages of sites offered by the provincial towns, he was able to erect more imposing buildings and show their Architecture to better effect. The deceased held the appointment of Architect to the Company of Proprietors, Drury Lane Theatre, and was a Fellow of the Royal Institute of British Architects, having joined as an Associate in 1860. He took a warm interest in the welfare of the Institute, and on more than one occasion read papers at its ordinary meetings. We understand Mr. Blomfield Jackson, who has been in partnership with the deceased, and has been associated with him in his more recent works, will carry on the practice.

#### NEW GOVERNMENT OFFICES SCHEME.

THE Committee on Government Offices (Appropriation of Sites) held its first sitting under the presidency of Mr. Akcr.-Douglas, the First Commissioner of Works, on the 26th ult.—The Right Hon. G. Shaw Lefevre, a former First Commissioner of Works, said he approved of the scheme for erecting public offices in Parliament Street and widening that thoroughfare for the purpose, and of taking all the property up to Delahay Street and in Great George Street up to the new buildings of the Institution of Civil Engineers. He had propounded a similar scheme in 1881 before suggesting the Spring Gardens scheme. The Cabinet of that day had not assented to the plan, partly because of the cost of the site and partly because it was considered inexpedient for the Government to monopolise property near the Houses of Parliament. It was only when this scheme had been rejected that he had proposed a plan for taking the Spring Gardens site for both the Admiralty and the War Office. He also approved of the scheme for erecting a new War Office on the Carrington House site, and considered it to be of the utmost importance that the War Office should be in as close contiguity as possible to the Admiralty. In the scheme of 1882 it was proposed that both the Admiralty and the War Office should be provided for on the Spring Gardens site. Parliament had approved of that plan, and, as was known to the Committee, a design had been obtained by competition for carrying it out by the erection of one great building for both Departments. That scheme, however, was subsequently upset by the Committee of 1887, mainly on the ground of expense. It was thought that by main-

taining the existing Admiralty buildings, and by adding two wings to them of an inexpensive character, the Admiralty could be provided for at a moderate expense, and that the work might be completed within two or, at the utmost, three years. It was considered that a large saving in the cost of building might be thus secured. Ten years had since elapsed, only one of the wings had been completed, and instead of having been completed at a moderate cost, it was now certain that the expenditure on the two wings would amount to £340,000. He thought it was now clear that, having regard to the necessity of providing a new site for the War Office, and the long delay which had taken place, the effect of the Committee of 1887 had been to entail upon the public a loss of half a million of money. It was now too late to remedy the mistake, and the best course to be pursued would be to

of the First Lord of the Treasury. Dover House was very ill-adapted to serve as public offices, but its reception-rooms were extremely convenient for residential purposes, and the building would admirably serve as a convenient residence for the Prime Minister. This part of the scheme, however, might well wait until the other proposals were carried out. Mr. Shaw Lefevre added that the architectural effect of the new extension of the Admiralty buildings was most unfortunate. The added wing was much too low, and was wanting in dignity for such an important site. He understood also that the building was now too small to meet the wants of the Admiralty, and that in the near future additions would have to be made to it.—Mr. Scott, son of Sir Gilbert Scott, who had designed the Home Office and the India Office buildings, gave his opinion as to the different sites proposed.—Some further



SHEFFIELD NEW TOWN HALL. PANELING IN COUNCIL CHAMBER. E. W. MOUNTFORD, ARCHITECT.

erect a new War Office on the Carrington House site. He did not approve of the scheme of the Institute of Architects for widening Whitehall for the reason that, to his mind, it would be a very costly undertaking. It would necessitate the purchase both of Drummond's Bank and of the intervening houses at a very great cost. He thought that if Whitehall was to be widened at this point it should be at its eastern side. With respect to the proposals for erecting new offices next to the official residences in Downing Street and extending further into St. James's Park, he deprecated any further curtailment of the Horse Guards' Parade. In his judgment the better course would be to pull down the official residence of the First Lord of the Treasury in Downing Street and to erect offices in its place joining the Treasury buildings. In such an event he would propose that Dover House should be devoted to the purpose of the official residence

evidence having been taken, the Committee adjourned.

PLANS have been prepared for the proposed restoration of the ancient Parish Church of St. Michael, at Shap, Westmoreland. About £1200 has been already subscribed towards the cost.

THE South Staffordshire Waterworks Company is constructing a capacious storage reservoir on the summit of Barr Beacon for the purpose of supplying the higher parts of West Bromwich, Walsall, and adjacent towns. Within the past two or three years the company has sunk new wells near Bourne Pool, and have found a good supply of water. It is proposed to pump this water into the new reservoir and lay pipes to the places mentioned. The reservoir is being constructed from the designs of Mr. H. Ashton Hill.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





SHEFFIELD TOWN HALL. THE COUNCIL CHAMBER. E. W. MOUNTFORD, ARCHITECT.

From a Photograph by Bedford Levere & Co.





SHEFFIELD TOWN HALL. THE GRAND STAIRCASE. E. W. MOUNTFORD, ARCHITECT.

From a Photograph by Bedford Lemere & Co.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Sheffield New Town Hall.

## AN IMPRESSION.

IN attempting to arrive at any estimate of this building, the somewhat peculiar shape of the site must be noticed, and continually borne in mind. This triangular shape of the site lends itself to many beautiful and characteristic treatments, and we can imagine with what enthusiasm a medieval Architect would have seized the opportunity. It is a question whether such a shape is suitable for such a building as this, but, being given, it should surely have been

what he would like to do, are not the same things as what he has been allowed to do by the force of circumstances, and that he is often hampered from the start by foolish conditions and regulations, and official ideas as to the arrangement of accommodation, which, in this case, have probably had some influence on the general disposition of the plan.

But we cannot help thinking that something more architectural in general conception, something more organic, might have been made of this scheme, which, though apparently most convenient and workable, is yet lacking in grasp and artistic expression.

However hampered an Architect may have been in the general arrangements of the plan,

whether it has a sufficient *raison d'être*, whether its usefulness is such as to justify its expense, and whether the money could not have been expended to greater advantage elsewhere on the building. We are inclined to think that the accommodation for a clock and a water tank, which is usually all that is to be found in these towers above the roof line, is hardly sufficient justification for their existence.

There are, however, those who think otherwise, and the feature has certainly plenty of precedent to rely on. In this case it strikes us as being made a little too much of, and the top part above the main cornice seems lacking in definite form and outline. In the view which we published last week it has rather the



SHEFFIELD NEW TOWN HALL: THE MAYOR'S PARLOUR. E. W. MOUNTFORD, ARCHITECT. FROM A PHOTOGRAPH BY BEDFORD LEMERE AND CO.

frankly accepted and made the most of. One would naturally expect to see the general idea of the plan of the building, and so also the disposition of the grouping, holding some definite relation to the shape of its site. It is perhaps a pity that in this instance something of the sort was not attempted.

As it is, one feels that the general idea of the plan is not one for a triangular site, but rather a plan for a rectangular one, which has had to be squeezed in on the return frontage as best could be managed, as if it would have gone further in that direction if it could. This suggests a mutilated and undignified effect, which robs the building of that unity of conception, and that appearance of being exactly appropriate to its position, which are characteristics of artistic productions. It must, of course, be taken into consideration that what an Architect might do, or even

he is usually allowed a free hand on the elevations, and in this case the Architect would probably be willing to accept the responsibility for the projecting wings on the main entrance front.

We think these features are to be regretted, as they do not truly express the plan, and do not seem sufficiently warranted by the requirements of the case, thus giving a false effect and suggesting cross walls and internal arrangements that do not exist. We cannot help thinking that they are in the wrong place, and are not required. This main entrance elevation has too much of the appearance of having been designed for its own sake, without due reference to the plan—as though it did not grow out of the necessities of the case, though in itself it is a pleasing composition.

It is always a question whether a tower is required in a building of this description,

effect of dwarfing the main front. However, this is largely a matter of personal taste.

There is much that pleases in the detail of the building, both inside and out, though some features, such as the recessed window over the main entrance, are unhappy.

In the insane rush, however, with which so much of the Architect's work has to be done, it is not to be wondered at if some of the details of so large and complicated a building occasionally get overlooked. And again, in a building which, like this one, is the outcome of a competition, arrangements get adopted and features introduced in the hurry of the moment which the designer himself, on mature consideration, would not approve of. But once there, there they have to stop, as often as not, little encouragement or opportunity being given to the Architect to recast his scheme by the light of his previous experience.



## SANITARY PLUMBERS' WORK AND SANITATION.\*

(Continued from page 236.)

By S. S. HELLYER.

IN passing over many water-closets which have been introduced during the last ten or twenty years we shall not miss much, for the majority of them are as noisy and as unsightly as some of the new motor-cars, and to the olfactory nerves are just as objectionable as the pan-closet they were meant to supersede. I propose, therefore, to confine my remarks to a few kinds, viz., the valve-closet, the "Syphonic," the "Wash-down," and the "Wash-out," but before doing so let me mention the several points which I consider

### ESSENTIAL TO A GOOD WATER-CLOSET.

1. It should hold a body of water large enough and deep enough to quite submerge the faeces.
2. It should have no parts or places in it where faecal matters could cling to or accumulate upon.
3. It should have a water-seal of at least 1½ in. for trapping off the soil-pipe.
4. It should be so constructed that the whole of its contents may be changed by a flush of two gallons of water, and its interior parts well washed.
5. And in the case of earthenware closets having their basin and trap in one piece, its connection with the soil-pipe or drains should be readily seen. Now, if we examine the general kind of "wash-out" closets, we shall see that they all more or less fail in some one or more of these important points. In the majority of such closets, if not in all of them, it will be found that the water held in the bottom of the basin is too shallow to cover the faeces, the consequence being most disagreeable. So pronounced is this, that on making an examination it is rarely necessary for a sanitarian to do more than put his head into an apartment where this kind of closet is fixed, to know that it is a "wash-out." Then in this kind of closet

### THE FLUSH OF WATER

is made to break up the faeces in the best possible way for throwing their odours into the apartment, and instead of spending its full force upon the sides of the basin and upon the trap, it is chiefly spent in clearing the bottom of the basin. There is also the evil of a large exposed surface between the weir of the basin and the water-seal of the trap, a part which will generally be found to be in a filthy state. Having dismissed the "wash-out" kind of closet, let us now see what can be said for its next of kin, the pedestal "wash-down" kind. There is a very great variety of them, with several points common to them all, and yet they differ so much in certain essential features that, like Jeremiah's figs, "the good are very good indeed, the rest are not fit for pigs." In one particular they all stand at a disadvantage with the "wash-out," viz., that their exposed surface of water is smaller. But the best of their kind may be said to pretty well embody the points required in a good general sanitary water-closet. They are to be had of many a manufacturer, each one claiming some feature or advantage not possessed by others. Several

### VARIETIES OF "SYPHONIC" CLOSETS

are now in the market, the main object with them all being to provide a larger exposed surface of water than can be given to the "wash-down" kind; but though such closets excel the "wash-down" closets in this particular, they are not so satisfactory in some other points. The majority are not so simple, nor so reliable in their action with only a two-gallon flush of water, and some of them are complicated in their supply and discharge arrangements. In testing such closets with a pailful of water emptied quickly into them, I have seen them left with a much reduced water-seal even when they have not been attached to a soil-pipe; and how they would withstand the action of syphonage when fixed in about the middle part of a stack of soil-pipes 80ft. or 100ft. high, I should hardly like to say, but I should be apprehensive of the result. I

know of an instance where a syphonic closet was put into use during the time its soil-pipe was

### UNDER A SMOKE TEST,

and the smoke escaped through it into the water-closet apartment. But, perhaps, this is hardly to be wondered at, for, under certain conditions, the contents of the closets are syphoned out very vigorously, so much so that the water-seal of the trap would often be broken in the action. The emptying of a pailful of slops into such closets not only syphons out their previous contents, but the added slops as well, leaving the basins practically empty, in which state they would at times be used. No doubt the servants would not always remember to pull the flushing handle after emptying the slops, especially as there would be no necessity to do so to get rid of the slops. Then, unlike a valve-closet, the water held in the basin is in continuous contact with the air in the soil-pipe, but this is the same in "wash-down" closets. Then, I think, when the water is limited to two gallons it is important that the whole of such a flush should be utilised for washing down the walls of the basin and cleansing the trap; but in the majority of the syphonic closets it will be found that part of the flush is used for starting the syphon in a compartment outside the basin. Then a close examination of the majority of such closets when in action will show that

### THEIR SIDES ARE NOT PROPERLY RINSED,

and that in consequence particles of matter are left adhering to the surfaces, and that even some of the rinsed water is returned back into the closet when the syphonic action has been broken. But, of course, a second flush would make this all right. It is better that such closets should have a flush of not less than about three gallons. Before I pass away from the classes of water-closets which may, and which often are, connected to soil-pipes and drains by imperfect joints, I should like to say, as strongly as I can, that no closet or trap having a breakable outlet, such as earthenware, should be connected to a soil-pipe or drain in a manner that will not admit of a ready inspection. I now come naturally enough to valve-closets, the prince of water-closets for private use, and for places where such a convenience is not used for several days together, and when the supply of water is not limited to two gallons. The "Bramah" valve-closet was invented by Joseph Bramah, of London, in 1778, but it has been much improved upon since then, especially during the last ten or twenty years. In turning out some drawers recently, I came across a printed circular of a valve-closet. It was printed by T. Bensley in about 1790, I think. His printing press was next to Dr. Johnson's house in Bolt Court. If you look at the type you will see that the long S is used, and the Caslon Foundry abandoned that form of letter in 1785. The illustration shows

### A D-TRAP UNDER THE CLOSET,

but according to the text this trap was at that time called an "Air" trap; and although they seem to have preferred that its position should be immediately under the floor of the closet, they do not seem to have been very particular about this, for, in the directions for fixing, it is specified to be "fixed under the floor of the closet, if the joists are of sufficient depth to allow it, if not it may be fixed at the bottom of the funnel-pipe." It is interesting to notice that at this time soil-pipe was called "funnel-pipe"—the name by which it is still called by some old plumbers—and, what is still more interesting, as shown by the circular, the conservatism of that day was very strong, for they stored the sewage in cesspools built at the bottom of funnel-pipes inside their houses. But they saw a danger in this, unless matters were well suppressed, for the specification states that "great care must be taken to make properly good round the bottom of the funnel-pipe where it enters the drain or cesspool so as to entirely prevent the foul air from being emitted." There is nothing said about the ventilation of the soil-pipe, or of the cesspool; the authorities were content to "bottle up" such matters, and there was wisdom in this

with so much storage of sewage in closet trap and cesspool. But I must return to my subject. I have called

### THE BEST KIND OF VALVE-CLOSETS

the prince of water-closets, and I have done so because I know of no other which embraces so many good points. It has a larger and a deeper body of water than any other closet; whilst the valve which keeps the water in the basin enables its sides to be so extended that they are practically protected from the dejecta, no matter what state the body may be in. And to protect the flushing rim of water-closets I have recently introduced a receding rim. Then, with the attached supply valve, at the same moment of time the closet is discharged, a very vigorous flush of water is made to cleanse the whole of the interior of the closet together with its trap; and not only so, the sides of the basin are rinsed down at the same time, so that not a vestige of foreign matter may remain behind. Then the valve-closet is superior to all other closets, whether of the "wash-out," "wash-down" or "syphonic" kind, in that its basin-water—the water which is open to the apartment and the house—is separated from the water which stands in the closet-trap, in fact is "disconnected" from the water which is exposed to the air in the soil-pipe, as shown in section upon the screen, which is an illustration of a valve-closet which I have had specially made for

### FIXING UPON FIRE-PROOF FLOORS,

and places where it is desirable that the floor under the closet should remain intact. There is also another great advantage attending a good valve-closet, viz.: with an efficient lead trap under it, having a wiped, soldered joint to the lead soil-pipe, there will ever be a reliable connection with the soil-pipe, and a reliable water-seal; so reliable that the trap and its jointing may be depended upon for many generations. In the case of earthenware closets with earthenware traps in one piece—the pedestal kind—or in two pieces, it is not so; for there is not only the risk of a breakdown of the connection with the soil-pipe, but there is also the risk of the breakage of the closet itself, its trap or its basin part, which would mean a defective water-seal or no protection at all from the soil-pipe air, pending the changing of the closet for a new one. I know that some authorities have been content to fix valve-closets without a trap between the closet and the soil-pipe, but it is astonishing what may be done in the name of sanitation. Now, though something may be said in favour of fixing a valve-closet without a trap on a very short length of soil-pipe, which has its discharging end open to the air, what can be said in favour of such a closet fixed upon a long length of soil-pipe into which other valve-closets discharge with no trap to any of them? And yet scores have been so fixed. Only within the last few months I know of such cases where the closets have had to be resanitated. I will not insult you by arguing in favour of

### FIXING TRAPS UNDER WATER-CLOSETS

—that is a sound principle conceded by us all; but I shall be glad of your attention whilst I demonstrate the fact that a round pipe trap—the syphon trap, the kind often fixed in ignorance of its behaviour—under certain circumstances loses its water-seal, and for a time ceases its work of safeguarding the house from the soil-pipe, and perhaps the drain as well. It seems a waste of words to say that if a trap be necessary at all it should be of that kind which could be relied upon under any condition to which it would be liable. With a round pipe or syphon trap the discharges pass through it in so unbroken a form, and with so much momentum—gained in the fall from the closet basin—that the combined action of syphonage and momentum is not arrested in time to leave sufficient water in the trap to re-seal it. With an "Anti D-trap," as I shall show you by one or two tests, the water is just sufficiently broken up at the outlet of the trap to retard both the action of momentum and syphonage, for ensuring the retention of an efficient water-seal, no matter how small or how large a body of water may be sent

\* A paper read at the Architectural Association on the 21st May.







dispositions, and they ought not to be fixed in private houses. I was dining a month or two ago at a friend's house, and wishing to give a second flush to the closet, I waited four minutes by my watch for the flushing cistern to fill; when I left it was still filling, and I daresay by this time it is filled ready for the second flush. A properly-fitted valve-closet, with an attached supply-valve and bellows regulator, is the least noisy of all water-closets, and when it is so fitted up that the lid of the enclosure can be put down before the handle is pulled, it is practically noiseless in its action. The next slide will show a view of such a closet. It is so arranged in my house, where, for the sake of convenience and for good general flushing when necessary, the service to it is taken from the general service-pipe to other fittings. When this is properly done I do not see how any contamination can take place, but as it is most difficult to always rely upon things being properly done, it is better to separate the water-closet supply from all other services. When the cistern for this purpose would have to be fixed in the water-closet apartment it should be kept as small as practicable, holding only about half a dozen gallons of water, so that its entire contents may be frequently changed, for, notwithstanding any lid it may have, the effluvia of the apartment would gain access to the water and taint it. Where a good flush is desired, and the head of water would be under 5ft. or 6ft., the service-pipe to the closet should be of 2in. bore. If we were not influenced by fashion, or carried away by the current of things, I should wonder much why

#### PEDESTAL CLOSETS WITH NARROW RING SEATS

ever came into vogue for the best closets in private houses, especially for ladies' use. With a table-top closet basin protecting the enclosed space, and with an air-tight joint to the top of a nicely-fitted enclosure, as shown upon the screen, not only is the vapour excluded from the space inside the enclosure, but dust, and the sweepings of the apartment, as well. And with such an arrangement no cold draughts can blow upon the person using the closet. And even for the use of men, when they are feeble or advanced in years, a table-top pedestal closet affords a better means for raising themselves from the closet than the ring-seat, allowing them, as it does, a firm place to rest their hands upon. Before leaving the subject of water-closets, I ought to say something on the apartments in which they are fixed, though there is no time for more than a word or two. The apartment in itself, apart from the closet, may become an accumulator or disseminator of disease. Dark and dangerous water-closet apartments may be found with the aid of a candle in the interior parts of old mansions with no natural light or ventilation. The vapour generated in them, or escaping from the closet apparatus, may be as difficult to remove as air out of a bottle. One side of a water-closet apartment should at least stand next the external air, having a window in it reaching up to the ceiling, as was shown in two slides. Where it would be much used it should be provided with independent ventilation, should have, in fact,

#### AN AIR INLET AND AN AIR OUTLET.

It is important that the walls and ceiling should be made practically air-tight, and that there should be no places or parts about them where dust could collect and accumulate. And in public water-closets, and in water-closets which would be liable to be used as urinals, the floors should be impervious. For the best water-closets with enclosures, as just shown, and for table-top valve-closets in private houses and important positions, a floor of solid marble from wall to wall, or to a point 6in. or so beyond the sides and front of pedestal closets, is very desirable, as shown. The marble is sunk a little to catch any little leakage of the supply-valve, should such ever occur, and carry it away by an overflow pipe fixed to the floor, and discharging into the open air. Where marble cannot be afforded, the boarded floor inside the enclosure should be protected by a lead safe to which the lead trap under the valve-closet should be soldered.

I should just say here that the overflow pipe from the safe being a clean water-pipe, can be utilised for introducing a constant stream of fresh air into the apartment; but when this is done in exposed positions, the grated opening in the marble floor should be kept outside the enclosure, so that the incoming air, when frosty, may not come directly in contact with the service-pipe, service-valve, or closet-basin. I now come to

#### SOIL PIPES.

According to the bye-laws of the London County Council, under seal dated June, 1893, all soil-pipes in buildings erected after that date are to be outside. Now, although I have done, perhaps, as much as anybody to encourage the fixing of soil-pipes outside, and still prefer such pipes to be outside, I have never slavishly chained myself down to such a restriction, and I think it is a pity the bye-law should be so stringent, or that Architects and plumbers should be so hampered: for it requires no great imaginative power to conceive of circumstances where the disadvantages would be greater than the advantages. If it is a question of durability and sanitarianess, in certain cases a soil-pipe fixed inside a house would be more durable and more sanitary than if fixed outside. When they are situated on south fronts, where no shadow protects them, they often become so hot that the naked hand cannot be kept upon them; and their variation in temperature, from mid-day to midnight in the summer months, would be three times greater than upon pipes fixed inside or with a northerly aspect. The strain upon the joints of iron pipes, and the unequal expansion and contraction of lead pipe, would tell much upon their durability. And, of course, in such cases sewage matters would adhere and dry upon the soil-pipe in a different manner to that upon a pipe which did not become so heated, and it would, therefore, be less sanitary, unless, indeed, the water-closets upon it were well flushed at every usage by more than the Water Companies' restricted two gallons. Then, in certain cases, it is most difficult to find a good course for an outside pipe, free from a doorway or a pilaster, free from mouldings and enrichments; difficult to prevent it

#### DISFIGURING THE BUILDING.

Of course I am sensibly alive to the fact that such pipes may often be made to improve the elevation, but that they are always so treated I will not attempt to prove to this Association. So ugly are they at times that one fancies they must lower the value of the property on which they are fixed. I have had some photographs taken of a few such, and will show some upon the screen. They are to be seen here, there, and everywhere, in hideous fashions, being fixed neither vertically nor horizontally, nor in any pleasing line, crossing chimney breasts, coming out over stringings, cornices, roof gutters, and parapets, going up to the roof or over all the obstacles of their course victorious. Then often no attempt is taken to disguise their purpose. Branches from water-closets are brought out, and carried along on the face of the wall to the main pipe; whereas, a little alteration of the water-closet apartment, or a little shifting of the water-closet, or a little graceful bending of the main pipe, or a dexterous treatment of the branches, and they could have been brought through the wall, and soldered to the back of the pipe, where they would never be seen. Now as to

#### THE MATERIAL OF WHICH SOIL-PIPES SHOULD CONSIST.

For my own house, though I were as rich as Croesus, I should be content with lead pipe, and I should prefer it to any other kind of pipe that I know of. I should be satisfied that the pipe was more wholesome than iron, being more easily cleaned, and more durable, being less corrosive, and that its wiped soldered joints could be more relied upon than even the caulked lead joints of cast-iron pipe, and remembering that they are much fewer in number, there being at least two more joints with iron pipe than with lead in every closet branch. In fact, when the main pipe is of iron and the branches of lead there would be four joints to every junction, as shown; for the

London County Council rightly enough require such connections to be made with a brass ferrule, as shown on the face of the external wall. But, whether the branch be of lead or iron, the joint with the iron junction should never be allowed to come into the wall. Then with iron pipe there would also be more joints on the main pipe, lead pipe being made in 10ft. or 12ft. lengths to suit circumstances, and the iron pipe as generally used in 6ft. lengths. Then the

#### CHARACTER OF LEAD PIPE

compels the plumber to connect the ends neatly and nicely together, if he is to make a well-wiped, soldered joint upon them, and with such yielding material as lead he has no difficulty in doing this, for he can bend or boss or alter either end at will, and rasp them to a great nicety; whereas, with a rigid spigot or socket end of a cast-iron pipe, what can he do when the two pipes do not come together in true correspondence in their interior surfaces, or when he has been a little out in his measurements? The pipe may be a little too long, or too short, but he cannot alter the socket, nor can he tamper with the spigot without destroying the bead or shoulder which is to keep the caulking material from getting into the interior of the pipe. Indeed, he may aggravate the case in caulking in the lead, by shifting the upper pipe away from its true bore with the lower pipe, and so leave a shoulder inside for matters to catch and collect upon. At any rate such connections often afford places for particles of filth to accumulate in, and though this may not mean much in one joint, in the aggregate—in the tens of thousands of joints—if all the soil-pipes of a large town or city were of iron, it would mean something. I mean that

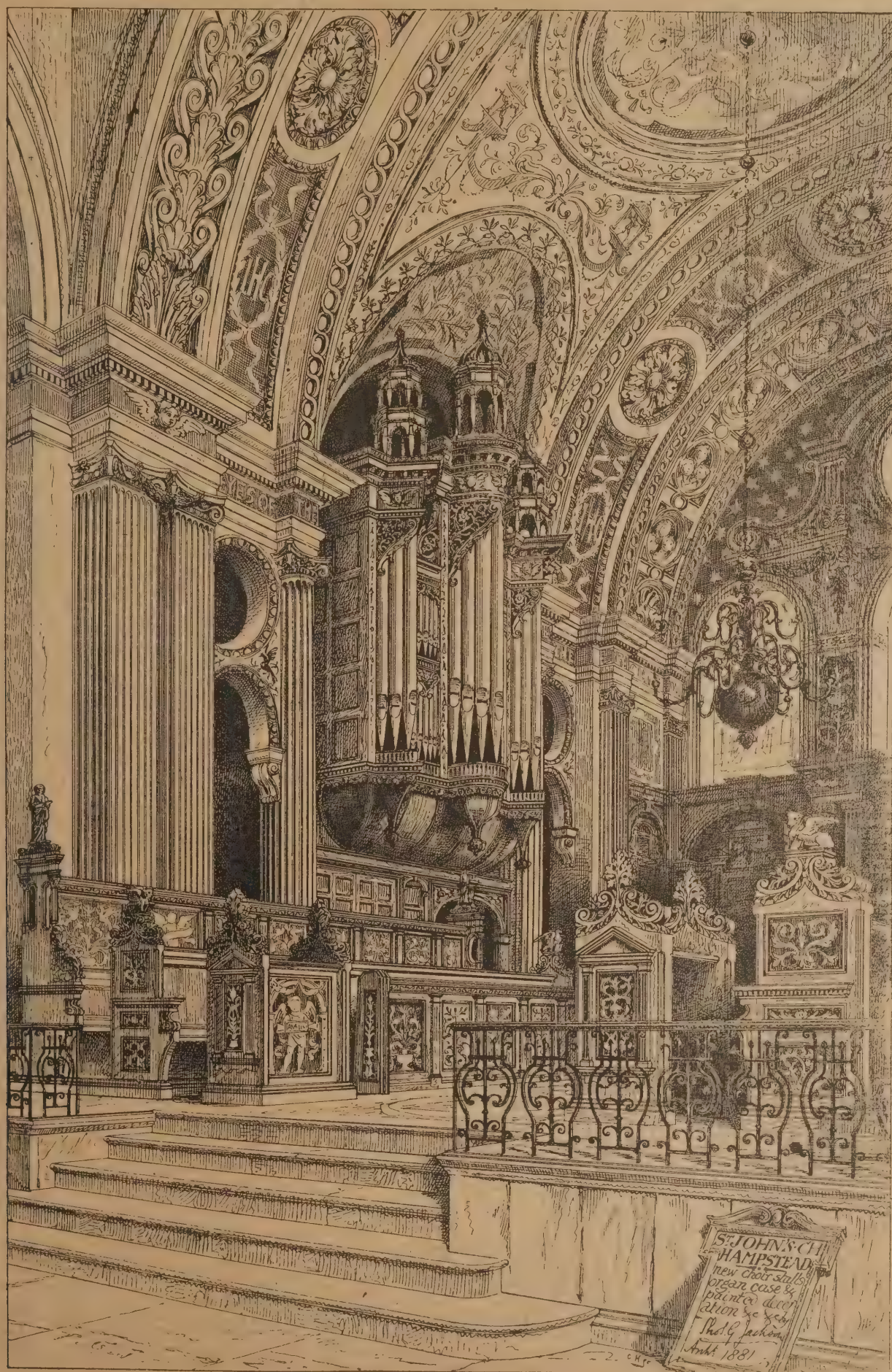
#### A STACK OF IRON SOIL-PIPE

with several water-closets upon it would not be so free from smell as it would be if it were of lead with precisely similar closets and water flushing. In my house in Newcastle Street there is a stack of 4in. soldered seam lead soil-pipe which was fixed more than a century ago, and I see no reason why it should not last as long again. It is made of cast sheet lead about 1/4in. thick, and for you to see its present condition I have had two pieces cut out of its lower part and photographed. The piece showing its exterior is splashed over with the many whitewashings given to the cellar during the century, but, as you see, the pipe is quite sound and good, and fairly clean in its interior, as shown by the other piece. A Bramah closet, similar to the one shown earlier in the evening, discharged into it on the second floor, and was, I expect, in daily use for three-quarters of a century, when it was changed, together with its D-trap, for a "Vortex" closet, since when it has only been in use six days out of seven. It is interesting to know that the apartment, though well lighted, has only a borrowed light, viz., through a glazed fan-light and semi-glazed door, both of which open into the staircase for access and ventilation, just under a well ventilated lantern light. But we all know how well lead pipe stands

#### THE LONDON ATMOSPHERE.

A lead R. W. head and pipe, fixed on the old dining-hall of Staple Inn in 1655, and also another head and stack, fixed on the chambers in the same Inn in 1729, are both in very good condition to-day. To prevent sagging and "telescoping," lead soil-pipes should be well supported about every 5ft. with a pair of tacks, and the strength of the pipe should be equal to sheet lead weighing 8lb. to the superficial foot. For every unsound soldered joint on lead soil-pipe, I should expect to find a thousand unsound cement joints in cast-iron pipe, and even when a joint is made with great care in iron pipe, after a time it is liable to breakage by the expansion and contraction of the pipes as shown. The pipe generally used is of insufficient strength, and is liable to fracture like that shown, which also shows a defective joint with its fellow pipe and with that of the drain. But I have no desire to unfairly decry iron soil-pipe, especially when such pipes are of good strength (1/4in. metal for outside situations), and the joints are well and carefully







made with blue lead or Spence's metal. In fact, where hot water is discharged into a soil-pipe, lead pipe with soldered joints would not stand the continual

#### STRAIN OF EXPANSION AND CONTRACTION;

and, therefore, iron pipe would be much preferable in such cases. But, in my opinion, hot water ought never to be discharged into soil-pipes, their temperature should never be so raised. I know well enough that in America not only are the baths and lavatories discharged into soil-pipes, but also the sinks; but we can afford to treat plumbers' work more sanitarily. We can carry the waste-pipes from such fittings through the open air and discharge them into intercepting traps, for we are not subject to such severe frosts. All soil-pipes, no matter of what material they are made, should be carried up at least full-bore to the highest parts of the roof, where the air coming out of them would have no chance of getting into the house, and where the wind from any point would blow over them to carry the bad air away. I think it is only right to say that this matter is now much more considered by the authorities than used to be the case, but I am going to show you directly a few instances of bad treatment where the pipes have been recently fixed, some even this year. It will readily be seen how the emanations of soil-pipes and drain ventilation pipes can contaminate the cistern water or enter a house through its windows or chimneys; and how, even though the people of one house may be friendly and neighbourly enough on the lower part of their houses, they are not really so in the upper part, the

#### AIR FROM THE SOIL-PIPE

of one house being allowed to enter the window of the other house, and poisoning the air within, as shown in the illustration. Now, as to the size of a soil-pipe. Before determining the size of the pipe, it is important to know what it has to do. If in addition to its work of carrying away the discharges of a tier of water-closets, it has also to act as a ventilator to the drain, it ought not to be less than 4in. And if no syphonic action is to take place in it, that is, if no anti-syphonage pipe is fixed to its trapped branches, it should be of larger bore still—5in. or 6in. pipe. And even this size would not be large enough to prevent syphonage when the air had to come down a long length of piping, as in the case of a very high building, unless its upper part—the ventilation pipe—was of a bore still larger, for the air to pass down the pipe free from friction, and in a body sufficiently large to prevent a vacuum. When no anti-syphonage-pipe is fixed, and the main soil-pipe is only 3½in. or 4in. bore, it is of paramount importance that only water-closets which have special traps should be fixed, which means a deeper seal and a larger body of water. Now, except in the case of valve-closets, as we have already seen, the water-seal of a closet is in open contact with the air in the soil-pipe and the drain; and where the closet is not in constant use the water held in its trap would become tainted and surcharged with gases. It is, therefore, important that the whole of this water should be changed every time the closet is used, and I confess that I do not see how this is to be done satisfactorily with a two-gallon flush, if the water-seal of the closet-trap is to be of a depth great enough to withstand

#### THE ACTION OF SYPHONAGE

without the aid of an anti-syphonage-pipe, and the closet is to be left with its full water-seal. Moreover, without anti-syphonage pipes there would be no ventilation of the closet branches, no matter how long they might be. In fact, such branches would be like inverted bottles, for there would be no escape for the gases in them, except by diffusion or by passing through the water-seals of the closet to the house. To show the power of such pent up gases I have had a lantern-slide made of a photograph which I had taken the other day of the interior part of a piece of lead-pipe which was branched into a stack of soil-pipe about fifteen years ago. The lower half, which carried off the matters sent into it, is practically

intact; but the upper half, the part exposed to the gases and vapour, is eaten through in many places. The main soil-pipe on which it was fixed was open full bore to the air about 50ft. above it, and for a few years it was trapped off from an old drain with which it was connected, when it was re-connected without a trap to a system of drains which had several other open soil-pipes upon it for ventilation. The piece of lead water main is quite perfect, though it is supposed to have been in use at Hampton Court Palace over 350 years. It will be found with an anti-syphonage pipe of 2in. bore that a 3½in. or 4in. soil-pipe will answer very well for a tier of many closets, except in the case of very high buildings. And, as the London County Council allow nothing smaller than 3½in., and require 4in. when it is connected with a 4in. drain, I say nothing about smaller sizes. I have no time to add much to what has already been said or implied on ventilation. The ocean of air surrounding every house ought not to make it too difficult to give

#### FULL AND FREE VENTILATION

to every soil-pipe, waste-pipe, and drain; and in such a manner that no air coming out of either outlet or inlet of the system should enter the house or be breathed before it has been well broken up and purified. When many stacks of soil-pipe are directly connected to one large system of drains, having only one low-level inlet upon it, viz., at its "disconnection chamber" with the sewer, the several stacks will not have such currents of air in them as they would if each drain into which each stack discharged had its own independent inlet, especially when all the stacks are of equal height, and the air in them is about equipoised, though there is generally some different influence acting on one pipe more than another, difference of temperature, wind, or weather. When no such influence exists the vapour will at times go up and down the pipes for hours together in a sort of see-saw movement. Backwards and forwards in the dark drains the injurious microbes may move, playing a sort of hide-and-seek; for I know little of their behaviour and less of their habits, except that I believe that light is not conducive to their longevity, and that fresh air annihilates them. But I must mind what I say, for we are all not made up of microbes? So I say no more on ventilation, except to remind you that, like money, there can rarely be too much of it where it is most needed. I have had some photographs taken of badly positioned

#### VENTILATING TERMINALS

from soil-pipes and drains, and will show them upon the screen, pouring their emanations into windows, cisterns, chimneys, &c. The bye-laws of certain district councils require that the waste-pipe from every bath, sink, or lavatory, the overflow-pipe from any cistern and from every safe under any bath or water-closet, and every pipe for carrying off waste water, shall be taken through an external wall, and discharge in the open air over a channel leading to a trapped gully-grating at least 18in. distant; that is, such authorities prefer insanitary methods to sanitary ones; for such treatment is sure to lead to a nuisance in some such way, as shown by the slides taken from two original photographs. Soap-suds and bits of soap will generally be found decomposing and throwing off bad air, and often bits of paper, orange peel, hair, and the like, will also be there, blocking up the grating, offending the eye, and needing almost daily attention to keep clean. The ground, too, surrounding such gullies will often be found to be quite sodden with splashings and overflows. Whereas, with such waste-pipes made to discharge into self-cleansing intercepting traps just under the grating, no mess would be made, and no attention needed to keep the surroundings clean. And when such waste-pipes were properly trapped and ventilated their air disconnection would be all that could be desired. I will show the two methods. No doubt some years ago there was a reason for keeping the

#### DISCHARGING ENDS OF WASTE-PIPES

well above a gully when the latter was generally a little cesspool in itself, and when waste-pipes

were often fixed without traps, in which condition they acted as ventilators to the house. But no such reason exists now that self-cleansing intercepting traps are generally fixed, and that the waste-pipes are trapped. And yet only the other day a Board Surveyor, against his own judgment, caused some waste-pipes to be altered, because they delivered under the grating of a drain-interceptor, instead of over it; that, too, notwithstanding the fact that each waste-pipe was trapped. A soil-pipe may discharge directly into a drain, which may have no air disconnection within several hundred feet of the soil-pipe, although there be but the water-seal of the closet-trap between the drain and the house; but for a waste-pipe to have its air disconnection under a grating—oh, blissful ignorance! No sink, bath, lavatory, or other fixture through which dirty water may be emptied should be fixed without a trap of a self-cleansing kind, and one that will, when properly ventilated, retain an efficient seal, no matter how large the body of water may be which is sent through it. And to prevent the discharges of one fixture backwashing up into the waste-pipe of another and fouling it, each fixture should have its own separate trap, which should be situated as close to it as practicable, so that the piece of outlet pipe—standing between the house and the seal of the trap—may be as short as possible. A good example of the very reverse of this is a 9in. D, with no less than seven waste-pipes connected with it. Less than a year ago it was doing duty in one of the greatest University Colleges of the country, receiving as it did the waste-pipe from a cistern, a bath, a drip-sink, a lavatory, a bath safe, and other pipes. As only a very short length of unventilated waste-pipe is

#### SUFFICIENT TO CAUSE SYPHONAGE,

the upper ends of such pipes as well as their discharging ends should be carried through the external walls to the open air. To show how small a fall suffices for this, I have here a little lavatory with 1½in. syphon tap and a short length of 1½in. waste-pipe, with its discharging end standing only a little below the bottom of the lavatory trap, and yet the drop is sufficient to set up syphonage and to leave the trap practically unsealed with but a small discharge from the basin. I was staying at an hotel in Germany last year, and noticing a horrible smell in a lavatory more than once, I searched out its cause, and found that the lavatory trap was most easily syphoned, in a similar manner to that just demonstrated; for although it was connected with a soil-pipe, the latter was about 7in. bore, and could not, therefore, have caused the syphonage. It arose from its own unventilated waste-pipe. Opening up the upper end of a waste-pipe to the air not only prevents syphonage, it also ventilates the pipe and keeps it wholesome. Where more than one trap is connected to a waste-pipe through which quick discharges may pass, it is not sufficient for the upper end of the main-pipe to be carried through full bore to the open air to prevent syphonage; each individual trap must be ventilated—must have an anti-syphonage pipe in fact. I think most authorities are now alive to the value of providing

#### QUICK DISCHARGING ARRANGEMENTS

to baths, sinks, and lavatories, though only the other day I came across a small wash-hand basin which took nearly one minute to empty. A 5ft. 6in. bath ought to empty under two minutes, and where it would be in daily use, and was situated near the head of the drain, as the chief means of flushing it, it might be made to empty in one minute, a 3in. waste-valve being fixed to the bath for the purpose, and the trap and waste-pipe of equal bore. When circumstances require a soil-drain to be fixed inside a house, or outside it, where a leakage from it would find its way into the house or under the footings, I should strongly prefer it to be of cast-iron, with caulked lead joints, rather than of stoneware—whatever kind of joint might be adopted—the thickness of the cast-iron pipe being not less than ¾in. in its thinnest part for 4in. or 5in. drains, and greater still for drains of larger size.

(To be continued.)



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
June 2nd, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

AN Exhibition suggested by the deplorable disaster in Paris was opened on Monday at St. James's Hall. It was organised by the United Asbestos Co., Ltd., "in order," so the catalogue informs us, "to demonstrate means of assisting in the prevention of loss of life by the use of non-inflammable decorations in our homes and public buildings, instead of the highly-combustible materials generally employed." The fire-resisting qualities of the United Asbestos patent "Salamander" decorations are already well known, and all who take a practical interest in the question of fire-prevention ought certainly to visit the present Exhibition. Asbestos is shown in almost every shape and form in which it is manufactured. Specimens of the crude material from all parts of the world, Asbestos in a partial state of manufacture, Asbestos-metallic cloth as made specially for theatre curtains, with a working model of a fire-resisting drop-curtain, Asbestos ropes and ladders for fire-escapes, jackets, clothes, &c., fire and waterproof cloth blankets, Asbestos non-conducting composition for protecting iron girders and covering steam boilers and pipes, Asbestos paints, &c., are a few of the principal exhibits, and it is opportune that after such a calamity which has just saddened Paris they should be brought prominently before the public notice. And, as Mr. Cuthbert Quilter, M.P., who was one of the speakers at a luncheon given by the Asbestos Company at the St. James' Hall on Monday said, they saw the need for a means of fire prevention everywhere, whether it was at a charity bazaar in Paris, or at the Pisa Cathedral, or at the National Art Gallery. It seemed to him very strange that when fire-proof, or at any rate fire-resisting, material was so readily obtainable, people did not think it worth while to make use of such valuable inventions. Colonel Robert W. Edis, who presided at the luncheon, referred to the risk of fire incurred by the erection of highly inflammable materials in front of the National Art Gallery and other public buildings. If only from an artistic point of view, Asbestos paint might be applied with great advantage; in any case it was absurd that the authorities should permit such a needless risk of fire consuming such priceless treasures as the National Gallery contains.

A PULPIT of a very decorative kind has just been erected at the Barnet Parish Church. It is embellished with statues of the six greatest preachers which Great Britain has known. Those responsible for the pulpit have fixed these to be St. Augustine, St. Aidan, St. Hugh, Latimer, Wesley, and Canon Liddon. The figure of Wesley has a curious history; it was originally designed for a Wesleyan chapel at Upper Tooting, but the presence of an image gave such offence that it had to be dethroned.

THE London County Council has gone to extremes in consequence of the Paris fire. It has forbidden the use of velariums in the picture galleries at the Earl's Court Exhibition, and thus the pictures on the sunny side will

be exposed to a glare which owners may not contemplate with equanimity. But whilst it has done this as regards galleries which have ample means of exit, and where risk of fire from smoking, &c., does not exist, it permits awnings and draperies of all kinds in refreshment rooms, where spirits are stored and matches may be lit and thrown away.

AN immense pile of chambers and offices which has been put up on the space at the rear of Westminster Bridge Station and St. Stephen's Club, has been completed at an auspicious moment for the owners. Naturally such a huge building even in London would not be let right off. It has, however, happened that the Government requires a large number of temporary offices, in consequence of the extensive rebuilding that is to be carried on in Whitehall and the Governmental regions round about. The Government officials have taken the whole block, or nearly the whole, for the purpose of temporary public offices during the time the new offices are being built.

THE beautiful tapestries, made by Edward Leyniers, which belonged to the late Sir John Millais, have been purchased by Messrs. Duveen. Edward Leyniers was one of the most famous of the Brussels tapestry artists of the seventeenth century, and the four panels representing the four quarters of the globe, with borders, are among the finest specimens of his work. Those who are interested in tapestry and know something about it will recognise the difference between the work that was produced in Belgium down to the middle of the seventeenth century with that of a later period, when the object is rather to produce the effect of a picture than a purely decorative effect, which is the characteristic of the finest Gobelin tapestry.

A SILVER PALACE is to form the chief attraction at the Trans-Mississippi Exposition, which is to be held at Omaha in November next. As a distinctive part of the great Exposition it promises to rival the Eiffel Tower or the Ferris Wheel. The building is to be 400ft. square, surmounted with mammoth ornamental towers, and the entire structure will be covered with rolled silver. The palace will be used entirely for the display of the mineral products and progress of the West. The style of Architecture is purely Gothic, a style that lends itself readily (with its pinnacles, arches, flying buttresses, and graceful and delicate forms) to the ideas usually associated with silver art work. It will be arranged in the form of a square, with open arcades at each story similar to the Venetian palace. The corners will be adorned with octagonal towers, terminating with spires, and pinnacles covered with the shining metal. The crowning glory of the palace will be the central lantern, which is octagonal in form, 250ft. high, and 100ft. in circumference. The roof of the lantern will be of glass.

THE restoration of the Crypt and Chapter House at Canterbury Cathedral has consisted for the most part of what may be classed as "necessary repairs," though in the Chapter House the ancient decoration has been revived, as far as the roof is concerned, and a new stained-glass window inserted. The Chapter House at Canterbury is the finest example in this country of the "oblong" class of structure devoted to such a use, and although it cannot be compared for a moment with the exquisite octagonal examples at Salisbury, Wells, and York, or the decagonal one at Lincoln, it is, nevertheless, a stately apartment, and forms a striking adjunct to the noble "Metropolitan Cathedral." It is 93ft. in length by 35ft. in width, and receives light chiefly through two large Perpendicular windows in the east and west gable ends. One window is over the entrance doorway, and the other above the throne of the Archbishop, which occupies the position which would be, in a Church, taken up by the altar. Arcades with marble columns surround the building, the basement upon which they rest forming a continuous seat in two ranges. The arcading at the east end is

more elaborate, and the centre stall, or throne, is a beautiful work richly adorned with carving and patterns painted upon glass. The great window at this end has been filled with stained glass by Mr. A. O. Hemmings, the chief features of which are twenty-one large figures of Archbishops and Sovereigns who have from the earliest down to our own times been connected with the history of the Metropolitan Church of Canterbury. The roof of this apartment, which has been carefully restored, is a most elaborate work; it is covered with a kind of network of geometrical tracery, richly painted and gilt. The entrance to the Chapter House is by a large doorway at the western end communicating with the cloisters, and the view looking through this, when the doors are thrown open, is remarkably attractive as the eye wanders across the beautiful old cloister, with its rich, unglazed tracery windows, into the green garth beyond, and the vista is only closed by the western cloister-walk 120ft. away. The restorations of the Chapter House and Crypt, to which we have alluded, have been carried out under the designs and superintendence of Sir Arthur Blomfield, A.R.A.

THE Joseph Thomson Memorial is now nearly completed, and it is proposed that it should be unveiled at Thomson's native town, Thornhill, near Dumfries, on Tuesday, June 8. The memorial, which has been designed by the sculptor, Mr. Charles M'Bride, of Edinburgh, is of Classical design, and is in the form of a truncated obelisk pedestal raised on three steps into a moulded base and cornice. The four sides are panelled. One is occupied by a bas-relief representing a female figure of Fame upholding a map of Africa, with palm trees and Mount Kilima-Njaro in the background. The pedestal is further decorated with masks representing the heads of lions. The whole is surmounted by a bust in bronze of Joseph Thomson. The total cost of the memorial will be £250.

THE East London Art Exhibition recently opened at the People's Palace comprises paintings, water-colour drawings, engravings, etchings, photographs, and process work, all of which, however, have not yet been effectively hung. Among the pictures is the portrait of the late Colonel the Hon. C. Lindsay, by the Princess Louise (Marchioness of Lorne). Mr. A. F. Hills, chairman of the exhibition committee, in delivering an address explanatory of the Exhibition, said they had been able to gather together a collection of good works which would prove to be one of unique value and benefit to those in that portion of London. The Exhibition will be continued for five months.

It is curious that the Thames is the making of all the municipal bodies in London. Lord Rosebery said at the dinner on the night of the opening of the Blackwall Tunnel that the London County Council would always be remembered by its Blackwall Tunnel under the Thames. Its predecessor, the Metropolitan Board of Works, will always be remembered, we may add, by its Embankment along the Thames. The "tallest" thing ever done by the City Corporation is certainly its Tower Bridge above the Thames.

THERE is a great desire among the inhabitants of Broadstairs to erect a memorial to the late Charles Dickens in the place he loved so well, and where so many of his books were written. It is proposed to make the memorial one worthy of him, and of such a character as he would have heartily approved. It has, therefore, been resolved, as one of the means of celebrating the Jubilee in Broadstairs, to hold a "Dickens" Fête during the first week of July, for the purpose of raising funds for the erection of a club and reading room for the fisherfolk, sailors, and workmen of the place. Should there be a surplus, the money will be devoted to other important local objects.

DR. COLLINS presided over a special meeting of the London County Council held last week to continue the debate on the report of the special committee on the Works Department.

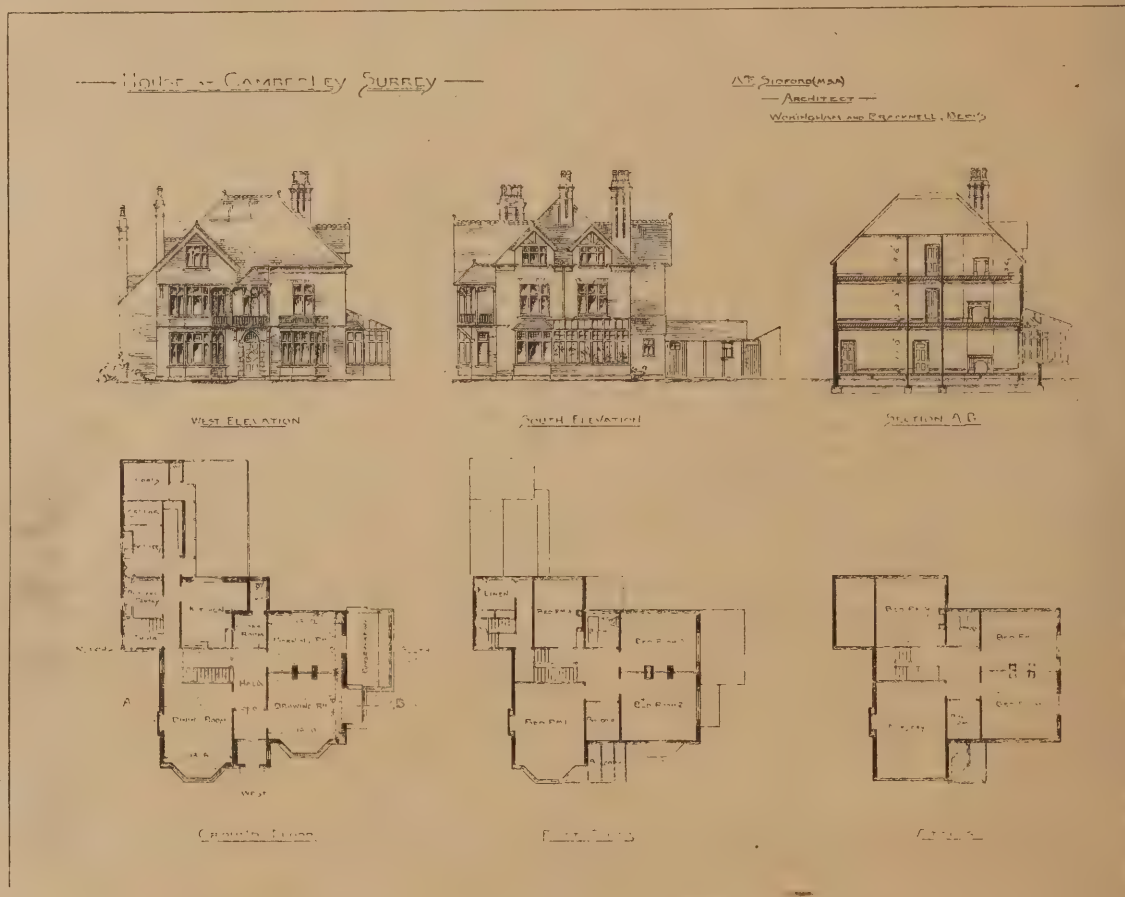


The motion before the Council was that Recommendation A of the report be carried, namely, "That, in the opinion of the Council, some definite organisation for the direct employment of labour and the direct execution of public works by the Council under the superintendence of its own officers is desirable and beneficial." To this an amendment, empowering that no further work be intrusted to the Works Department, was moved by the Earl of Onslow.—Mr. Hoare, the newly-elected chairman of the Works Committee, resumed the debate and maintained that the time had not come for the abolition of the Department.—Mr. Beachcroft characterised the Works Department as nothing more or less than a fad, for they could never compete with the best class contractors.—Colonel Legge remarked that the inception of the Works Department was a blunder, and its continuation would be a crime.—Mr. Shaw Lefevre was of opinion that it would be better to postpone the matter until after the elections in March, for it was too important a question to be settled without an appeal to the con-

ments, such as the board room, the offices, and rooms for the medical officers and students. The first floor will contain residential quarters for the matron and house surgeons, and a nurses' sitting-room of roomy dimensions. On the second floor will be the operating room, and small wards for cases of a special character; whilst the top floor will be used as a kitchen, &c., with the servants' dormitories. The whole of the ground floor of the remainder of the hospital, with the exception of the chapel, may be briefly described as devoted to the use of the out-patients, whose means of entrance and exit will be in Peerless Street. The upper floors of the remainder of the building will be used as wards, and there will be accommodation to the extent of 154 beds. Brick and Portland stone will be the materials used, and the building, when completed, will constitute a free adaptation of the Italian style of Architecture. The plans have been prepared by Messrs. Young and Hall, of Southampton Street.

THE Select Committee of the House of Com-

scheme and the present Bill, which was really only supplementing that, were practically carrying out the suggestions which the Royal Commission had made for the giving of a better water supply to the metropolis.—Mr. J. Francis, engineer to the New River Company, gave in his evidence a short account of the New River Company and its sources of supply. They could rely on a maximum of about 46½ million gallons a day in all. If the rate of increase of consumption remained the same as it had been recently, in ten years the average quantity needed would be 52,000,000 gallons daily; but since provision was to be made for the maximum demand, 65,000,000 gallons daily should be obtainable for times of maximum consumption. Under the present scheme there would be two subsiding reservoirs at Kempton Park—near the racecourse—having a total area of 45 acres and capacity to hold 219,000,000 gallons, and two filter beds, with a total area of nine acres. There would also be machinery of about 623 horse power at Kempton, whence the water would be conveyed by a main 42in. in diameter to an intermediate



stituencies.—Lieut.-Colonel Rotton thought that they should make an end of the Works Department, and each committee should engage in such works as it might think fit.—Dr. Longstaffe was of opinion that neither a Works Department nor a Works Committee would be a success, and that it would be better for the Progressives to acknowledge their failure.—Mr. Costelloe said that the attack on the Department was for the object of placing the Council again in the hands of the contractors, and then the conditions with respect to labour in the contractor's schedule would be relaxed.

THE new building of the Ophthalmic Hospital in the City Road, the foundation-stone of which was laid last week, will, when completed, present a very substantial and imposing appearance. It will comprise practically three blocks, one of which will face the City Road, and the second Peerless Street, while the third will lie between the two. The hospital will also have a small frontage in Clayton Street. The front block—that facing City Road—will consist mainly of the administrative depart-

ments, of which Mr. Rankin is chairman, has commenced consideration of the New River Company's Bill. Mr. Pope, Q.C., said that the Bill was promoted by the New River Company for the purpose practically of utilising to the full the scheme which was authorised by the Staines Reservoir Act. That Act provided that the Grand Junction, the West Middlesex, and the New River Companies should take 35,000,000 gallons daily from the Thames near Staines. The method proposed was, however, found to be impracticable, and the object of the present measure was to raise capital with which to construct works to convey the water to where the New River Company wanted it. The total cost of the works part of the scheme was put at £970,000. He should contend later on that the sinking fund clause was not applicable to the New River Company as an undertaking, and that it ought not to be applied to this particular capital. The aqueduct, which was really a closed pipe, would run underground from Kempton Park to the pumping-stations, immediately adjoining which was the New River District of supply. The Staines

reservoir at Cricklewood, 13½ miles away. Here there would be a small covered reservoir of about 2,000,000 gallons capacity; and a pumping station with power about equal to that at Kempton. Thence the water would be conveyed to Fortis Green, where would be about the same kind of works as at Kempton, and a reservoir holding about 15,000,000 gallons. There would be all necessary sluices, air valves, and works generally on the line of route. Capital powers of £1,000,000 were sought, the balance being required for works to carry the water from Fortis Green to other reservoirs, which works could be carried out under existing powers. The aqueduct struck across country from Kempton Park to Fortis Green, without following the roads, difficulties with local authorities being thus avoided. Only one portion of common land—namely, at Hounslow Heath—was involved, and there only an easement was taken.

At 118, New Bond Street, Mr. J. Hardwicke Lewis is showing a number of water-colour drawings of Alpine peaks and Swiss lakes,



together with a few figure subjects and landscape of valleys or plateaux. It is no child's play to attack the Alps for picture making. Most artists, amateur or professional, feel constrained to use much body colour in such subjects, but Mr. Lewis rarely applies it, and never when representing snow. For much of the crispness and effect of light on snow he depends on skilful use of a coarse-grained paper. The best drawings are those of quiet silvery effects and comparatively restricted area, such as lake edge embraced by mountain with iridescent haze veiling junction of land and water; or calm lakes with lateen-ailed boats in butterfly trim going before the wind.

THE Bishop of London, in the course of a sermon at St. Paul's, Knightsbridge, pointed out that we were very proud of our material civilisation, but it was nothing to that of Rome, with its splendid system of law, its great buildings, its beautiful cities, its commodities more at the disposal of everyone. If

carrying out the same. It was decided to proceed with part of the scheme, at a cost of £600, at once, so that the supply may be available during the ensuing season, and Messrs. Crossley's tender of £271 for engine and pump was accepted. The vexed question of the building bye-laws, with reference particularly to corner plots, was again discussed, and the Clerk was instructed to communicate with the Local Government Board in regard to the matter, and inquire whether they would be willing to sanction a bye-law similar to that contained in the London Building Act, 1894, which makes some allowance in the case of corner sites.

ABOUT fifty members of the Bradford Anti-quarian Society recently paid a visit to Norton Conyers, near Ripon, by the courtesy of Sir Reginald Graham, Bart. Norton Conyers is beautifully situated in an extensive and richly-wooded park, with a prospect taking in the towers of Ripon Cathedral in the foreground.

At a recent meeting of the committee appointed to arrange for the erection of a new tower for Liskeard Parish Church, a letter was read from the Chancellor of the Diocese (Mr. R. M. Paul, of Truro), in which he pointed out that "the proposed new tower appears to be totally distinct in style, design, and dimensions from the existing tower, and beyond the preservation of some small details will not hand down to posterity any general idea of what to many has been the most interesting part of Liskeard Church. Both Mr. G. H. F. Prynne and Mr. Sedding, the experts who had been called in, admit that the tower is in a very dilapidated state, and that it must be taken down; and if the committee could see their way to re-erecting the present tower and submitting fresh plans the Chancellor says he would raise no further difficulty." The committee unanimously adopted the following resolution:—"That inasmuch as no notice of opposition has been given to the petition, it is the opinion of this meeting that the Chancellor



HOUSE AT CAMBERLEY, SURREY; VIEW FROM S.W.

A. E. S. 1897  
ARCHITECT

London ever became a desert, its ruins would be less imposing than were those of Rome, Babylon, or Nineveh. But did Dr. Creighton remember how many of the wonders of Nineveh are now themselves in London, and available therefore as ruinous assets? As Rossetti said in his fine poem, "The Burden of Nineveh," those winged bulls which attest the colossal scale of the Assyrian builders may one day pass themselves off as "ruins now of London, not of Nineveh."

At a recent meeting of the Clacton Urban District Council, the Surveyor's plan for the erection of the necessary buildings on the New Inn Yard was adopted, and it was resolved to apply to the Local Government Board for permission to borrow £1250 to cover the cost of the land and the erection of buildings thereon. It was resolved that the scheme prepared by the Surveyor for the utilisation of sea water for flushing the sewers and watering the roads be adopted, and that application be made to the Local Government Board for leave to borrow the sum of £2800 for the purpose of

The mansion is for the most part Elizabethan, and contains a large collection of portraits, mostly of the Graham family and its connections. A great feature of the interior, however, is the oak wainscoting and a rich collection of antique oak furniture. Afterwards an inspection was made of the ancient Church of St. Mary, at Wath. Mr. Sam Margerison, Calverley, said the Church underwent restoration during the time of the late rector, the Rev. W. C. Lakis, F.S.A. An extraordinary feature of the Church is that it contains examples of every style of Architecture from and including the Saxon period to the present time. The chancel is unusually long, and contains a double piscina with shafts and three sedilia with lateral openings, all Early English. Adjoining to the chancel there was an ancient sacristy of two stories, with a winding staircase in the south-west angle. A narrow hagioscope opened from the room to the altar. The south and only transept was formerly the private chapel of the Nortons, where there still remain brasses and effigies of the family.

should be asked to forward the faculty to the vicar and churchwardens at once if a faculty is necessary." It will be remembered that illustrations were given in a former issue of this Church and tower, and the fact that the tower was to be pulled down severely criticised.

A THREE-DAYS' sale of the collection of bronzes and gems of the fifteenth, sixteenth, and seventeenth centuries, Italian bronzes, pictures, plate, and other interesting and rare objects of Art formed by the late Rev. Montague Taylor, has just been concluded by Messrs. Christie, Manson, and Woods. Many of these articles have been exhibited at the South Kensington Museum Loan Exhibition in 1862, and at the Burlington Fine Arts Club. One of the most remarkable articles was a very fine Greek gold ring, circa B.C. 342-326, engraved in intaglio, with standing figure of Dione wearing stephanos, with sceptre in left hand and peplum in right—£245. This ring was found in Sicily.



SEVEN YEARS' EXCAVATING AT  
SILCHESTER.

TEN miles south-west of Reading, in the parish of Silchester, is the site of a Romano-British city identified with the Callera Attrebatum of the Antonine itineraries. A hundred acres of arable and pasture—the only extraneous buildings upon which are a farmhouse and the Parish Church—are included within the bounding wall, which is near upon two miles in circuit. This great extent alone would indicate its town-like character, and this the systematic explorations, which have been carried on since 1890, have fully confirmed by the bringing to light of public edifices, temples, forum, Christian Church, residences, shops, traces of trades, and other evidences of the former existence of a purely civil community. For the purposes of investigation the area has been ruled into squares, from which Insulae XV. and XVI. were selected for the past year's work. The results, according to custom, have been sent to the Society of Antiquaries for exhibition, and form a very interesting display. Included among them is a series of fifty-two sets of water-colour drawings, made to scale by Mr. George E. Fox, of every important

## FRAGMENT OF ARCHITECTURE

found during the seven years' period of research. One of them depicts a fragment of a colossal statue, found in the basilica, and which may have represented the guardian genius of the city, as it bears a municipal crown. Equally careful coloured drawings on reduced scales have been made of the several tessellated pavements in the largest of the five noble mansions discovered in the previous year; and one also of the corridor pavement some 40ft. long by 12ft. wide, which was laid bare in an older residence. The excavations in Insulae XV. have brought further examples of the dyers' furnaces, shops, and bleaching ground. There was also a very curious find of blade-bones of sheep, from which numbers of ring counters had been cut, seemingly by a centre-bit; and this indication of a turner's trade may in some degree account for the presence in other places of accumulations of these bones. Another interesting discovery was a tub-well, which has been successfully brought out. The well was sunk in the native soil to the depth required to reach the water supply. A square curb, formed of 6in. square oak baulks about 4ft. long, dove-tailed together, was laid on the bottom. Upon it rested a round tub or barrel 3ft. in diameter, made of fir staves 3ft. 9in. long by 5in. wide, the whole hooped with birch hoops. A second tub was stood on the top of the first, and the interspace between the tubs and the sides of the well was filled by pugged clay well rammed in. Above this the well was

## STEENED WITH FLINTS.

In emptying a pit at the south-east angle of Insula XVI. a curious cutting, 6ft. deep and 3ft. wide, tapering to 1ft. at the bottom, was disclosed and followed in both directions. On the west it went into Insula XV., and so on until it passed the city wall into the ditch outside, where it ended in some flint work. Eastwards it could not be traced beyond a few yards until after harvest, when its course was followed into Insula III., as far as a house near its southern boundary, excavated in 1891. The occurrence towards the east end of remains of iron collars at regular intervals showed that a wooden pipe had been laid in the cutting. It was also found that this pipe had ended in a building at a lower level than the house above-mentioned, and the existence of which had not even been suspected. For what purpose this pipe had been laid to bring water from the city ditch more than 700ft. away remains to be determined; possibly it was for the service of public baths. The tracing of this pipe has led to the discovery of a previously unknown gate or postern in the west wall of the city in line with a street running straight towards it. There was a single opening originally 12ft. wide, the jambs of which are standing to a height of over 6ft. The roadway has since been raised, and the gate entrance reduced to 7ft. wide by blocking

with masonry. This postern, having no flanking defence, was approached apparently by a wooden bridge across the external ditch, as there is an artificial gravel bank, rather nearer than midway, upon which one end of the construction could have rested. Although the past year's work has not exhumed any such extraordinarily

## MAGNIFICENT EDIFICES

as those found previously in Insula XIV., the examination of Insula XVI. has produced a large and important house of the courtyard type and two other houses of the corridor type, as well as an isolated square building, and traces were found of what were probably structures of wood. The collections of glass, pottery, bone and metal articles, coins, &c., are not less numerous and interesting than usual. Roman wood relics are always rare by reason of the perishable nature of that material, and, therefore, the leg of a domestic stool in turned hardwood, although broken, is a cherished rarity. Many slabs and smaller portions of Purbeck marble, and of a purple, green, and white Pyrenean marble used in architectural constructions, have been obtained, found near the east gate. The explorations to be next taken in hand are those of the Insulae XVI. and XVII., and the site of the buried building in Insula III., into which the water conduit from the postern ditch was carried.

GLIMPSES OF NORMANDY AND  
BRITTANY.

By CHARLES R. GILCHRIST.

IN a paper such as this, which I do not desire to render of a purely professional nature, it will be impossible for me to enter fully into the details of the buildings and objects of interest which constantly cross one's path in Normandy and Brittany. I shall therefore only endeavour to portray as briefly as I can the leading characteristics of the country and of the towns visited. Of Cherbourg, to which we crossed from Southampton, I shall say but little, as it does not merit much attention. Being a military port, it lays no claim to architectural beauty, ancient or modern, but it is somewhat pleasantly situated. The public buildings of Cherbourg are few and devoid of interest, and the Churches are lacking in beauty and mostly modern; the harbour, with its enormous mole, however, is a masterpiece of engineering skill, and the more so owing to the stormy nature of the coast, which presented great difficulties to be overcome. Bayeux is a dull, dreamy little town, of about 10,000 inhabitants, on the banks of the little river Aure, and its main objects of interest are its famous Cathedral, no less famous tapestry, and its interesting

## MEDIÆVAL HALF-TIMBERED HOUSES.

The Cathedral is a remarkable building, and dates from the twelfth century—west front thirteenth century. The two towers are 252ft. high, and the somewhat novel feature of the lantern is in itself of exceeding beauty. Internally, the nave has Norman arches, surmounted by the triforium and a clerestory of great height—a common feature of Norman Cathedrals. The famous tapestry, a fac-simile of which may be seen in South Kensington Museum, London, is a most interesting work, and is believed to have been executed by Queen Matilda, wife of William the Conqueror, and the ladies of her court; it is 20in. wide, 213ft. long, and consists of fifty-eight tableaux illustrative of the conquest of England. Quaint and curious as the representations are, it still gives evidence of much skill, and, although the drawing of the figures in many instances possesses a somewhat comical element, it yet forms so invaluable a record of the history of these remote times that it must be regarded as an object of veneration and unusual interest. The old half-timbered houses of Bayeux are very interesting, and point to the origin of that class of work so much practised in England in former times as well as now; but Normandy literally teems with such relics, and the silent description of illustration for such subjects is best. On the

walls is a sketch of the oldest half-timbered house in Bayeux, and perhaps in all Normandy; it shows much evidence of its antiquity in decrepit old age, but, like the sturdy oak from which its timbers are hewn, it has braved the ravages of time, and what was once the abode of the important and affluent is now a hostelry or restaurant, as its signs testify. From Bayeux our route lay towards Lisieux. Lisieux is a town of much more importance commercially than Bayeux. Its commercial aspect renders it none the less one of the most interesting towns in Normandy, on account of its Cathedral—old Norman, and buildings, especially of the half-timbered class—one street alone, the Rue aux Feves, where they abound, being quaint and curious beyond description.

## THE CATHEDRAL, ST. PIERRE,

was commenced in 1045, and was several times destroyed, but rebuilt in 1226, and has been restored in the style of that period. An interesting old Church is St. Jacques, a fine specimen of the fifteenth century, the tower of which was left unfinished, and later on quaintly roofed in slated work. But all Norman towns, in wealth of architectural riches, pale before the home of Churches, Caen, to which we next shaped our course from Lisieux. Caen is a town of considerable extent; it has good streets and shops, and for all who wish to study Gothic Architecture few places afford better opportunities than Caen; for old houses, too, it is a rich field, when we refresh ourselves with its history, so reminiscent of the renowned William the Conqueror, whose ashes lie interred within one of her Churches, St. Stephen, better known as the "Abbaye aux Hommes." I will not enter into any detailed description of the many Churches which adorn Caen, but St. Pierre, in the centre of the town, with its beautiful pointed spire, graceful tower, and exquisite interior, is rich beyond description. Then there is St. Stephen, or the Abbaye aux Hommes, which I previously mentioned as the last resting place of William the Conqueror, built towards the end of the eleventh century, and enlarged by a new choir in 1215, then much injured by the Huguenots in 1562-1566, and subsequently restored in its original style at the commencement of the seventeenth century. The exterior is very plain, but finely proportioned; the dignified simplicity of the two lofty towers of the west front and the massive solidity of its interior gives us one of the finest examples of the characteristics of

## THE EARLY NORMAN PERIOD.

Besides the two Churches briefly mentioned, there is the Abbaye aux Dames, or Church of the Holy Trinity, founded and consecrated in 1066 by Queen Matilda, and many of minor interest too numerous to mention in detail. Apart from its riches in Church Architecture, Caen also possesses exquisite examples of Renaissance in its Hôtel de Valois, Court of the Halles, Monnaies, &c., and, in domestic work, half-timbered houses in abundance, many highly ornate or quaint and curious. A short visit was made to the fine old Renaissance Château of Fontaine Henri, the home of one of the nobility, but, although allowed by the Marquis to stroll around the building and visit the quaint little private chapel, we were not afforded the privilege of viewing the interior, much to our regret. At Norrey we spent a little time in sketching and looking around us, and then the command of "All aboard" was given, and we returned to Caen. We proceeded to St. Lo, a picturesque little town, beautifully situated on a steep hill above the river Vire. Small as it is, St. Lo possesses one of the best-known Cathedrals in Normandy of the Decorated period, with two towers of different periods, the pierced, or tracery, work in one being strikingly peculiar. Apart from its Cathedral, St. Lo possesses its share of old buildings, conspicuous amongst which is the Maison Dieu, half-timbered, and having

## SOME GOOD CARVED WOODWORK;

but, in common with many of the old houses in Normandy, this building, with its restoration, has had to subordinate the antiquarian to the utilitarian aspect, and permit of the ground floor being converted into modern shops.



Alas! that the practical age in which we live should tend to drive us so much to consider the monetary element in everything; still, in the majority of cases throughout Normandy it may be said that, as a rule, the best has been retained and well preserved. From St. Lo we proceeded to Coutances, a town of somewhat similar size to St. Lo, but its Cathedral surpasses that of the latter town, and is, indeed, one of the finest Gothic buildings in all Normandy, and dates from the thirteenth century. The centre tower, although spireless, is very fine, and the lantern in the interior most elegant, while the great height of the clerestory renders the nave most lofty in appearance, and its nave chapels, separated therefrom by foliated screens of stone tracery, are remarkably beautiful. As the building stands upon the summit of a hill above the town, it forms an object of commanding attraction in the landscape. This was the last town we visited in Normandy, and we now entered Brittany, going to Pontorson *en route* for Mont St. Michel, the shrine of every visitor to that part of France. Pontorson forms a very convenient halting place from which to visit Mont St. Michel, and has a good deal to interest as well as material for the sketch book. The old Church, a granite structure, proved very curious and interesting on inspection, and in the interior are some very quaint

GROTESQUES, RUDELY CARVED IN GRANITE, and the saddleback tower of the Church is a typical specimen of the period. The hotel, where we found comfortable quarters, had formerly been a residence, and I should think dates from the seventeenth century; the staircase, with its curious newels, specially claimed our attention. Pontorson is only distant about five miles from Mont St. Michel, a little town consisting of one street, which winds up the side of the rocky eminence. The numerous buildings clustering around this conical rock are full of romantic interest, and a brief outline of them must fail to impart anything like a true conception of this unique and truly wonderful place. In as few words as possible, then, let me merely point out the most interesting features of the wonders of Mont St. Michel. Following up the street of the little town, we proceed up flights of steps until the Castle Convent is reached, a three-storied building with fine cloisters, the constructional parts of which are in granite and the carvings in limestone, every capital and spandril around these cloisters being beautifully carved, and no two are alike in design; the Halles des Chevaliers (Hall of the Knights) underneath the cloisters dates from the thirteenth century, is formed of four aisles and vaulted between, and possesses two large and boldly designed chimney-pieces. Then there is the Church to be visited, with its lower Church or crypt, the refectory, the dormitory (a large hall over the refectory and of the same dimensions), the vaults and dungeons, and the ramparts, from which extensive views of sea and land are obtained. Much has been done in the work of restoration, and much yet remains to be done; but the French Government is fully alive to the value of its possession, and we may confidently look forward to the time when Mont St. Michel will unfold all its beauties. Dinan is a romantically situated little town. Although not

#### RICH IN OLD CHURCHES

or in public buildings, it offers a wide field for the Artist or antiquarian, as the town contains many curious old houses and other objects of interest, whilst the ruins in the neighbourhood and the rich and varied nature of the landscape give ample scope for artistic inclinations. The ruined Château La Guaraye, about two miles from the town, is well worthy of a visit. Built in the Flamboyant style of the sixteenth century of grey granite, richly carved in parts, but little of it now remains, and that much weathered, yet it gives every indication of having once been a structure of considerable beauty and extent. The Church of St. Sauveur, a mixture of Norman and Perpendicular, the principal Ecclesiastical relic, does not merit much attention, but the quaint old streets and the clock tower give an old-time air to pretty little Dinan.

## Professional Items.

ARBROATH.—The building trades have been fairly busy recently, and a good many dwellings-houses have been put up, as well as buildings of a more public nature. In the east end Mr. Spalding has put up six workmen's cottages in Ernest Street, and Messrs. M'Laren and Nairn have added six semi-detached cottages to those they had previously erected at the north end of Carnegie Street. At the foot of High Street Mr. Fife, builder, has put up a two story tenement for four tenants on the site of some old houses, and he is also erecting a three story one in John Street to hold six tenants. A cottage has been built in Union Street East by Mr. Reid, builder, and the same builder has put up a self-contained cottage on the lands of Lochlands near Little Cairnie. Messrs. D. Ramsay and Son have finished two tenements in St. Vigean Road, to hold four tenants each, and are about to build two others. In the west end, four semi-detached villas have been put up by Mr. Spalding in Addison Place. Two semi-detached cottages have been erected by Messrs. Ramsay and Gordon in Hillend Road, and the same firm are proceeding with two similar cottages. The Parish Council offices in Hill Street are now finished, and the Public Library Building is progressing. In public works Messrs. Fraser and Sons' extension of Westburn Works are on a very large scale.

BERMONDSEY.—The Chairman of the London School Board, the Marquis of Londonderry, opened a new school in Page's Walk, Old Kent Road, on the 23rd ult. The school adjoins the Guinness Trust Buildings—four huge blocks of model dwellings containing nearly 600 tenements—and has accommodation for 358 boys, 358 girls, and 458 infants. The school was the 413th school opened by the London School Board. The site had cost £13,769 and the building £19,489. The buildings included a schoolkeeper's house, a laundry centre, and a manual training school.

BIRMINGHAM.—A great improvement has been effected in the dome of the Council House by the regilding of the lantern. The Estates Committee has discussed the desirability of gilding the ribs of the dome, which are about 100ft. in length, and 14in. wide. The cost would be about £200.

BLACKBURN.—The new Swedenborgian Church in Anvil Street was opened a few days ago. The new place of worship has been erected on the site of the old Church, at a cost of about £2250, in free Gothic design, the material being brick and terra-cotta. The Church affords accommodation for about 275 persons. Mr. Walter Stirrup, of Richmond Terrace, is the Architect.

BODMIN.—The commodious Free Library which Mr. Passmore Edwards has presented to Bodmin was opened on the 24th ult. Conveniently situated at the junction of Fore Street with the Beacon Road, the building is two stories in height, and built of local stone with Bath stone dressings. A conspicuous feature of the interior is a broad and lofty corridor, handsomely tiled. Spanning the central lobby are a series of bold intersecting arches, supported on pilasters of Bath stone, with moulded caps and keys. On the right of the lobby on the ground floor is a reading-room. Further along the corridor is a still larger room, intended to be fitted up as a lending library. On the other side of the smaller lobby is a room which will be furnished as a reading-room for boys. Opposite the principal reading-room is the magazine-room. All the rooms are paved with wood blocks, and special attention has been paid to the ventilation, as well as to the lighting. As previously stated, Mr. S. Trehane, Liskeard, was the contractor, and the designs were prepared by Mr. Silvanus Trevail, Architect, Truro, the cost being about £2000.

BRADFORD.—An important addition is being made to the buildings of the Bradford Infirmary, the erection having just been begun of a nurses' home, which will occupy a site on the Westgate side of the Infirmary grounds. The total cost of the structure when completed and furnished will probably be about £10,000. Accommodation will be provided for over fifty nurses, the majority of whom at present occupy a house near the south end of the Infirmary garden. In accordance with the regulations of the Corporation, the building is being put up behind a line which will make Westgate, so far as bordered by the Infirmary premises, some 15ft. wider. The present wall separating the Infirmary estate from Westgate is being set back for that distance. The existing lodge is to come down, and will be included in the new structure, and the new building itself, of course, will stand behind the rebuilt wall. The style of Architecture adopted in the Infirmary buildings is that of the Tudor period. The Board of Management discussed for some time the question whether it was necessary in the new building to follow the same style, the cost of which has rapidly increased during the past twenty years, owing to the very greatly enhanced price of labour. When figures were gone into it was found that the cost of building in ashlar and ashlar wallstones, as in the case of the Infirmary, with its Tudor style and elaborate masonry, would reach a total expenditure of so large amount as to be almost prohibitive. It was, therefore, decided to erect a plainer building, which will be a modification of the style prevalent in the earlier part of the eighteenth century. Although the new Home will not be entirely devoid of ornament, ornament will be made subsidiary to utility, and it may be stated that the windows will be free from mullions, which give rise to a great deal of complaint in the Infirmary, as they take up air space and obstruct light. The new building will stand parallel with Westgate. It will be 142ft. in length, 42ft. wide, and four stories in height, including the basement, which, on the lower or Westgate side, will be entirely out of the ground. The ground floor will contain the main entrance, which will be on the east side of the building, opening into the Infirmary garden. The entrance hall will lead into a corridor running the full length of the building north and south. The Architects for the whole of the work are Messrs. Milnes and France, and the contractors are as follows:—Masons and joiners, Messrs. William Ives and Co., Shipley; slater, Mr. James Smithies; plumbers, Messrs. Stead and Hutton; plasterers, Messrs. B. Dixon and Co.; and painter, Mr. S. Lupton.

BRISTOL.—The restoration of the tower of St. Thomas is now rapidly approaching completion. The old building, which was known as St. Thomas's Church, was destroyed in 1789, and so solid was the masonry that some portions of it had to be blown up by gunpowder. The work of erecting the present building was completed in 1793. The original tower, which is a very good example of the Perpendicular style, was allowed to remain, but it had become so dilapidated that restoration was sorely needed. A considerable portion of it has been refaced, and a new parapet and pinnacles have been added. As far as possible the old lines of the tower have been followed, and the surface has been disturbed only where the stone has decayed. The cost of the work, which amounts to something like £1600, is defrayed by a legacy left by the late Mr. Frayne. Mr. Gough, of Bridge Street, is the Architect, and the work has been carried out by Messrs. Cowlin, who restored the tower of Bristol Cathedral.

CLYDEBANK.—At the shipyard belonging to the Clydebank Engineering and Shipbuilding Company, Limited, there has been erected an extension to boiler shop, composed of three bays, two of which are covered with a light wood roof and asphalted felt, the other with an iron roof and galvanised sheets. The larger bays have cast-iron columns 37ft. high, with shoulders on them to carry the travelling crane girders, and are spaced 30ft. apart. At



the side concrete piers support the crane girders and the roof, with brick walling filling in between. The contractors were: Ironwork, Arrol's Bridge and Roof Company, Limited, Germiston; brickwork, R. McAlpine and Sons; joiner work, J. and G. Findlay. Convenient to the boiler shop there is built a new drawing loft, the contractors for which were: Ironwork, Bladen and Company; brickwork, R. McAlpine and Sons. A new gatehouse has also been erected, which stands in a recess in Dumbarton Road, and, being of effective design, gives a pleasing appearance to the street. It has a facing of terra-cotta bricks, red pointed, with Ballochmyle stone cope, cornice, and pediment. Alexander McEwan and Son, Partick, were the contractors for the brick and mason work. There are also nearly finished a brass foundry, brass-finishing and copper shops, with hydraulic room, electric house, and "Dowson" gas producer. The power required for the travelling cranes, hydraulic accumulators, electric lighting, &c., is got by gas engines supplied from the "Dowson" gas apparatus, which is claimed to be less costly than steam power. The contractors are: Ironwork, Findlay and Co., Motherwell; brickwork, R. McAlpine and Sons. The whole work will cost £25,000. The Architect is Mr. T. McIntosh Scotland, 132, West Nile Street, Glasgow, and Airdrie.

**COTHAM.**—The restoration of the Wesleyan Chapel is proceeding rapidly, and memorial-stones were laid a few days ago. The original outlines of the structure will be observed, with the addition of an organ and choir chamber at the rear. The walls will be of pennant stone, with Bath stone dressings, the internal fittings of pitch-pine, the choir having a groined ceiling and carved stall ends. The pulpit is to be of the same design as before, but somewhat larger. The Architects are Mr. R. Curwen, of London, and Mr. H. J. Jones, of Bristol, and the builders Messrs. Stephens, Bastow, and Co. The estimated cost is close on £7000, of which nearly £6000 is forthcoming from insurance of the original building.

**CROSBY.**—The foundation-stone of a new Congregational Church was laid at Crosby a few days ago. The Church is being built from the designs of Messrs. Daggers and Fordham, of Chester, with facings and dressings of Run-corn stone. It will provide seating accommodation for about 600 persons, and will have a nave, north and south transepts, chancel, choir vestry, and clergy vestry. The chief entrance, with a large porch, will be in Mersey Road, and there will be another entrance to one of the transepts, also in Mersey Road. The amount of the building contract is £5700.

**DUNDEE.**—Although there has recently been little said or done regarding the site to be occupied by the statue of Her Majesty in Dundee, a very decided change is observable in the attitude of the municipal authorities upon the question. There can now be no doubt that there is a great preponderance of opinion in favour of the site in front of the High School gates, and an additional reason has just transpired for the selection of this position. It seems that instead of having a measurement of 18ft. as had been intended, the base of the statue will be 22ft. square. This fact will practically involve the abandonment of all idea of placing the statue in High Street, for there is no part of that thoroughfare sufficiently spacious to allow of the laying down of so large a pedestal.

**FLOOKBURGH, LANCS.**—A new Church, in the Early English style, is about to be erected for Mr. Victor Cavendish, M.P., at Flookburgh, near to Holker Hall, in Lancashire. Plans have been prepared by Messrs. Austin and Paley; and the work has been let to various local firms. The Church, which will accommodate about 400, will cost about £5000.

**HARROGATE.**—The extensive improvements which are being made by the North-Eastern Railway Company at the Harrogate Railway Station are rapidly approaching completion. At the main entrance, facing James Street, a

central ring with annexe has been added, the approach has been widened, and an ornamental iron portico has been erected in the place of the old and inconvenient one. Two large entrances have been made, on each side of which are the stationmaster's and telegraph offices, together with a large parcels and left-luggage office and first-class gentlemen's waiting room. Four booking offices have been added, the woodwork being surmounted by an ornamental clock. A new entrance has been provided on the south side and a new roadway formed. Extensive embankment works have been opened out at the upper end of the south platform to afford provision for a new dock.

**LEICESTER.**—One of the most important reports that the Corporation of Leicester has had under consideration for years past was submitted at a recent meeting, when the Estates Committee asked for sanction to carry out a scheme for the erection of a block of tenement dwellings for the working-classes. The site of the proposed tenements is in Winifred Street, where the Corporation owns a piece of land that has, for a number of years, been lying vacant, and which, together with a plot that has been exchanged, it is now proposed to turn into a profitable investment, in addition to improving Winifred Street by widening it from 23ft. to 40ft. The building, which will be three stories high, and comprise fifty-one tenements, has been designed round an open space, which will be planted with trees and shrubs. Each group will have a separate entrance from the street, and into the courtyard at the back, whilst the staircase in each block will be constructed of fireproof material. Each tenement on the first and second floors will be provided with a semi-private entrance by means of a neat lobby off the main staircase, whilst in the rear balconies will be erected for each group.

**MORECAMBE.**—Plans have been prepared by Mr. Howdell, A.R.I.B.A., of Leeds, for a new Primitive Methodist Chapel and Assembly Hall at the west end. Tenders have been accepted for building the assembly hall as follows:—Masonry, &c., T. O. Dixon; joinery, &c., R. Clough; slater and plasterer, W. J. Cross; plumbing, glazing, and gasfitting, J. H. Brown—all of Morecambe; painting, Roy-lance and Horsman, of Leeds; and heating, G. Tankard, of Leeds.

**NORTH SHIELDS.**—The Corporation has recently built, on the western boundary of the Fish Quay, a large block of premises, which have been leased by the Northern Counties' Ice-Making and Cold Stores Company, Ltd. The Tynemouth Corporation has spent about £4000 upon the premises, but the Ice Company's expenditure on the necessary machinery and plant is close upon £16,000. The new building has a river frontage of 120ft., and is 36ft. in breadth. The building has been erected under the personal supervision of the Borough Surveyor (Mr. J. F. Smillie) by Messrs. W. Johnson and Sons; Mr. J. T. Cackett, Architect, Newcastle, has represented the Ice Company, and Mr. T. B. Johns has been clerk of works. The buildings are approaching completion.

**NOTTINGHAM.**—The foundation-stone of a new Church, which will re-place the temporary building of St. Simon's, Bobber's Mill Road, Hyson Green, was laid recently. The sale of St. Stephen's Church, Parliament Street, and of the glebe land forming part of the endowment, to the M.S. and L. Railway Company, realised about £10,000, which will go towards the cost of the new Church and its endowment.

**PANBRIDE.**—A stained-glass window is being erected in Panbride Free Church. It is a fine specimen of modern glass-staining, and finds a place in the west aisle. The panel is 16ft. in height and 2½ft. in breadth, and consists of a life-sized figure of St. Matthew, surmounted by a scroll. The window is supplied and erected by Messrs. R. Farquharson and Son, Arbroath, to the directions of Mr. James P. Bruce, Architect, Carnoustie.

**PENZANCE.**—Foundation stones of a new Wesleyan chapel have been laid at Wesley Rock, near Penzance. The new building will stand on the plot of ground immediately adjoining the present chapel, and will provide seating accommodation for 480 persons, and will be so built as to allow of the addition of galleries. The cost is estimated at nearly £2000.

**PLYMOUTH.**—Plans have been prepared by the engineers of the Great Western directors for the extension and enlargement of the baggage warehouse and the construction of a platform near the piers at Millbay. It is intended to more than double the warehouse in length by the erection of a new wing on the site now occupied by a foundry and boat-building yard. The new structure will be 245ft. long, increasing the total length of the block to 425ft. The old portion of the warehouse will be widened to 90ft., and the new building will be of corresponding width. The entire block will be two stories high. One important part of the scheme provides for the construction of a short line of rails. The new line will, by a bold sweep, traverse a corner of the timber yard, cut through a couple of warehouses adjoining, and pass direct into the baggage warehouse on the ground floor, where a platform will be constructed 420ft. long. Both rails and platform being within the building, a portion of the warehouse will practically be converted into a station, with perfect shelter from the elements. In future, therefore, passengers landing at Millbay Pier will be able to proceed by the covered way to the waiting-room, and after a much shorter detention there than is now necessary, will be conducted through the baggage warehouse into the train without suffering the slightest discomfort. But the scheme has one rather serious drawback. To obtain the necessary width for the new structure, it is proposed to absorb a portion of the short private road running from the West Hoe to the dock entrance. At present the roadway is 44ft. 6in. wide, and, according to the plans, a strip 13ft. 9in. wide on the western side of the thoroughfare would be thrown into the station part of the warehouse, reducing the width of the thoroughfare to an average of 30ft. 9in.

**ROSEHEARTY.**—The memorial to be erected at Roseheartly in honour of the Queen's Jubilee is to be a fountain. The design which has been adopted is that of Mr. Victor Mitchell, Architect, 12, King Street, Aberdeen. The structure, which is to be entirely of granite, will stand over ten feet in height, the lower base being square, and having rustic work splayed and margined. The die will be circular and of polished Rubislaw stone, with turned base and pedimented cap of the same material. The pillar and capital will be of Peterhead granite, polished, with rosettes cut on neck, and the whole will be surmounted by an imperial crown, also of Peterhead stone, finely finished. Two of the pediments are to be enriched with coats of arms cut in relief. There will be two drinking basins, of Peterhead stone, and also a trough for horses, and a couple of dog drinking basins. Messrs. Smith and Taylor, Ash-vale Place, are the contractors for the work.

**ROTHERHAM.**—The new suite of police offices in Frederick Street and Haward Street includes two spacious courts, corridor cells of the most approved type, conveniently arranged offices, waiting-rooms, and weights and measures department. The site is that of the Temperance Hall, the old police offices, and two or three cottages. The whole scheme, including the purchase of land, clearing of buildings, contract, &c., is understood to amount to about £20,000. The contractor has been Mr. Richard Snell, and the plans have been prepared by Mr. R. J. Lovell, Architect, of London.

**SOUTH SHIELDS.**—The North-Eastern Railway Company has decided to carry out improvements at the South Shields railway station, and increase the accommodation at



that terminus. The south side platform is to be carried back to allow a third line of rails to be laid down, so that an engine may be changed from one end of the train to the other when both platform lines are occupied. A footbridge is to be erected communicating between the two platforms, both of which, it is expected, will be used instead of as at the present time only the north platform. New waiting rooms and offices will also be built, and a carriage drive into Salem Street will be made.

TRURO.—The new Technical Schools now in course of erection will, when erected, be an imposing range of buildings extending from Pydar Street to St. Mary's Wesleyan Chapel, with the chief elevation fronting to the Royal Institution of Cornwall. Whilst not exactly on the same architectural lines as the Free Library, the schools will be in the Tudor Renaissance style, and assimilate with it. The Architect has harmonised the general appearance of the two buildings by the elimination of one of the library gables. The walls will be composed of a granite base, corresponding with the library, Bath stone dressings, and Plymouth limestone filling, and there will be mullioned transomed windows towards the front. Over the chief pediment will be placed the arms of the city of Truro. An inscription panel over the central entrance will indicate the memorial character of the schools. An ornamental fleche on the roof will ventilate the building. The woodwork of the interior will consist of varnished pitchpine, as in the library. The length of the new building will be about three times that of the frontage of the existing library. There will be a central entrance with porch and vestibule 10ft. wide, opening into a 6ft. corridor running right and left. Mr. S. Trevelick is the Architect.

WOLVERHAMPTON.—At a special licensing sessions Mr. E. A. Wilcock applied for an order to make important alterations to the Empire Music Hall and Vaults, situate in Cheapside and Queen Square. He explained that the present buildings were old and inconvenient, and it was proposed to take them down and erect a first-class place of entertainment, replete with every modern convenience; and it would be seen from the plans that the scheme would include the shop of Mr. Phillips, chemist, adjoining the Empire Vaults, together with some old shopping at the rear and Mr. Raybould's shop in Cheapside. The front would be of red brick with terra-cotta facings, the ground floor of granite, and the woodwork of mahogany, and it was estimated that the entire cost would amount to between £40,000 and £50,000. The plans having been inspected, Mr. Ward, of the firm of Messrs. Owen and Ward, Architects, Birmingham, explained that there would be nine entrances, and the building would be lighted with electricity, though a supply of gas would also be laid on. A fire-screen would be provided at the suggestion of the borough surveyor. The application was unanimously granted.

YORK.—The present premises of the York Dispensary, in New Street, having for some time been found to be inadequate, the directors recently acquired a site in Duncombe Place upon which the erection of a new building has been in progress for some little time. The plans show that the new dispensary will contain, on its ground floor, and quite separate and distinct from the residential part of the house, ample accommodation for the work that has to be done there. This will include dispensing room, a consulting room, specially fitted for ophthalmological and laryngoscopic work, two other consulting rooms for the ordinary daily work of the staff, and a large and comfortable waiting hall, which will accommodate at least three times the number of patients that the present waiting room will hold. On the first floor is provided sufficient sitting room and bedroom accommodation, with the necessary kitchens and other offices for the resident staff, and on the second floor are bedrooms for the servants, &c.

## Trade and Craft.

EAST HAM SEWER FATALITIES.

In Queen's Bench Division, on the 24th ult., the Lord Chief Justice and a special jury disposed of the case of Digby v. the East Ham Urban Council. It was an action by Mrs. Esther Martha Digby, widow of Walter Thomas Digby, suing on behalf of herself and children, to recover damages by reason of the loss of her husband. On July 1st, 1895, Walter Thomas Digby met his death in a man-hole connected with the sewage works of the defendants. The deceased on going into the man-hole was suffocated by noxious gas, and the plaintiff alleged that defects were permitted to exist which should have been known to the District Council, and remedied. It appeared that five deaths in all resulted from the condition of the man-hole in question. The deceased first entered for the ordinary discharge of his work in connection with the sewage, but his condition having been discovered, four other men entered successively to rescue him. The case was a test one. The defence was a denial of negligence, the Urban District Council pleading that it had used all reasonable precautions to prevent a fatality, which could not have been foreseen. This was a second trial, Mr. Justice Cave having non-suited, and the Appeal Court having ordered a new trial. The jury found for the plaintiff, awarding £225 damages.

PLATE-GLASS FOR MONUMENTAL PURPOSES.

A company of glass workers has recently discovered that ordinary plate-glass will make a more durable monument than the hardest marble or granite, for glass is practically indestructible. Wind, rain, heat, or cold will eventually crumble the hardest rock, and one can seldom read the inscription on a gravestone fifty years old, but a glass monument will look as fresh after the elapse of centuries as on the day of its erection, and the inscription can be made ineffaceable. The thick plate-glass used to glaze the port-holes of steamers will resist the stormiest sea, and is practically unbreakable.

THE EXPANDED METAL COMPANY, LIMITED.

"Expanded Metal and its Uses in Fireproof Constructions" is the title of an illustrated booklet issued by the Expanded Metal Company, of 39, Upper Thames Street, E.C. What expanded metal is must now be common knowledge. But for the benefit of the few it may briefly be described as mechanically cut or split and deployed or opened-out sheets of metal, having diamond-shaped meshes and strands of practically any desired sizes and thicknesses. This expansion thus produces greater surface or covering area than the extent possessed originally by the sheet operated upon, and without any waste of material. The advantages accruing are numerous and valuable, but undoubtedly it is used to the greatest advantage in combination with concrete, cement, or plaster in the erection of fireproof constructions and the like. Its value in such cases, especially where the strength and lightness of such structure have been duly considered as well as the prime cost, is incontestable. Manifestly the chief points to be aimed at in fireproof constructions are strength, lightness, efficiency, and, of course, reasonable cost. And proof is not wanting that concrete, having expanded metal as a sound and consistent basis or bed, possesses these qualifications, and in practice results have been far more satisfactory than in cases where a richer concrete or cement is used in order to give the floor greater tensile strength. In fact, the desirability of a combination of concrete and expanded metal, attaining as it does in a floor the maximum of strength and fire-resisting efficiency, cannot for a moment be in dispute. Other features of interest and merit in expanded metal are numerous; its superiority as a substitute for common lathing (attention being directed to the excellent manner in which the plaster or cement is

embedded and keyed to the metallic lattice work), its claims as a substitute for innumerable descriptions of wirework, its economic use in the metallic part of a structure, are only a few of many.

LINCROSTA-WALTON NATIONAL EMBLEMS.

The accompanying illustration is of a permanent bas-relief medallion of Her Majesty Queen Victoria, made of Lincrosta-Walton, by Messrs. Frederick Walton and Company. The medallion itself is 13in. in diameter, and can be hung up as a plaque, or framed as a picture, or let into a panel either in circular or square shape. Messrs. Walton and Company are



also producing in their well-known decorative material a series of national, ecclesiastical, and masonic emblems, ranging from the Royal Arms to the Badge of Ireland. All the designs may be had plain, decorated in two colours, or with heraldic decoration, and as works of Art—and loyalty—should come prominently to the front amongst the Jubilee decorations.

LONDON BUILDING ACT: UNSUCCESSFUL PROSECUTION.

An interesting point was raised in a case decided a few days ago in the Lambeth Police Court. The London County Council applied for penalties against Rowton Houses, Limited, for not obeying a notice served upon them by the Council under the London Building Act, 1894, section 14. The building in respect of which the complaint arose was Rowton Houses, Churchyard Row, Newington. Mr. Hopkins said there was no dispute about the facts; it was admitted that every fact necessary to raise the question must be found against the defendants. The allegation which concerned him was that the defendants' building was so high as to infringe the last proviso but one of sub-section 5 of section 13 of the London Building Act, 1894, and if that proviso applied, the building was certainly too high by many feet. If, say, the Gordon Hotels Company had done exactly what the defendants had done in the matter and, after complying with the requirements of the statute, as the defendants complied with them, had erected on that very site one of their palaces, he thought it must be admitted that they might have gone to any height they pleased, and that no question could have arisen as to the height under the proviso, because the Gordon Hotels could not be said to be within it. For all the purposes of the London Building Act he could see no possible difference between, say, the Gordon Hotels Company building a rich man's hotel, and Rowton Houses, Limited, building a poor man's hotel. He was strongly of opinion that all the real merits were with the defendants, and he dismissed the summonses. Mr. Hopkins allowed £15 15s. costs.

ELECTRIC SYSTEM OF THE BLACKWALL TUNNEL.

Some interesting particulars of the whole electric system of the Blackwall Tunnel have been supplied to us from official sources. There is a large generating station on the Poplar side of the river, where there are three



Lancashire boilers supplying steam to five compound steam dynamos of the latest type. Three of these dynamos are of 120 horse power, and the other two of 60 horse power. They supply not only light, but power to six motors driving pumps and lifts and the tools in the well-equipped workshop attached to the generating station. Mr. T. P. Gunyon, the Council's chief electric engineer, has designed the whole electric system, and he mentions one curious fact which probably not half a dozen of the ten thousand visitors on Saturday would have noticed, that though most of the incandescent lights are of 32 candle power, they are more powerful near the mouths of the tunnel—just where it might be expected that their power would be reduced. The increase, however, is in order that the transition from broad daylight to the artificial illumination of the tunnel may be less trying to horses and drivers on entering. The transition the other way, it might be added, is also a little trying, as was evidenced at the opening by many persons shading their eyes from the glare of the upper world as they emerged from the comparative gloom.

#### WHAT IS A SEWER?

The case of Fulham Vestry (appellants) v. London County Council (respondents), which recently came before the Queen's Bench Division, was a case stated by certain justices of Kensington. The appellants had applied for a summons against the respondents on a complaint, by the appellants, of a nuisance from "foul smells," "dangerous to health," arising from a surface sewer ventilator constructed by the respondents in the surface of a roadway within the appellants' district. The sewer formed part of the main drainage system of London. The complaint was made under the Public Health (London) Act, 1891, section 5. The appellants contended that the nuisance came within section 2 (1) b of the said Act, arising from a "water-course" or a "drain" in such a condition as to be dangerous to health. The respondents contended that the summary abatement of nuisances in relation to drains under the Public Health (London) Act, 1891, did not apply to public "sewers." The justices held that a public sewer was not within the definition of nuisances to be dealt with under section 2 (1) b of the said Act, and that they had no jurisdiction, therefore, to deal with the complaint, and discharged the summons, but stated the case.—Mr. Danckwerts, for the appellants, argued that a "sewer" came within the words "drain or watercourse."—Mr. Bosanquet, Q.C., and Mr. Horace Avory, for the respondents, contended that the drains dealt with by the Act could not be construed as including public sewers.—Mr. Justice Day held that section 2 (1) b of the Public Health (London) Act, 1891, could not be made to apply to defects in sewers vested in the London County Council, but only to premises, whether public or private, occupied by owners of property, as distinguishable from great public works constructed by public bodies for public purposes. No doubt the London County Council were liable, like any other public body, for any egregious mistake in the construction or maintenance of works intrusted to them by the Legislature, but for that they were only liable to the constitutional tribunals of the realm, and not to summary proceedings at petty sessions.—Mr. Justice Lawrence concurred. The word "sewer" was not contained in the subsection in question, and was probably purposely omitted.—Appeal dismissed.

The committee which has charge of the arrangements in connection with Gloucester's commemoration of the Queen's long reign has accepted the report of a sub-committee, which recommended that plans be invited for a library at a cost not exceeding £5000.

A NEW Roman Catholic Church at Colne has been opened by the Bishop of Salford. The building, which is not yet complete, will cost £4000, towards which £1000 has already been raised. At present the Church will accommodate about 500 persons.

## Correspondence.

### EXHIBITION OF FIREPROOF MATERIALS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Under the circumstances connected with the recent disastrous fire in Paris, will you permit me to direct attention to the Exhibition of Fireproof Materials made from Asbestos, opened in the large hall of the Society of Architects, St. James's Hall, Piccadilly, on Monday, the 31st inst.?

This Exhibition, suggested by the above deplorable event, has been organised in order to demonstrate means of assisting in the prevention of loss of life by the use of non-inflammable decorations in our homes and public buildings.—I am, Sir, your obedient servant,  
J. ALFRED FISHER,  
May 26th, 1897. General Manager.

## SOCIETY MEETINGS.

### The Architectural Association of Ireland.

—The closing meeting of the winter term was held at the Grosvenor Hotel, Westland Row, Dublin, the President (Mr. R. Caulfield Orpen) in the chair. Amongst those present were Messrs. A. J. McHoughlin, J. Coleman, P. F. O'Sullivan, Jas. H. Webb, L. O'Callaghan, F. Johnson, T. Slevin, A. W. Moore, &c., and R. M. Butler (Secretary). The meeting was held for the purpose of receiving an interim report from the Committee. The report was a most satisfactory one. The Association was only established in November last, and already numbered over one hundred members, seven new members having recently joined. Three classes met weekly during the winter months. In respect of these the President said that while there was room for improvement in regard to attendance at the classes, yet the results for so young an Association must be considered highly satisfactory. Reports from the secretaries of the classes of Design (senior and junior) and the building construction classes were read. It was decided that the annual excursion should be to Monasterboice and Mellifont Abbey. The proceedings terminated with a vote of thanks to the President for his conduct in the chair during the term.

**The Edinburgh Architectural Association.**—The Edinburgh Architectural Association visited The Binns and Midhope, Linlithgowshire, by permission of Mr. J. Cornwall Dalrymple and the Earl of Hopetoun. Mr. Thomas Ross, F.S.A. Scot., in describing The Binns, said that on plan it formed three sides of a square, the east wing being the oldest part, and probably dating from the sixteenth century, and the north and west wings from the seventeenth century. One, at any rate, of the fine plaster ceilings seemed to be by the same hand that executed those at Moray House, Edinburgh. Mr. Ross, in his description of Midhope, said it was a lofty mansion house situated in a picturesque dell, and quite hidden from view till one was almost within call of it. Oblong on plan, it was erected at three distinct periods. The whole basement was vaulted, and a small newel stair in the older part and a fine oak stair in the later gave access to the upper floors. Alexander Drummond, second son of Alexander Drummond, of Earnock, was the first laird of Midhope, and in the beginning of the seventeenth century the property passed into the hands of the Livingstone family, who probably built the eastern parts.

AMONG historic places in London now threatened with destruction is that interesting corner in Chelsea known as "The Apothecaries' Garden." Those gardens date back as far as 1721, when Sir H. Sloane handed them over to the Apothecaries for scientific purposes. A statue of the donor, executed by Rysbrack, stands in the gardens; and the fine cedar trees in the grounds, which were the gift of Sir Joseph Banks, are now over 200 years old.

## Enquiry Department.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I see by the Builders' Journal of 19th May that you have decided to open an Enquiry Department. I now take the liberty of asking you what is the best work on proportion of Parish Churches.

Hoping that you will be able to give me name of author of best work,

I remain yours,

JAMES P. McE.

[There is no book published dealing specially with the proportions of Parish Churches.

#### BRANDON'S BOOK:

Brandon's "Parish Churches," being perspective views of English Ecclesiastical structures, accompanied by plans drawn to a uniform scale, 160 plates, imp. 8vo., cloth, £1 8s., scarce, is a useful one of its kind.

#### BOWMAN AND CROWTHER'S WORK:

Bowman and Crowther's "The Churches of the Middle Ages," being select specimens of Early and Pointed structures, with a few of the purest Late Pointed Examples, with 126 fine lithographic plates, plans, views, elevations, sections, and details, 2 vols.; folio, half morocco, £7 7s., scarce, is a most valuable work; a parallel of the various styles, and illustrating the Churches by most careful measured drawings, to scale of elevations, sections, details, plans, &c.

Both these books you can obtain from Mr. B. T. Batsford, 94, High Holborn, London. The former at a cost of 22s., and I understand Mr. Batsford has a copy of the latter which you can have for £4 10s.—ED.]

THE erection of the new Roman Catholic Cathedral at Westminster is progressing satisfactorily, and will, it is hoped, be completed within two years. The foundations have been finished—at a cost of £15,000—and the granite façade is gradually mounting.

ONE of the best known Suffolk estates has just changed hands, Hengrave Hall, near Bury St. Edmunds, with its 4600 acres of splendid sporting land, having been sold by the executors of the late Mr. John Lysaght to Mr. J. Wood, of Whitfield, Derbyshire, and of Ivington, Herefordshire. Hengrave Hall is famous as the finest example of Tudor Architecture in the country. The building is of stone, and possesses some very fine ornamental carving.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIXPENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two. Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open.

Prices on application. Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St  
Strand, W.C.



## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BLYTH** (Northumberland).—For the construction of a road, &c., near Cowpen-square, for the Urban District Council. Mr. Robert Grieves, Surveyor, Seaforth-street, Waterloo, Blyth:—

Jacob Robson ... £274 13 4 | G. E. Simpson, New-  
Jos. Wardlaw ... 617 19 11 | castle (accepted) £261 14 3

**BRIDGEND** (Glam.).—For additions, &c., to Town Hall, for the Committee. Mr. George F. Lambert, Architect, Bridgend:—

David Llewellyn ... £730 0 | William Francis, Bridg-  
Thomas Roberts ... 662 5 | end\* ... £599 0

Charles Jenkins & Sons ... 610 0 | \*Accepted.

**BROMLEY** (Kent).—For the execution of drainage works, Mason's Hill, for the Urban District Council. Quantities by the Surveyor:—

Pedrette and Co. ... £254 6 0 | G. Bell ... £349 12 3  
Wm. Wadey ... 429 18 0 | R. Stockwell, Brom-  
Thos. Lansbury ... 418 8 6 | ley, Kent\* ... 845 0 6

E. Peill and Sons ... 403 5 6 | \*Accepted.

**CHEDDAR** (Somerset).—For building a shirt factory at Tween Town, Cheddar, for Mr. Joseph Edwards. Mr. David Cox, Architect, The Barrows, Cheddar. Quantities by Mr. William Veals, Bristol:—

H. A. Forse ... £275 0 0 | Ford and Scourse,  
Love and Waite ... 580 0 0 | Cheddar\* ... £439 11 6

\*Accepted.

**CLEETHORPES** (Lincs.).—For the execution of road works, Poplar-road (Contract No. 9), for the Urban District Council. Mr. E. Rushton, Surveyor, Poplar-road, Cleethorpes. Quantities by the Surveyor:—

A. Brunton & Son ... £1,045 6 11 | L. N. Davison,  
Hewins & Good- ... 899 12 6 | Grimsby\* ... £265 8 1

\*Accepted.

**COWBRIDGE** (Glam.).—For the restoration of Parish Church, Llantrichyd, for the Rev. E. L. Ellis. Mr. G. E. Halliday, Architect, 14, High-street, Cardiff. Quantities by Mr. John W. Rodger, Surveyor, 14, High-street, Cardiff:—

Williams & Thomas ... £960 4 9 | L. Merrett ... £750 0 0  
Wm. Cox ... 810 0 0 | W. James and Son,  
O. H. Cookley ... 800 0 0 | Cowbridge\* ... 705 0 0

Henry Smith ... 800 0 0 | Chas. Parsons ... 625 0 0

Rees and Thomas ... 750 0 0 | \*Accepted.

**DOLPHINHOLME**.—Accepted for the erection of a new Church. Messrs. Austin and Paley, Architects, Lancaster:—

J. Hatch and Sons, of Lancaster ... £2,659

**EAST HAM**.—Accepted for iron church in Coleridge-avenue, for the Rev. A. G. Prichard:—

W. Harbrow, Iron Building Works, South Ber-  
mondsey ... £285

**ELGIN**.—For the erection of a house on the farm of the Raich, Longmorn, for Mr. William Ramsay, of Longmorn. Mr. C. C. Doig, Architect, Elgin:—

Building.—Alexander Mackenzie ... £277 0 0  
Carpentry.—Mackie and MacKenzie ... 228 10 0

Slating.—James Wilson ... 48 16 0  
Plastering.—James Brodie ... 59 0 0

Plumbing.—William Lyon and Son ... 49 0 0  
Painting.—J. Kintrea and Son ... 17 7 6

[All of Elgin.]

**ELGIN**.—For the erection of business premises, South-street, for Mr. Charles Forsyth. Mr. C. C. Doig, Architect, Elgin:—

Building.—David Forsyth ... £907 0  
Carpentry.—A. and R. Dunbar ... 715 0

Slating.—James Wilson ... 35 10  
Plastering.—James Brodie ... 183 19

Plumbing.—J. Gordon and Son ... 114 0  
Painting.—Alexander Forsyth ... 54 0

Ironwork not yet accepted.  
[All of Elgin.]

**EXETER**.—For the erection of Emmanuel's Church, St. Thomas's. Mr. Harold Brakspear, Architect, Corsham, Wilts:—

Gibson ... £10,867 | Stephens and Son ... £8,880  
Herbert ... 10,042 | N. Pratt ... 8,295

C. Breaby ... 9,000

**GAINFORD** (Durham).—For the execution of Gainford sewerage work. Mr. Robert Robinson, Engineer, Darlington:—

Contract No. 1.—General work in laying sewers, building tanks, and laying out irrigation area.

Wm. Dodds ... £1,922 4 1 1/2 | R. McDonald ... £1,514 3 2  
J. Kyle & Sons ... 1,780 0 0 | Adamson ... 1,389 7 0

T. Lee ... 1,757 7 0 1/2 | P. O. Hetherington, Egglestone (accepted) ... 1,334 10 0

J. Clarkson ... 1,626 10 10 | R. Wilson ... 2,312 9 4

R. Wilson ... 1,570 6 7 | J. Clarkson ... 211 16 9

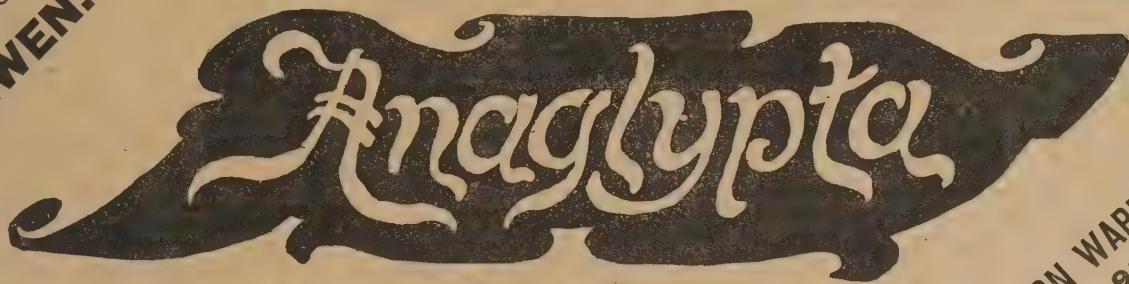
Contract No. 2.—Sanitary Pipes.

J. Kyle and Sons ... £250 0 0 | R. Wilson ... 211 16 9  
J. Dixon ... 245 5 5 | W. C. Clark (Straker & Love), Darling-  
R. McDonald ... 232 9 4 | ton\* ... 219 7 3  
P. O. Hetherington ... 227 10 0  
Adamson ... 223 11 6  
J. Crossley ... 218 9 0

\*Accepted.

WORKS:  
**DARWEN.**

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF

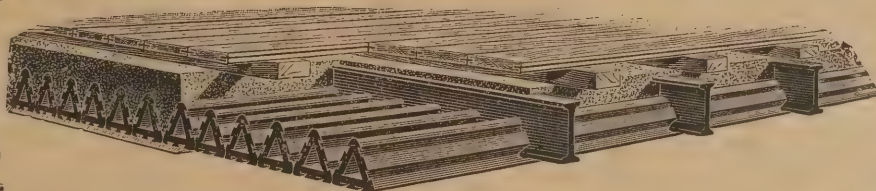


THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
92  
Great Russell St.,  
W.C.

# HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders.

CONSTRUCTIONAL STEEL AND IRONWORK.

GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS.**

LONDON {Offices: 17, GRACECHURCH STREET, E.C.

{Works: RATCLIFF, E.

MANCHESTER {Offices: 10, MARSDEN STREET.

{Works: WEST GORTON.

Telegraphic Address: "HOMAN RODGERS, LONDON.

Telephone No. 1026.

Telegraphic Address: "NAMOR, MANCHESTER."

Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, Dorset.

# WALTER MACFARLANE & COMPANY, GLASGOW.



MACFARLANE'S JUBILEE MEMORIALS.

Clock Towers, Drinking Fountains,  
Spray Fountains, Bandstands, Belfries,  
Lamp Pillars, Seat Shelters, Drinking  
Troughs, &c.

CONSTRUCTIVE WORK OF EVERY DESCRIPTION

ELECTRIC LIGHT PILLARS AND BRACKETS.

TWO GOLD MEDALS CALCUTTA EXHIBITION.



ILLUSTRATED CATALOGUES AND PRICE LISTS ON APPLICATION.



THE  
HORNTON-PICKARD  
SIMPLEST AND BEST.  
AMERAS AND  
SHUTTERS.  
THE HORNTON-PICKARD MANFG. CO., ALTRINCHAM



# Surveying and Sanitary SUPPLEMENT.

JUNE 2ND, 1897.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.\*

(Continued from page lxii.)

BY ALEXANDER DREW.

NO. V. OF SERIES.

THE calculations necessary to determine the value of the Moment of Inertia are by no means difficult or tedious for the more ordinary simple sections, and as these values may be added together, or subtracted from one another if desired, it is seldom that any section met with in practice cannot be divided up into a series of such simple sections, whose separate Moments of Inertia can be determined and added together, to give this value for the total section. Table IV. indicates how such calculations can be gone about, and may be sufficient for reference; a more detailed treatment must be looked for in some theoretical text-book. This same table also gives the result of the calculations of T and L sections of various sizes; as these are somewhat tedious, this will, in many cases, save some considerable trouble.

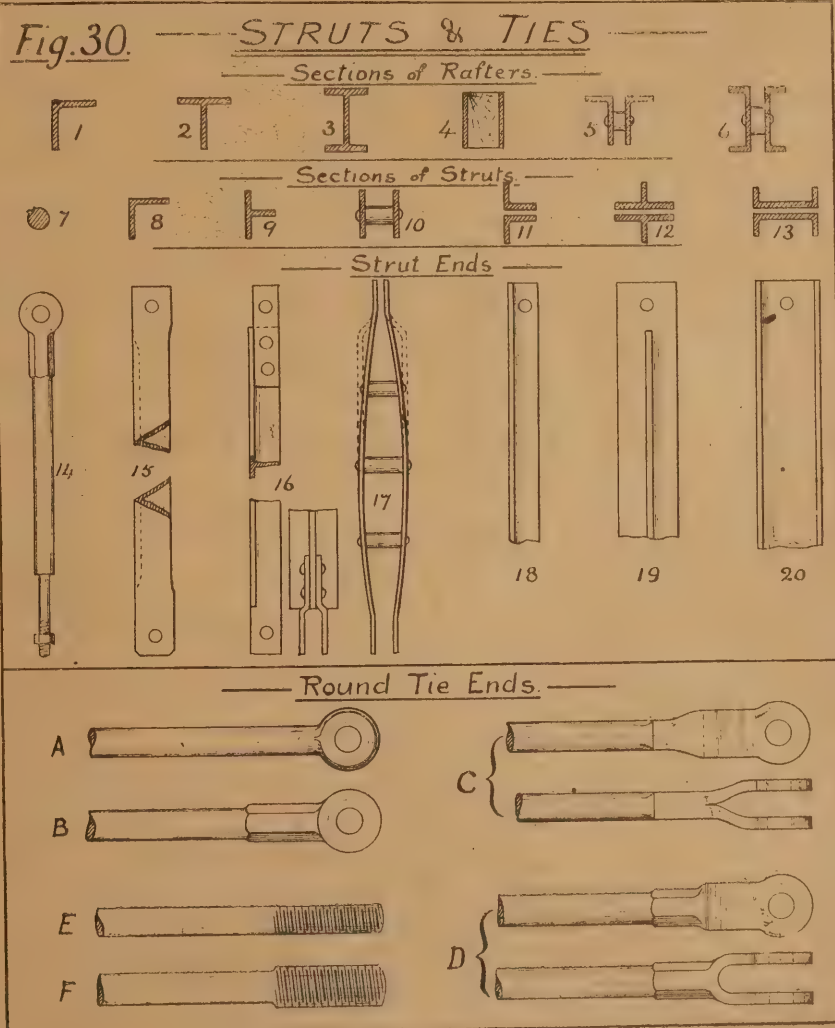
Time will only permit of a few words of explanation as to this table. The value of the Moment of Inertia for four simple sections is given, in each case this value being that for an axis passing through the centre of gravity of the section. If it be desired to add together or subtract these values from one another this can only be done when they are each calculated about the same axis; this must be specially noted. In determining the new value for the Moment of Inertia about an axis parallel to, but at some distance from the original axis, the original value for the Moment of Inertia must be altered by an amount equal to the area of the section multiplied by the square of the distance the one axis is removed from the other; if the new axis be further from the centre of gravity than the first, the new Moment of Inertia will be greater than the old, but should the new axis be nearer the centre of gravity, the value will be diminished by the above noted quantity.

The table given here indicates the area, the Moment of Inertia, the distance from neutral axis to furthest edge of section, and also the value of the Radius of Gyration for L or T section, set with reference to the neutral axis in the manner indicated under the table, where also is given the formula by which these values are calculated. This value of the Radius of Gyration, which it may be noted is equal to the square root of the Moment of Inertia divided by the area, will be found convenient in connection with Table II. previously given for the strength of struts; this value (as was previously noted) should be used where possible in preference to the approximate method of calculation given in the above referred to table. It must be borne in mind, however, that this value in the

case of L sections only holds good when the bar is retained in its square position. Should it be allowed to turn round, as it would tend to do, into the position shown in the small table of the values of (n) given with Table II., the Radius of Gyration is considerably altered.

The formula just given (8) will enable the strength of beams of ordinary section to be readily calculated, and where these are of L or

any of the noted conditions of loading; so that if the value of I and y are got at, these formulae will give the maximum strength of the several bars when used as beams. But should the member be a compound one, as it may be termed, and subjected to compression or tension in addition to this bending, a further step must be taken to determine the maximum stress. In practice it is usual to consider the



T section (as is frequently the case with roof purlins) the just described table will also materially simplify these calculations. Where the member is a simple beam, that is to say, where it is subjected to bending only, these formulae, by giving the maximum strength (or the maximum stress) under given conditions, supply all the information necessary, and they of course apply to any section of bar, and to

stress in the simple members of a roof truss as distributed uniformly throughout the full section of the bar, so that the stress per square inch in any case is equal to the total stress divided by the number of square inches in the section; but in a compound member we have first this uniformly distributed stress just noted, and in addition to that the varying stress which was last considered, and whose

NOTE.—At the twenty-eighth line from the beginning of No. V. of series the reference letters given as a, b, c, should be x, y, z.

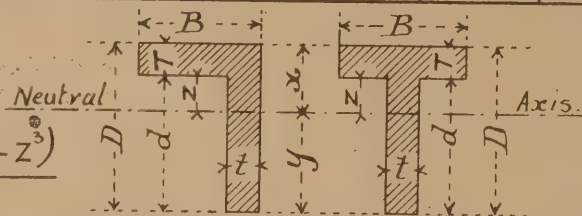


Table IV.—MOMENT OF INERTIA (I), & RADIUS OF GYRATION (r).

Section	Area. (Sq. in.)	I.	y.	r.	Section.	Area. (Sq. in.)	I.	y.	r.
$1\frac{1}{4} \times 1\frac{1}{4} \times \frac{1}{4}$	.562	.076	.847	.368	$3\frac{1}{2} \times 3\frac{1}{2} \times \frac{3}{8}$	2.484	2.865	2.487	1.074
$1\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{4}$	.687	.138	1.034	.449	" " $\times \frac{1}{2}$	3.250	3.635	2.442	1.057
$1\frac{3}{4} \times 1\frac{3}{4} \times \frac{1}{4}$	.812	.227	1.231	.528	" $\times 4\frac{1}{2} \times \frac{1}{2}$	3.750	7.480	3.050	1.412
$2 \times 2 \times \frac{1}{4}$	.937	.347	1.408	.609	$4 \times 4 \times \frac{3}{8}$	2.859	4.358	2.862	1.235
" " $\times \frac{5}{16}$	1.150	.416	1.386	.602	" " $\times \frac{1}{2}$	3.750	5.564	2.816	1.218
$2\frac{1}{2} \times 2\frac{1}{2} \times \frac{5}{16}$	1.465	.848	1.760	.761	" " $\times \frac{5}{8}$	4.610	6.660	2.772	1.202
" " $\times \frac{3}{8}$	1.734	.984	1.738	.753	" $\times 5 \times \frac{1}{2}$	4.250	10.456	3.426	1.568
$3 \times 3 \times \frac{5}{16}$	1.777	1.511	2.112	.921	$5 \times 5 \times \frac{1}{2}$	4.750	11.962	3.566	1.587
" " $\times \frac{3}{8}$	2.109	1.760	2.111	.913	" " $\times \frac{5}{8}$	5.859	13.578	3.521	1.558
" " $\times \frac{1}{2}$	2.750	2.164	2.068	.887	" $6 \times \frac{1}{2}$	5.250	18.770	4.178	1.891
" $3\frac{1}{2} \times \frac{1}{2}$	2.297	2.982	2.421	1.139	" $4 \times \frac{1}{2}$	4.250	5.956	2.926	1.184
" " $\times \frac{1}{2}$	3.062	3.453	2.375	1.112	" $3 \times \frac{1}{2}$	3.750	2.578	2.250	0.829
" $\times 4 \times \frac{3}{8}$	2.484	3.964	2.718	1.263	$6 \times 6 \times \frac{1}{2}$	5.750	19.908	4.315	1.861
" " $\times \frac{1}{2}$	3.250	5.048	2.673	1.246	" " $\times \frac{5}{8}$	7.109	24.158	4.270	1.843

$$y = \frac{d}{2} + \frac{\frac{1}{2}BDT}{BT + dt}$$

$$I = \frac{B(x^3 - z^3) + t(y^3 + z^3)}{3}$$



$$r = \sqrt{\frac{I}{\text{Area}}}$$

I. for Simple sections about an Axis passing thro' their Centre of Gravity.

$$= \frac{BD^3}{12}$$

$$= \frac{D^4}{12}$$

$$= \frac{BD^3}{36}$$

$$= \frac{\pi D^4}{64} = 0.049 D^4$$

I, about any parallel Axis at distance h from neutral Axis = I + (Area x h<sup>2</sup>).

I's may be added together, or subtracted from one another only when they are calculated about the same Axis.

Thus, I. for hollow rectangle, or hollow circle (ring) = difference between values of I for outside and inside dimensions;

and I for = I for one angle round neutral Axis x 2;

but I for = I, " " for " mutual x 2.

1897



maximum value was determined by means of the formula (8); thus, should the member under consideration be the rafter, the maximum compressive stress will occur at the outer or upper edge, and will be equal to the uniformly distributed stress per square inch added to the maximum stress per square inch determined by the formula (8). Should the member be a tie which has to support a ceiling, the uniformly distributed stress is now tension, and its value per square inch must be added to the maximum tensile stress determined by formula (8) to get at the total maximum tensile stress.

Having now considered, as far as time will permit of, the various theoretical considerations and methods by which the stress and scantlings of the several members of a roof truss may be determined, and having briefly noted several cases in which theoretical considerations are modified so as to allow of their more ready application without interfering to too great an extent with the accuracy of the result, we must now give what time is left to more practical details. The various sections which may be made use of in the case of rafters are very numerous, and in Fig. 30 is shown a few types of these. Where the roof is small, and consequently the rafter is short, and not subjected to any severe stress, section (1) may be used with advantage; this consists of a simple L section. For larger spans where greater stiffness is desired a T section (2) is generally adopted, and for the greater number of cases likely to be met with in practice this section will prove the most suitable. Should the roof be of a very large span, or should the type be so chosen that the unsupported length of the rafter is very great, and consequently considerable stiffness is required, an H section (3) might be made use of; but with a section of this kind complication or trouble is likely to arise in making a connection with struts and ties. A very simple form, which is now but seldom adopted, is that shown at (4), and consists simply of a fitch beam, the timber batten being sandwiched between two iron plates; where a continuous timber covering is used, this forms a very convenient means of getting the covering nailed directly to the rafters; but, owing to the liability to decay, and possibly also to a certain risk of fire, this section is very seldom met with now. Where a larger section is desired than can be readily got by a single T bar, two L's (5) may be employed; and if increased side stiffness is desired, these L's may be kept apart to a certain extent by means of packings. The section shown at (6) is formed with double channel irons, either placed close together or with packing between; such would only be required in the case of very large roofs, and would involve considerable detailing, and possible complications at the joints.

Rafters are, of course, only a form of strut, liable occasionally to intermediate loading and thus to cross bending, as has been just noted; and it is thus natural that the struts

should partake of much the same form as those of rafters. Nos. (7) to (13) illustrate a few of the many sections which may be used for struts; the solid round section (7) is but seldom met with, except in small roofs where a feeble attempt at ornamentation is sometimes attempted. (8) is that of an ordinary L section, and is very convenient where the length or the strain is not great; but should these become large there is always the liability of such a form to twist when under stress, and thus necessitate an excess of section to give the required stiffness. The T section shown at (9) is very useful in many cases. At (10) a simple form of double flat strut is shown, and is frequently made use of. (11), (12), and (13) each consist of double bars of the section shown, and are unlikely to be required, except for large spans.

(To be continued.)

## Surveying and Sanitary Notes.

MR. RIENZI WALTON recently conducted a Local Government Board inquiry respecting the application of the Springhead Urban District Council for sanction to borrow £7500 for purposes of sewerage and sewage disposal. Mr. A. Fidler, engineer for the Magnetite Company, whose scheme has been accepted by the Springhead Council, detailed the nature of the scheme, and added that the site was less than 300 yards out of the district of the Springhead Council. Mr. Charles James Lomax, engineer for several sewage disposal schemes, said he believed Mr. Fidler's scheme would deal effectually with the sewage of the district, and in his opinion the proposed site was the only one available in the valley.

THE new waterworks at Haverhill have now practically been completed. More than £10,000 have been expended in carrying out the scheme. The plans were prepared by Mr. John Kemp, and, after alterations suggested by Mr. Radford, an expert consulted by the Urban District Council, provided for a covered reservoir with a capacity of 150,000 gallons, two settling tanks, each of a capacity of 100,000 gallons, a neat engine-house, a commodious cottage, and four miles of mains. The well, which is in the engine-house, has a depth in brick of 103ft., with a bore of 150ft., making a total of 253ft. It is 7ft. 6in. in diameter, and the bore is 8in. The work has been carried out under the superintendence of Mr. Thos. Cockrill, the surveyor to the Council, with Mr. Wm. L. Catlin as clerk of the works, by the following contractors: Mr. Ingold, Bishop Stortford, the well; Mr. Selden Hipwell, of Wisbech, the reservoir, settling tanks, and buildings; Mr. J. Roberts, of West Bromwich, the mains; and Messrs. Crossley

Bros., of Manchester, the pumping machinery. Special interest attaches to the last-named section of the scheme, inasmuch as it embraces the first installation of a system of pumping invented by Mr. Jas. Atkinson, now engaged by Messrs. Crossley. The principle of this system is the forcing of the water from the well by means of a body of air which is alternately compressed into one chamber and exhausted from another. When the latter chamber is filled an automatic valve, which is really the kernel of the invention, reverses the suction and compression, so that the chamber which was last filled is discharged by compressed air, and the pressure that remains in the discharged vessel is brought back into the air compressor; consequently the power is not lost. From an hygienic point of view there are several advantages accruing from the system.

THE last lecture of the series for 1896-7 arranged by the Manchester Council for the Registration of Plumbers was delivered at the Municipal Technical School by Mr. H. Gilbert Whyatt, deputy borough engineer, Salford, who took for his subject "The Requirements of Municipal Authorities with respect to Plumbing." Mr. J. H. Edmiston, vice-president of the Council, presided.—Mr. Whyatt traced the progress of sanitary legislation down to the Public Health Act, 1875, and the Public Health Acts Amendment Act, 1890, in which plumbers had special concern. He then took the plumbers' work in a house *seriatim*, and explained the requirements of Acts of Parliament and local bye-laws, particularly those of Manchester and Salford, with regard to eaves, gutters, down-spouts, water-closets, cisterns, traps, soil-pipes, vent-pipes, waste-pipes, water-fittings, hot-water supply, gas-fittings, &c., and incidentally he discussed such matters as the allowance of water made for flushing purposes, the quality of material fittings, &c. In conclusion, the lecturer said that, seeing municipal authorities had such stringent regulations and powers, they should be very careful with regard to those whom they place on their "authorised lists" of plumbers. He agreed in the contention of the Association that nobody should be certified by a municipal authority as a qualified plumber (for that was how the public regarded it) without passing an examination such as was required from candidates for registration. Every plumber and journeyman in the district should be registered, as a guarantee to the public of his fitness to carry out the very responsible work entrusted to him, and the authorities might with advantage require anyone applying to be placed on the authorised list of plumbers that he should present the Association's certificate of qualification. On the other hand, he would require the Corporation inspectors to pass a searching examination in plumbing, for it was palpably unfair that a Craftsman who had spent years in learning a trade should be at the mercy of an inspector who might have no knowledge of the trade at all.

## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
June 4	Aberdeen—Additions to Bathing Station	Town Council	J. Rust, 224, Union-street, Aberdeen.
" 4	Frostoms, Workington—Two Dwelling-houses		W. G. Scott and Co., Victoria-buildings, Workington.
" 4	Hengoed, Wales—Council Offices	Rural District Council	P. V. Jones, Wood View, Hengoed.
" 4	Llangollen—Additions, Alterations, &c.	School Board	Davies and Moss, 11, Regent-street, Wrexham.
" 4	Ashton-in-Makerfield—Buildings and Sheds	Urban District Council	J. W. Liversedge, Surveyor, Ashton-in-Makerfield.
" 5	Bridport—Hospital Works, &c.	Corporation	F. Cooper, Borough Surveyor, Bridport.
" 5	Newcastle-on-Tyne—Extensive Premises	Eastmans, Limited	Oliver and Leeson, Mosley-street, Newcastle-on-Tyne.
" 5	Aughebrack, Ireland—Finishing Church		E. J. Toye, Architect, Strand, Derry.
" 5	Barnsley—Mission Church	Trustees	Vestry, Regent-street Church, Barnsley.
" 5	Chapel-en-le-Frith—Workhouse Buildings	Guardians	Garlick and Flint, 5, Terrace-road, Buxton.
" 5	Faringdon, Berks.—Post-office	E. J. Chamberlain	W. Drew and Sons, 22, Victoria-street, Swindon.
" 5	Glaistdale—School Buildings	School Board	E. H. Smales, 5, Flowergate, Whitby.
" 5	Glenorchy, Scotland—School-house	School Board	K. MacRae, 5, Argyll-street, Oban.
" 5	Londonderry—Library, &c.		E. J. Toye, Architect, Strand, Derry.
" 7	Morecambe—Chimney (129ft.), &c.	Urban District Council	J. Bond, Council Offices, Morecambe.
" 8	Leeds—New Lavatories, &c., Union	Guardians	T. Winn, 90, Albion-street, Leeds.
" 8	Leeds—Excavating Storage Cellars, &c.	Yorkshire Pure Ice, &c., Company	W. S. Braithwaite, 6, South-parade, Leeds.
" 8	Gloucester—Technical Schools	Corporation	Waller and Son, 17, College-green, Gloucester.
" 8	Southampton—Public Convenience	Corporation	W. B. G. Bennett, Municipal Offices, Southampton.
" 8	Silloth, Cumberland—Wall, &c. (200 yards)		R. Stubbs, Surveyor, Abbey Town, Carlisle.
" 8	London, S.W.—Branch Library, Balham	Streatham Public Libraries Comms.	S. R. Smith, 14, York-buildings, Adelphi, W.C.
" 8	Strabane, Ireland—Cottages (Thirteen)		J. E. Sharkie, Poor Law Office, Strabane.
" 9	Folkestone—Desks, &c.	Borough School Board	E. S. Wilks, 2, Cheriton-place, Folkestone.
" 9	Halifax—Three Pairs of Villas		M. Hall, 29, Northgate, Halifax.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
June 9	Whitehaven—Post-office	Scottish Provident Institution	Somerset House, Whitehaven.
" 10	Belfast—Buildings	Young and Mackenzie, Donegal-square, E., Belfast.	
" 10	Morley—Chapel	T. A. Buttery, Architect, Queen-street, Morley.	
" 12	Egham—Pulling down and Rebuilding Hotel	W. Menzies, Englefield Green, Surrey.	
" 12	Foxford, Co. Mayo—Glebe-house, Offices, &c.	J. G. Skipton, Architect, Northgate-street, Athlone.	
" 14	Bradford—Shops and Houses	Mawson and Hudson, 2, Exchange-buildings, Bradford.	
" 14	London, N.—Greenhouse (60ft. by 12ft.)	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate.	
" 14	London, N.—Stabling, Ambulance Shed, &c.	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate.	
" 15	Ireleth, Askam-in-Furness—Classroom, Ireleth School	R. P. Nelson, Dalton.	
" 15	West Ham—School Works	W. Jacques, 2, Fen-court, E.C.	
" 15	Walthamstow—School Furniture	T. W. Liddiard, Cleveland, High-street, Walthamstow.	
" 17	Liverpool—Offices	F. F. Doyle, 4, Harrington-street, Liverpool.	
" 19	Denny, Scotland—Houses (Thirty-six)	R. M'Lelland, Architect, Motherwell-road, Bellshill.	
" 24	Salford—Sixty-eight Artisans' Dwellings	Borough Engineer's Office, Town Hall, Salford.	
No date.	Keighley—Additions to Infirmary	J. Judson and Moore, Architects, Cavendish-st., Keighley.	
"	Addlestone—Additions to Collegiate Buildings	Secretary, St. George's College, Addlestone, Surrey.	
"	Ashton-under-Lyne—Houses, Fraser-street	T. George and Son, Architects, Old-square, Ashton.	
"	Denaby Main—100 Large and 50 Small Cottages	Colliery Offices, Denaby Main.	
"	Sacriston—South Aisle, &c., St. Peter's Church	Oliver & Leeson, Architects, Mosley-st., Newcastle-on-Tyne.	
"	Beamish—Sixteen Houses	T. E. Crossling, Architect, Front-street, Stanley.	
"	Hawker—House and Stables	J. J. Milligan, 77, Baxtergate, Whitby.	
<b>ENGINEERING—</b>			
June 4	Brynna, Wales—Bridge	Rural District Councils	E. Jenkins, Surveyor, Nolton-street, Bridgend.
" 4	Manchester—Elevators and Screens	Rivers Committee	City Surveyor, Town Hall, Manchester.
" 4	Strokestown, Ireland—Improvement of Well	Guardians	H. J. Rorke, Clerk, Strokestown.
" 5	Sheffield—Station Meter (250,000 cubic feet per hour)	United Gaslight Company	F. W. Stevenson, Engineer, Commercial-street, Sheffield.
" 5	Sheffield—Twin Exhausters	United Gaslight Company	F. W. Stevenson, Engineer, Commercial-street, Sheffield.
" 5	Sheffield—Corrugated Iron Roof	United Gaslight Company	F. W. Stevenson, Engineer, Commercial-street, Sheffield.
" 5	Pontypridd—Coke Elevator, &c.	Urban District Council	T. Newbidding and Son, 5, Norfolk-street, Manchester.
" 8	Brighton—Water Mains	Corporation	Waterworks Engineer, 12, Bond-street, Brighton.
" 8	Isle of Wight—Sinking Well, &c.	County Asylum	The Asylum, near Newport, Isle of Wight.
" 9	Accrington—Reservoir	District Gas and Water Board	Board's Offices, St. James-street, Accrington.
" 9	Hemsworth, Yorks.—Reservoir	Rural District Council	J. H. Taylor, 10, Victoria-road, Barnsley.
" 9	Ryton—Water Main, Pipes, &c.	Urban District Council	J. P. Dalton, Engineer, Ryton-on-Tyne.
" 10	Yarmouth, Isle of Wight—Bridge Repairs	Yar Bridge Company	Newman and Cocks, 5, St. Thomas-street, Ryde.
" 11	Guildford—Buildings	Gas Light and Coke Co.	C. Woodall, Palace-chambers, Westminster.
" 12	Haslingden—Tanks, &c.	Sewerage Board	H. L. Hinnell, 41, Corporation-street, Manchester.
" 14	Dublin—Timber Jetties	Public Works	Office of Public Works, Dublin.
" 15	Wallasey—Building River Wall, &c.	Urban District Council	T. Moulding, Public Offices, Egremont.
" 17	Madrid—Dredging	Spanish Government	Ministry of Public Works, Madrid.
" 21	Queenstown—Waterworks	Town Commissioners	Town Commissioners' Office, Town Hall, Queenstown.
" 22	Wootton Bassett—Railway (33½ miles in length)	Great Western Railway	Office, Engineer, Paddington Station, London.
<b>IRON AND STEEL—</b>			
June 4	South Shields—Dry Gas Meters	Gas Company	J. H. Penney, Gas Offices, Chapter-row, South Shields.
" 7	York—Permanent Way, Material, &c.	North-Eastern Railway	J. Snowden, Central Station, Newcastle-on-Tyne.
" 7	York—Iron and Steel Turnings, &c.	North-Eastern Railway	E. H. Clark, Stores, Gateshead.
" 7	York—Bar and Plate Iron, Metal Castings, &c.	North-Eastern Railway	E. H. Clark, Stores, Gateshead.
" 8	Oswestry—500 Tons of Cast-iron Chairs	Cambrian Railway Company	G. Owen, Company's Engineer, Oswestry.
" 9	Hemsworth—Cast-iron Water Main Pipes	Rural District Council	J. H. Taylor, 10, Victoria-road, Barnsley.
" 9	Hemsworth—Socket Sluice Valves, Hydrants, &c.	Rural District Council	J. H. Taylor, 10, Victoria-road, Barnsley.
" 14	London, N.—Street Lanterns (100), &c.	Hornsey Urban District Council	E. J. Lovegrove, Engineer to the Council, Hornsey.
July 1	Uitenhage, Cape Colony—Pipes	Corporation	Library of the Institution of Civil Engineers, Great George-street, London.
<b>PAINTING—</b>			
June 4	Derby—Painting Various Stations	Midland Railway Company	Company's Architect, Cavendish House, Derby.
" 7	Fochriw, Wales—Painting, &c.	Paddington Guardians	Rev. J. Jones, Board Schools, Fochriw.
" 10	London, W.—Painting, &c., Infirmary	Guardians	E. H. Sim, 8, Craig's-court, Charing Cross.
" 11	Prescott—Painting and Decorating, Union	West London School	J. Gandy, Architect, St. Helens.
" 11	Ashford—Painting	School Board	Superintendent at School, Ashford, near Staines.
" 15	Wanstead—Painting	School Board	School Board Offices, Wanstead, N.E.
" 24	West Ham—Painting, Repairs, &c.	Guardians	W. Jacques, 2, Fen-court, E.C.
No date.	Prestwich—Painting, Whitewashing, &c.	War Department	H. R. Chambers, Workhouse, Crumpsall.
"	Colchester—Barracks, &c.		R.E. Office, Colchester.
<b>TIMBER—</b>			
June 12	South Hetton, Durham—Colliery Timber, 1 year	South Hetton Coal Company	J. R. Lambert, South Hetton, Sunderland.
<b>ROADS—</b>			
June 5	Dewsbury—Paving, Flagging, &c.	Corporation	Borough Surveyor, Town Hall, Dewsbury.
" 7	Belfast—Welsh Square Setts, 5000 tons	Harbour Commissioners	G. F. L. Giles, Harbour Office, Belfast.
" 7	Chadderton—Supply of Setts, Flags, Kerbs, &c.	Urban District Council	W. Eckersley, Town Hall, Chadderton.
" 7	East Grinstead—Materials	Urban District Council	E. Wilde, Surveyor, London-road, East Grinstead.
" 7	Kingstown, Ireland—Road Works	Commissioners	J. Donnelly, Town Hall, Kingstown.
" 8	Birkenhead—Cartage, 12 months	Corporation	Manager, Woodside Ferry, Birkenhead.
" 8	East Ham—Granite, Kerbing, &c.	Urban District Council	Surveyor, Public Offices, Wakefield-street, East Ham.
" 9	London, N.—New Roads	Vestry of St. Mary's	J. P. Barber, Vestry Hall, Upper-street, Islington, N.
" 11	Brighton—Materials (5000 tons)	Town Council	F. J. C. May, Town Hall, Brighton.
" 12	Arnold, Notts.—Paving, &c.	Urban District Council	W. H. Higginbottom, Bridlesmith-gate, Nottingham.
" 14	Wolverhampton—Road Works, &c.	Public Works Committee	J. W. Bradley, Town Hall, Wolverhampton.
" 17	Friern Barnet—Kerbing, Channelling, &c.	Urban District Council	E. J. Reynolds, Beaconsfield-road, Friern Barnet.
" 24	Eccles, Lancs.—Materials, Flag Rock Kerbing, &c.	Highway Committee	Office, Borough Engineer, Town Hall, Eccles.
<b>SANITARY—</b>			
June 5	Hemsworth, Yorks.—Removal of Refuge, Ackworth	Rural District Council	J. Scholefield, Clerk, Hemsworth.
" 9	Southend-on-Sea—Sewerage Works	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 9	Wellingborough—Scavenging, 1 year	Urban District Council	J. T. Parker, 29, Church-street, Wellingborough.
" 10	Blackpool—Main Sewer	Corporation	J. Wolstenholme, St. John's Market-buildings, Blackpool.
" 10	Wallingford—Sewage Disposal Works	Urban District Council	F. E. Hedges, Clerk's Office, Wallingford.
" 10	Rawtenstall—Main Sewerage Works	Corporation	A. W. Lawson, Municipal Offices, Rawtenstall.
" 10	Chester-le-Street—Sewerage Works	Rural District Council	G. Symons, Surveyor, Birtley.
" 14	Wibsey, near Bradford—Sewers, &c.	North Bierley Urban District Council	P. Ross, Council Offices, Wibsey.
" 23	Croydon—New Surface-water Drain	Rural District Council	J. Wilson, 49, London-road, Croydon.
" 24	Eccles, Lancs.—Sewers	Highways Committee	Office, Borough Engineer, Town Hall, Eccles.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 5	Sheffield—Plans for Proposed New School	£15, £10	Sheffield School Board.
" 7	Hipperholme, Yorks.—Designs for Offices	£10	Urban District Council.
" 16	Morecambe—Designs for Hotel	£100, £50, £23, £15	Baxter and Abbott, Back-crescent, Morecambe.
July 1	Elne, France—Water Supply Scheme		La Marie, Elne, Pyrenées Orientales.
" 20	Howth—Presbyterian Church	£20 (merged £10)	Rev. J. Wilson, 4, Rhoda-villas, Howth, Co. Dublin.
" 31	Bootle—Designs for Technical School	50, 30, 20 guineas	Corporation.
1898			
Jan. 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.



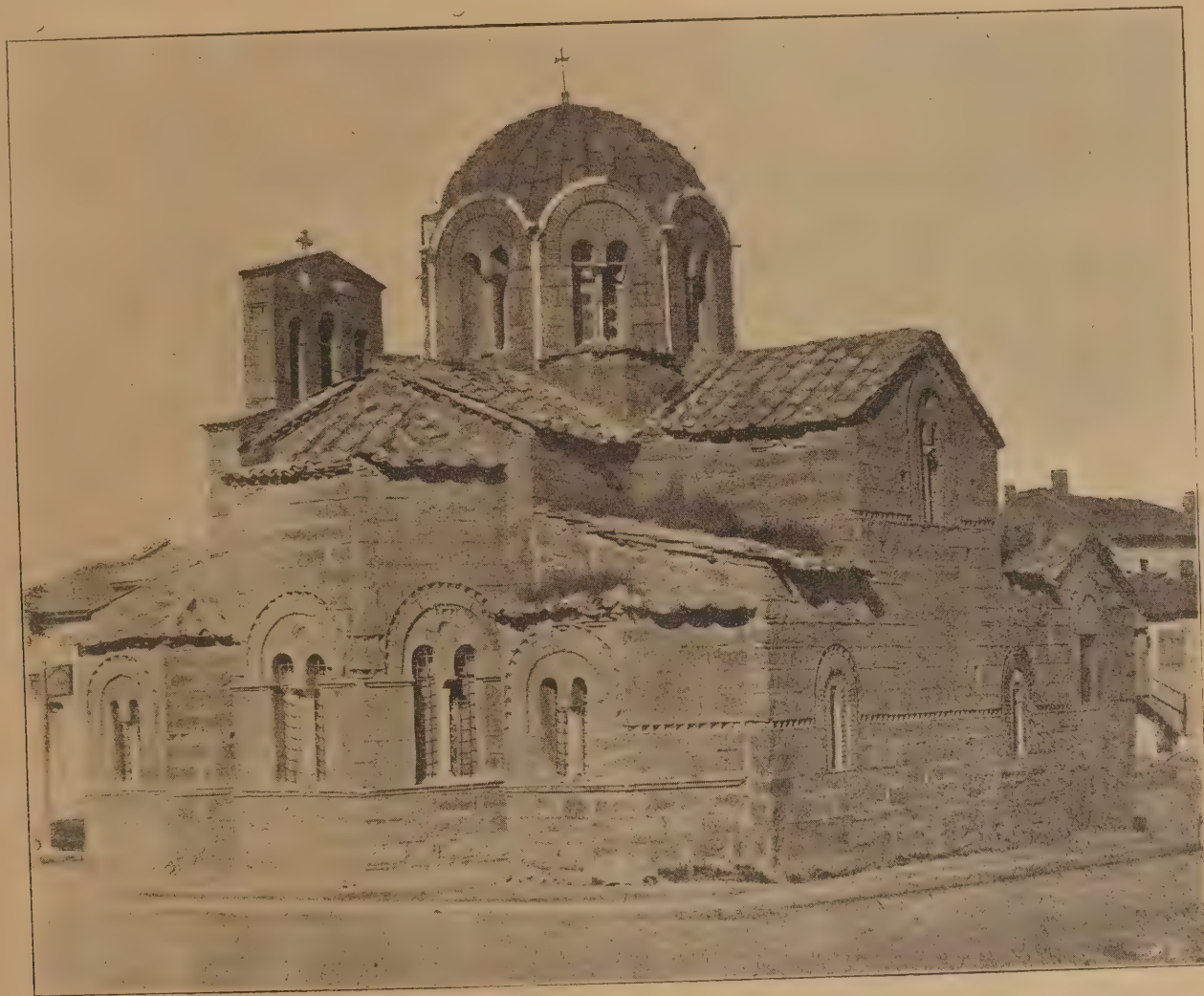


### How Japanese Wall Papers Are Made.

Most persons are aware of the manner by which English wall papers are prepared, but probably few are acquainted with the methods adopted in the preparation of the famous Japanese leather papers, which were first manufactured

For this purpose a large cylinder of hard wood is hung on a frame, and the engravers work on it, cutting out the design with knife and chisel. This is a matter of some importance, as the slightest deviation would mean the recutting of the block, and the greatest care has to be exercised to make the fitting and adjusting exact. The roller having been cut, the next step is to put the paper on, which is done by men. The paper is taken in pieces a yard square, and is laid, while wet, on the engraved cylinder. The operative then takes his brush, which is small, long handled, and filled with bristles, thick set in a rough and ready fashion, and with this the paper is beaten into the mould by means of a vigorous pounding process from the brushes. As each section is completed the cylinder is slightly turned, and

the discretion of the operator. Some of the truly wonderful deep bronze colours on these leather wall papers are brought about entirely by the use of these lacquers on the coating of tinfoil, and the absolute exclusion from the air which the lacquer imparts effectually protects the metal from any discolouration, and ensures that permanency which is so essential and valued a feature in these wall decorations. After the paper has been repeatedly sized as above mentioned, it is embossed, sized again, metallised (that is, covered with tinfoil), and lacquered, the embossed pattern or design being an all-over gold effect, when the next process, that of the laying in of grounds, is proceeded with by means of stencils, in the cutting of which the Japanese are adepts. The stencils are cut to fit the background, and girls with brushes



AN ATHENIAN CHURCH.

by the Japanese Government some fifteen years ago, at the Imperial Printing Works, where all the printing for the State is done, but the most interesting part of which establishment is where the pleasing leather papers are made. The first specimens imported to this country were somewhat too Japanese to give general satisfaction, but as it was soon found that the business was a paying one, the influences of the West were set at work, with the result that the character of the designs has undergone very extensive modifications, more in accordance with the tastes and desires of the western hemisphere. In this connection, the rarest and choicest leathers of Europe have been laid under contribution, and employed to supply ideas for the modern work. The premier movement in the manufacture of the completed leather paper is the cutting of the block.

operations go on in another part, the operation being repeated until the work is completed by the beating in of the whole design. Next, the paper is placed on bamboo poles, T-shaped at the end, and hung on a bamboo support to get dry, after which the process of decorating is proceeded with. In this somewhat crude state the paper is on its surface somewhat absorbent and spongy, very similar in its texture to blotting paper, when it is treated to several coatings of strong, which makes the surface non-absorbent and comparatively smooth. The metal has to be protected by two or three coatings of lacquer to protect it from discolouration. It is in the possession of this famous lacquer that the Japanese occupy an unique position, they being able to defy the world with this decorative element. It is this lacquer which imparts the golden tint to the metal, and its colour can be regulated at

lay in the ground with extreme dexterity and rapidity. Being constantly engaged in the manipulation of these stencils, the girls become very expert, detecting irregularities almost instinctively. They work in couples opposite each other, and, as they leave the parts on which they have operated, other girls follow them, touching up the ties of the stencils, wiping off the parts where the colour has gone over, and repairing any other little faults and irregularities. This done, the rolls of paper are hung up and allowed to dry, after which they are distributed to the native merchants, who send them to the various distributing centres for the consumers. Such, in brief, is the method in which the famous leather wall papers of Japan are manufactured—a method, in a sense, almost as interesting as the product itself.



### Works Department v. the Contractor.

THE existence of the Works Department of the London County Council still hangs in the balance. Protracted consideration of this question has not served to prompt decisive action on the part of the Council. It has wavered between the two contradictory proposals which were submitted at the meeting last week—as to whether Sir Arthur Arnold's report, which provides for the continuance of the direct execution of public works by the Council, should be adopted, or whether it should accept Lord Onslow's amendment, which practically authorises the abolition of the Department. Certainly its warmest friends can scarcely pretend that operations during the period of its existence have been satisfactory. It is, in fact, admitted on all hands that the Department has been a failure, and though it is not difficult to understand the hesitation of the Council in taking such a drastic step as the abolition of its most famous foundling, it is absurd that the folly should be allowed to continue. That it has been, and is a folly is now admitted by both friend and foe; and the attempt that has been made to explain away the whole business by a cry of "bad management" has met with little favour. There is something wrong in the system. The whole question resolves itself into the inability of the Department to equal the results of contractors, and proof of this inability—notwithstanding that the municipal body has been entirely free from those pecuniary embarrassments which often so severely handicap a contractor—has been painfully conclusive. That the future of the Works Department, should it escape annihilation now, must necessarily be one protracted blunder we do not mean to say, for the statistical record of its past activity reveals a fair measure of success in jobbing operations, and were it, therefore, reduced to the proportions of a jobbing yard, and controlled by experts, not by a committee of amateurs, it might enter upon a comparatively successful career, and might even make some atonement for its past misdeeds. The clamour for "direct employment of labour," which is really its only *raison d'être*, is an empty cry, and the warning that has been given of the probable formation—in the event of the disintegration of the Council's labour organisation—of a "ring" among the first-class contractors, who, taking advantage of the Council's helplessness to resort to any alternative method, would immodestly dictate their own terms for absolutely necessary undertakings, has manifestly been prepared to create greater precaution than the danger, real or imaginary, calls for. The whole question is, as the "Times" points out, whether the Council does or does not intend to persist in pitting its amateur knowledge and skill, possessed by men who have their own pressing concerns to attend to, against the professional knowledge and skill of contractors, whose whole business is to perform their contracts in the face of professional competition. It is obvious that a persistent following of this course must result in disaster. Certainly, if the corporate folly is to continue, the evil might at any rate be modified, in a measure, by the exclusion of architectural work from the Department's programme, for it is in this direction that it has made its greatest mistakes. It is not clear what the result of the Council's voting will be—it would appear that, technically, the duty of the Council is now to liquidate the Works Department—but it is reported that some compromise will be arrived at, allowing the Department to continue under certain restrictions. What the restrictions are we do not know, but it is to be hoped their effect will be to check, if possible, the seemingly exuberant recklessness of the Council's own contractors in the expenditure of public money.

### BREACH OF SANITARY BYE-LAWS.

THE action of *Simmons v. Malling Rural District Council*, heard in the Queen's Bench Division last week, was a case stated by the justices of Kent. The appellant, who was the owner of a public-house at East Malling, within the district of the Malling Rural District Council, was summoned before the justices in petty sessions for unlawfully constructing a cesspool in connection with his public-house at a distance of less than 50ft. from the house, contrary to a bye-law of the District Council. The public-house in question was an old building, and down to October, 1896, there were two cesspools constructed in connection with it at a distance of 3ft. from the house. One received the drainage from a urinal and two closets, and the other received the sink-water. In October, 1896, in consequence of a notice from the inspector of nuisances, the appellant caused the two cesspools to be

#### FILLED UP, AND CONVERTED

the closets into earth closets, and substituted one new cesspool into which the drainage from the sink and the urinal was carried. The new cesspool was 17ft. from the public-house. Owing to the size of the appellant's property, this was the furthest possible distance at which it could be constructed. The public-house was erected in a place which was not, at the time of the passing of the Public Health Act, 1875, included in an urban sanitary district, and it was erected many years before any order was made under section 276 of that Act, extending section 157 (which empowered the urban authorities to make bye-laws) to the respondents' district. Section 157 has since been extended to the respondents' district, and in 1895 the respondents made bye-laws, including the one in question, which were duly allowed by the Local Government Board. Part 3 of the Public Health Act, 1890, has been adopted by the respondents. The justices convicted the appellant subject to this case. When the case came on for argument before the Divisional Court, it was contended for the appellant (*inter alia*) that the bye-law was *ultra vires* and unreasonable. The Court thereupon intimated that it would be well that notice of the proceedings should be given to the Local Government Board, and the case was adjourned for this to be done. The case was subsequently re-argued, and at the conclusion of the arguments the Court reserved judgment. The appeal was dismissed. Mr. Justice Wright said that on behalf of the appellant certain objections had been taken to the bye-law under which the proceedings in this case had been instituted. The first objection was that the bye-law did not apply to buildings which were in existence at the time when the bye-law was made. The answer to that contention was that the language of the bye-law was quite general. The group or

#### BUNDLE OF BYE-LAWS,

of which it formed one, was headed "With respect to water closets, earth closets, privies, ashpits, and cesspools in connection with buildings." In other parts of the bye-laws, where it was intended to restrict their operation to new buildings, the expression "new buildings" was used. There was therefore no reason why the operation of this bye-law should be cut down in the manner suggested. Then it was said that the bye-law was *ultra vires*. The Public Health Act, 1875, section 157, subsection 4, gave powers to urban authorities to make bye-laws with respect to the drainage of closets and cesspools in connection with buildings. It was thought that that power might not extend to old buildings, and by the Public Health Acts Amendment Act, 1890, section 23, urban authorities were empowered to make bye-laws as to certain matters which were not included in the Act of 1875; and the section went on to say that any bye-laws under section 157, as extended by the Act of 1890, might be made so as to affect buildings erected before the times mentioned in section 157. Then section 23, sub-section 3, provided that the provisions of section 157 as amended—i.e., extended to old buildings—should be extended so as to empower rural

authorities to make bye-laws in respect to the said matters. Therefore the second objection raised by the appellant failed. Thirdly, it was said that the bye-law was unreasonable on three grounds. First, because it applied to old buildings. As Parliament had, however, expressly authorised that to be done, the bye-law could not merely on that ground be held to be unreasonable. Secondly, it was pointed out that in certain cases, of which this was one, the 50ft. limit would produce great hardship. It was obvious that public convenience required some fixed limit, and whatever the limit was some

#### HARD CONSEQUENCES—MIGHT RESULT.

The Court could not say that 50ft. any more than 40ft. or 30ft., was an unreasonable limit. Thirdly, it was said that the 50ft. limit was unreasonable because it would be destructive of property, because, in a case in which there was no sewage system and a cesspool was necessary, it would be impossible to make one if the extent of the property did not permit of its being 50ft. distant from the house. The answer to that was that, if there were already no cesspool, there would be no destruction of property; and, if there were one, the owner was not obliged to move it. Lastly, it was suggested that the bye-law would tend to prevent the improvement of property. His Lordship doubted very much whether the Court could hold the bye-law unreasonable on that ground, for the Court was not in a position to say what was or was not for the public interest in sanitary matters. The appeal must be dismissed.

### NEWGATE STREET IMPROVEMENTS.

EVERYONE will be pleased to see the improvement lately completed at the corner of Newgate Street and St. Martin's-le-Grand, writes a correspondent, where a large slice of the triangular area in front of the Post Office has been cut off and the roadway considerably widened. Another improvement of decided value but moderate cost would be the opening of a thoroughfare through Great Turnstile from Lincoln's-Inn-Fields into Holborn, opposite Featherstone Buildings. It is not necessary to make a vast opening; all that is needed is to widen the present foot passage into a 40ft. road, so as to allow cabs, carriages, and carts to go through. The proposal of the London County Council to form a new thoroughfare 100ft. wide from Holborn to the Strand with two or three branches appears to us highly extravagant and unnecessary. Chancery Lane already accommodates a great deal of traffic, though in parts it is less than 40ft. wide. Why then should a new thoroughfare be 90ft. or 100ft. wide? Drury Lane requires improvement, no doubt, especially at the Strand end. If a few houses were taken down in Holborn and a recess or circus made, that would be all that is needed there. There is no solid objection to the new street passing through the west side of Lincoln's Inn Fields, which would save nearly half the total cost. Many years ago we suggested that the new street should pass from Lincoln's Inn Fields straight through Clare Market to the north end of Newcastle Street, which is about the same width as Chancery Lane, and so into the Strand. In this way a new thoroughfare from Holborn to the Strand would cost less than a quarter of a million instead of two millions. The County Council made the greatest mistake any corporation could make when they refused the offer of the Hotel Cecil at £400,000. The ground alone was worth nearly all the money, and the immense building of 1200 rooms would have afforded all possible accommodation. If a few alterations were expedient they could have been made at a small expense. But, no doubt, the great objection was that the building was scarcely visible from the Strand, and Council members could not well point out "what a grand palace we occupy!" Now, forsooth, they want an expensive site, the most expensive they can find, and at the West End, where they can build a great edifice at an outlay of £750,000!



## MEDIÆVAL FRENCH FORTIFICATIONS.

By D. THEODORE FIFE.

NOWADAYS we often hear the query, "Is Architecture a progressive Art?" Of course the only answer is, "Does it or does it not keep up with the life of the times?" Assuming, then, that the Architecture of to-day fulfils this condition, another question rises: "How are we, who are concerned with a present, to treat the work of the past?" The wrong way to do this is to study that past work quite irrespective of the conditions under which it was created, and quite forgetful of

chief's dwelling, evolving into the château of later times, and to comparatively ignore the fortification of the walls of towns, as in the latter the idea of comfort cannot be of any importance. With these few remarks, I will now proceed.

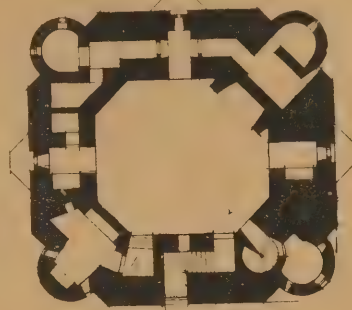
The term "Mediæval" begins with the retreat of the Romans from Western Europe during the fifth century. The great power of Rome, the last relic of what we might call the ancient world, was then falling in ruins, and the second great world-age began. The scattered, half-barbarian tribes of Visigoths, Vandals, and Ostrogoths now started to build their future greatness on the foundations laid by the Romans. It is difficult to imagine that the same men, or at least the same races of men, who built the Churches, Cathedrals, and Abbeys of the succeeding centuries built also the massive walls and towers which we find in their military remains. But it is one of the wholly inexplicable things of these times that men who were possessed with such a fervour of religious zeal were also, as far as we can possibly judge, cruel, semi-barbarous, unscrupulous, and for the most part entirely wanting in the peaceableness of professedly Christian nations.

If we consider the Art of defensive warfare at this time, we will see that, when a stronghold was invested, the chief endeavour of the besieged was to keep back the enemy from the walls. This principle governs the entire Art of fortification till the time when cannon became extensively used. Almost all the improvements effected during the twelfth, thirteenth, and fourteenth centuries are to give the besieged more control over the actions of the attacking force.

I will divide this essay broadly into three headings: first, early fortified buildings from the beginning of Mediæval times to the twelfth century; second, twelfth and thirteenth century

## PROVINS-KEEP

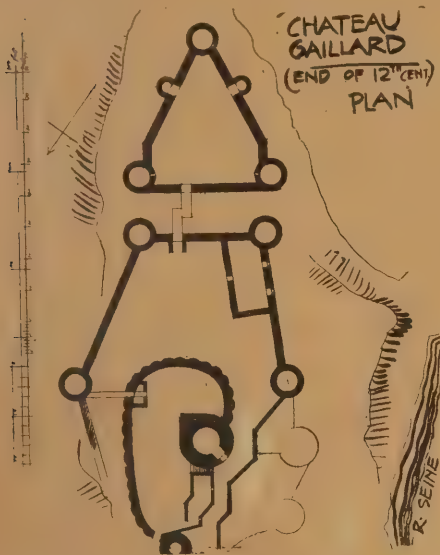
PLAN.  
FIRST FLOOR LEVEL



Scale: 0 10 20 30 40 50 60 70 80 90 100 Feet

buildings; and, third, fourteenth century buildings and after. This is rather a rough classification, but the best, I think, for the scope of this paper. And be it understood that many of the buildings to which I will refer are very much ruined, and, though the idea is there in every case (in some cases complete), in many cases it is only through the medium of those who have diligently studied this branch of history, such as M. Viollet-le-Duc, and from references and illustrations by Froissart and from ancient tapestries, that anything like a reconstruction can be effected.

The first forts of Mediæval times consisted merely of a paling or palings inclosing a piece of rising ground with the chief's hall in the



the steps which bring it to our own time. These are precisely the points which must be studied if we are to derive any benefit from the historical side of our Art. We Scotchmen have a style which surely should concern us more than most others. This paper, then, will deal with a few of the origins of that style in a brief and consecutive manner. As the value of anything depends on the point of view, so this slight sketch taken as so much information about past buildings crammed down one's throat is practically worthless, but looked at as a chapter of history showing the progressive value of real forms may be of some gain.

Planning is of two kinds—the first, in which the plan includes the whole building, typified by bridges and forts; and the second, in which it does not, strictly speaking, include the whole building, typified by Cathedrals, &c. In the first the forms are all constructive or essential; in the latter they are not so. It has been well said that good planning is certain to be found in any truly great period of Architectural history. The period which I have chosen to-night is one of the greatest in the history of the world. This is thoroughly recognised in our appreciation of the Ecclesiastical work of the Middle Ages; but that other work of this period, the fortified tower, slowly evolving into the modern château, in which necessity is so truly the mother of invention, contains much of the gold of this great period, especially in that essential planning of which I have spoken, and certainly cannot be left out of account in a complete study of that time. I have taken France as being, on the whole, the country which best illustrates the subject, for what we now call France was the great clash-point of the Northmen, or Normans, and the Southern Gothic or Lombardic nations, and here Mediæval Architecture as perfected in the Pointed Style undoubtedly had its origin. England contains quite as many examples of fortified strongholds as France, but it is to the latter country we must go first, as the buildings in this country were more or less borrowed from French examples. I also intend to speak almost entirely of the domain, or



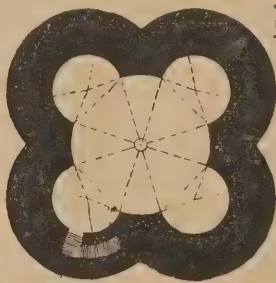
PROVINS KEEP. TWELFTH CENTURY.



centre, and were always built of wood. It would be interesting to follow the progress of these early forts till the time when they were built of stone, but it would be very difficult to do so, owing to the perishable nature of the material employed. Besides, they only mark the early struggles of semi-civilised peoples, and are too rude to be of any use to us now. I will therefore skip over the sixth, seventh, eighth, ninth, and tenth centuries, and start with the first stone fortified buildings. These were probably first built by the Normans in the north of France, who, vigorous, energetic Northmen as they were, gradually began to dominate France and supersede the more degenerate southern tribes. At the beginning of the eleventh century, then, the Normans began to build keeps or towers of stone with enormously thick walls; these are almost all rectangular on plan. It is probable that they generally had foreworks or protecting walls connected with them, but these in many cases have disappeared. If these keeps served for dwellings as well as strongholds, as is most likely, we can see from them how rude the life even of the higher classes was at that time. Their planning is very simple, each floor consisting of one room, or at most two. They are often several stories in height, and have wood floors, which are reached by a stair in the thickness of the wall. The windows of these early buildings are nearly all round-headed, some of them with rude attempts at enrichment. One would almost imagine that the windows would be extremely small in these massive structures, but the contrary is very often the case. This must be because the offensive engines of war had not yet properly developed, as openings afterwards became very small. The walls run right up without a projecting parapet of any kind, and are usually provided with flat buttresses and pilasters. It is curious to note that, externally, buildings

## CHATEAU D'ETAMPES

PLAN

12<sup>th</sup> CENTURY

actually became simpler as time went on, and these wall projections were discarded altogether. As there were no vaults in the very early keeps, except possibly a rude barrel vault in the basement, these buttresses were of no real use, and must therefore have been chiefly for ornament. The entrance door was usually at the first floor level, and reached by a ladder or bridge which could be removed at will. This was the safest method of entrance at a time when the enceintes or inclosing walls had not developed, and the keep constituted all the defence. Good examples of these square keeps of the eleventh century are to be found at Beaugency, on the Loire, and the Château d'Arques, in the North of France, built by a brother of William the Conqueror in 1039.

The pointed arch had hardly yet appeared as a constructive expedient in the north of France, and in the south only locally, as at that most interesting Church, St. Front, at Périgueux, and other examples in Aquitania, where its appearance was probably due to Moorish influence. Northern forts of this time must, of course, be called Norman, and are therefore practically Gothic, but those of the south are undoubtedly Romanesque; the Classic spirit, indeed, pervades the buildings of the south till a much later period than this, and was the origin of those beautiful, almost distinct, styles of the southern French Provinces. In Germany and Lombardy at

this period a very characteristic round-arched style prevailed, which originated with the hardy Northern races who superseded the barbarians subject to Rome. Very shortly after the time of the earliest Norman keeps this style had reached its perfection in the Cathedrals of Worms, Spire, &c. French Gothic influence soon became too strong, however, and the pointed arch prevailed in Germany, as elsewhere.

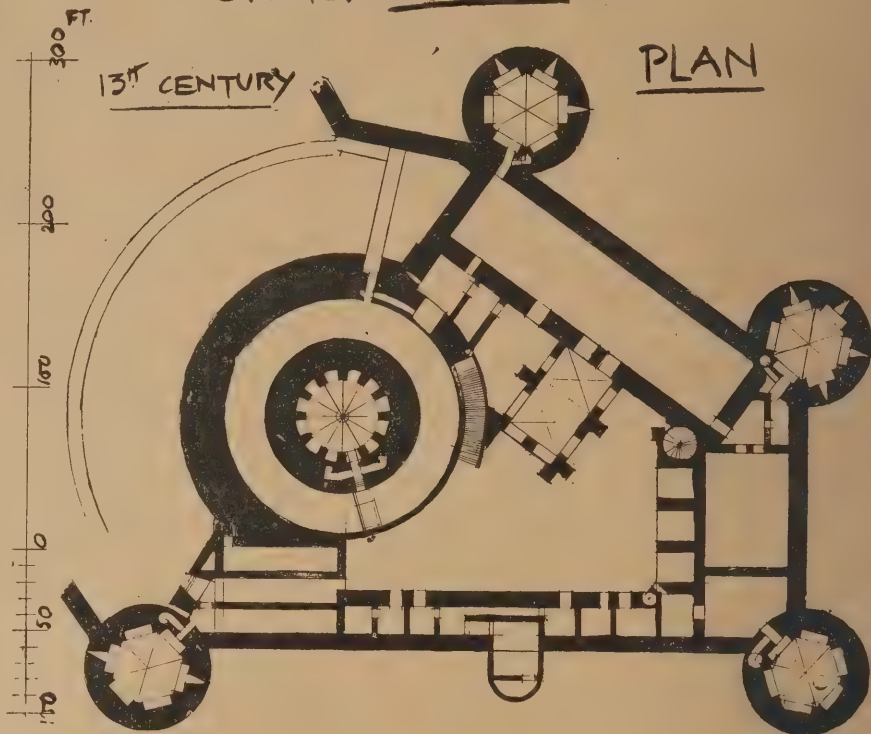
To return to France, in summing up the characteristics of these early buildings we are confronted by the rectangular plan of the keeps or towers. Why they were planned this way rather than round is hard to say. I am inclined to think that the Normans, who first built these keeps, must have set the example, and built what their own rude tradition taught them. Certainly the round form was quite well known even at this early date, as we see in the round towers of Ireland, for example. But, all the same, the round form was the exception then, and not the rule, in all Architecture.

The second division of the subject begins with the twelfth century. By this time the feudal system had got properly under way, and the power of the nobles had increased to an alarming extent. The social system, indeed, of this time consisted of a nominal sovereignty hardly, if any, stronger than the power of the barons of the various domains. These barons were supreme in their own right, perfect despots, each with his train of knights, who, again, had their followers and retainers. At the same time commerce increased, and the middleman, though contemptuous enough to the aristocracy, became a distinct item—partly brought about, I am tempted to think, by the Crusades and the consequent absence of the nobles.

Fortified buildings therefore came to be of two classes—the walled town with its palace or castle, and the isolated baron's fortress forming the nucleus of a feudal town. To the twelfth century, and particularly the latter half, belong some of the most interesting fortified remains in France. Conspicuous among these is the Château Gaillard, near Les Andelys, on the Seine, built by our own king, Richard I., in his war with the French after his long exile. According to M. Viollet-le-Duc, this castle shows Richard to have been an engineer and strategist of a high order, and certainly at the time of its erection it was considerably in advance of anything that had been done before.

## CHATEAU DE COUCY

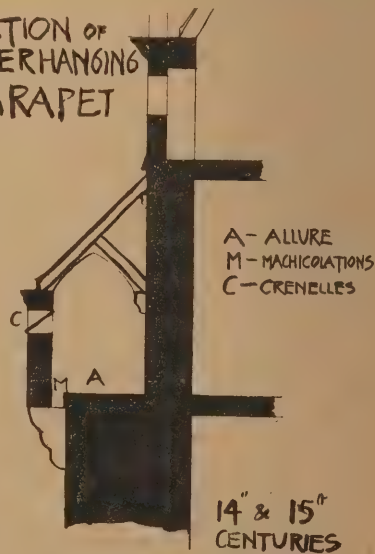
PLAN

13<sup>th</sup> CENTURY

Other castles of this period are those of Gisors, Provins, and Etampes, all of which exhibit peculiarities which show the rapid evolution of more complicated means of attack and defence.

As the system of offensive warfare became more pronounced, the old square form of keep with vertical walls was found to be unsatisfactory; though quite good for a passive resistance, it offered no scope to the besieged, and the angles were weak points. Consequently three great improvements were effected in planning. (1) The angles of the square towers were rounded off; (2) wooden hoardings were brought out from the wall at the parapet to enable the besieged to cover all the walls; and (3), lastly, the inclosing walls of keeps were made in themselves strongly defensive, and were strengthened by flank towers. I will now treat these improvements in detail.

1. The keeps of Etampes and Provins are extremely interesting examples of transition

SECTION OF  
OVERHANGING  
PARAPET

from the square to the round form. The latter especially shows a great improvement on previous examples. There is something about the plan of this keep which one cannot help admiring—a unity, a perfect



economy of space, a perfect adaptation of means to end. The upper part has been restored in comparatively modern times, but the keep is there, in all essentials, as it was originally designed in the twelfth century. Though these keeps are a decided step in advance of the rectangular form, the complete circular form was soon arrived at, as we find it in the Castles of Coucy and Montargis of this era, and subsequent examples in the fourteenth century.

2. The second improvement was the system of wooden hoardings built out from the walls. This was a very important innovation, for to its development we owe the corbelled parapets which afterwards became so common, and which we are accustomed to think of as purely ornamental. For the sake of clearness, I will go a little in advance and follow its development. The wood hoardings were really covered balconies, and were for the primary use of giving the besieged a complete overhanging walk to enable them to visibly defend every inch of the walls. Distinct and unmistakable traces remain in many old buildings of the holes, at regular intervals, for supporting the main cantilevers of these hoardings. To give them a more permanent form they soon began to be carried on stone corbels which supported tilted struts carrying the platform. Finally, in the fourteenth century, as engines of war became more dangerous and incendiary in their character, wood was completely abandoned as a constructive material, and the use of stone brought the parapets to the form shown in the section (in which the wall is recessed back, and large corbels are used with a small space between the outer parapet and the main wall, which was used with deadly effect by the garrison). In this way these parapets became highly ornamental, and the principle was carried out in the French and Scotch Renaissance styles, where it is used in the endless variety of ways we now see, and I think it is most probable that all very projecting parapets of future buildings are derived from this defensive idea of wood hoardings. Gothic Architects, in their ecclesiastical work, discarded this projecting parapet, merely using string courses and corbel tables as a finish at the top of their walls. Neither was the idea carried far into the Renaissance, except in Scotland, as it was soon superseded by the Classic crowning cornice. A good example of a projecting parapet is shown in the Tour du Pont at Villeneuve, erected by Philip the Fair in 1307. We have several good examples in Scotland and England, such as Clackmannan Tower, Warwick Castle, &c.

We must now consider the third point in connection with twelfth and thirteenth century fortified buildings, namely, the improvement on inclosing walls and the towers thereof. Perhaps the Château Gaillard, before referred to, marks the first bold step in this respect, and the effect of the wall from outside is very striking, besides showing a vast improvement in the art of defence. Nothing, indeed, could be more admirable than the way in which the wall surface is broken up, necessitating corresponding breaks in the attacking force, and thus affording opportunities of flank attack by the besiegers. The manner, also, in which the keep of this building is designed exteriorly is very original, and was not imitated in any future example that I know of. It shows, by the system of arching at the top of the tower, a rude beginning of the future battlemented parapet, while the flat buttresses died away near the foot, so as to offer no security to the besiegers. On plan it can really be called a round tower, but the weakest side has a beak or horn, necessitating an enormous mass of masonry, the wall here being 24ft. thick. The whole keep is one of the original things in this most original design, which is unique in France, perhaps because the Frenchmen were too proud to imitate a building by an Englishman.

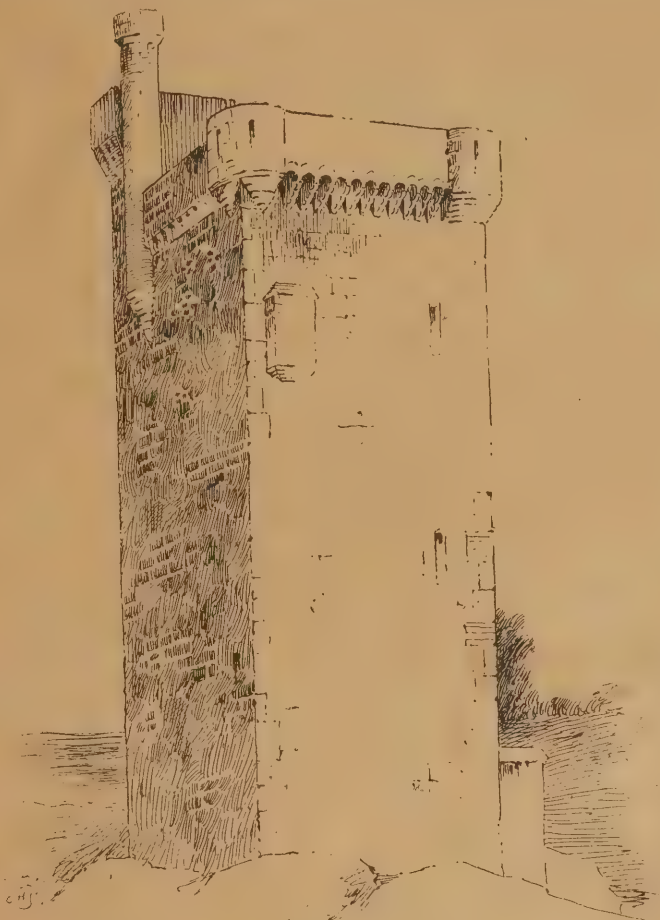
In connection with the inclosing walls of buildings we also note that isolated towers were distributed round them at intervals, subsidiary to the main keep, and often connected to it by drawbridges. These

towers afforded harbourage for small garrisons, who could defend the various parts of the wall. They afterwards developed in a very important way.

We now come to the perfected feudal fortress with round keep as we see it in the castles of Coucy and Montargis. The former Viollet-le-Duc calls it the grandest military structure in Europe. The great donjon is of majestic proportions, being 95ft. in diameter, 215ft. high, with walls 25ft. thick. It would be most interesting to go into the details of this building, as being, on the whole, the best example of a great feudal castle in France, but it would be rather outside the scope of this paper, so I will confine

cannot say much, but of general forms we must note the highly effective one adopted for town gates, where the door or gate proper is placed between two round towers projecting from the face of the wall. This was extremely useful for defence purposes, and was evidently derived from the observation of the use of the isolated wall towers to which I referred before. This idea afterwards produced many beautiful and imposing forms, and became an important feature in Scotch Renaissance work; we see it in Falkland, Rowallan, and other examples.

The next division of the subject deals with the buildings of the fourteenth century and after. During a great part of this time France was one vast battlefield. First came the campaign



TOUR DU PONT, VILLENEUVE.

myself to one or two remarks. The keep is one of the best examples for showing the stone corbels which supported the struts of the wood hoardings before referred to, and the large size of the openings in the attic story almost shows that some means of defence must have been employed to guard the besieged at this part. The plan shows a typical arrangement of the buildings of a great château of these times; the castle was built in 1223.

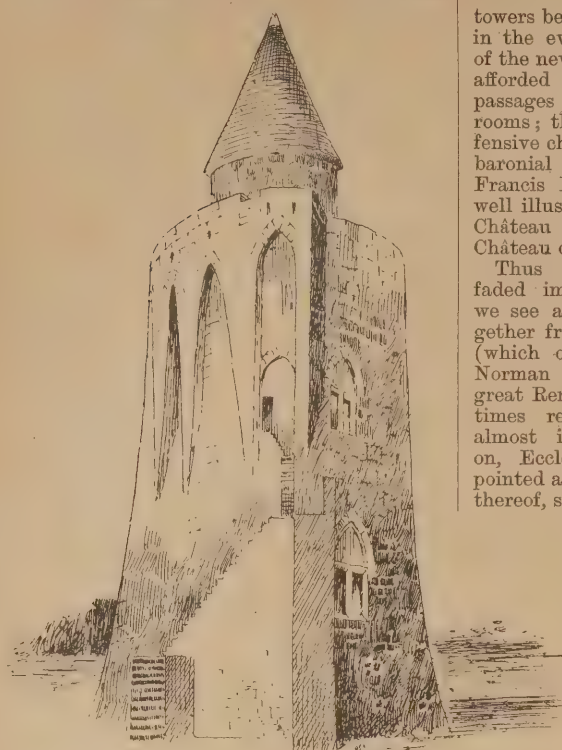
This was a most important period in Architectural history. In France it produced the best parts of Notre Dame, Chartres, Rheims, Amiens, and other examples too numerous to mention. In this country, Westminster Abbey, Salisbury, Lincoln, and parts of many other great buildings. In Italy, the thirteenth century saw the introduction and climax of the Pointed style. As Fergusson says, this was perhaps the greatest building epoch the world has ever seen. That which we call "Medieval" was then in its fullest perfection. The pointed arch dominated the Architecture of all the principal countries of Europe. That restless spirit of the great revival that was soon to shake all the Western world was as yet slumbering, and the perfect age of chivalry and knighthood, which is the *beau idéal* of modern Medievalists, reigned supreme.

Of the details of fortified buildings we still

of Edward III. of England, and, not long after, Agincourt, the Bedford Regency, and the rallying of the French under Joan of Arc. The misery of the country was such that comparatively few castles were built during the fourteenth century. To this period belong the Tour du Pont at Villeneuve, already alluded to, and the Château de St. André, Villeneuve lez Avignon. We now see the corbelled parapet projected and built entirely of stone. If we look at this Tour du Pont, we will see also another feature which was now generally used whenever the square plan was adopted. This was the bartizan, which not only strengthened the upper angles very considerably, but served as a stable for the garrison to protect the angles, which were the weakest parts, in a very efficient manner, for which purpose it had loopholes like the ramparts. Nothing in the whole history of the Architectural significance of these buildings can be more striking than the use made of this feature, more or less modified, in future times. Hundreds of examples can be pointed out in this country alone, and there is no detail which has had such an unconscious development. The fortified building, as exemplified in this tower, has now become a thing of beauty.

During the comparative lull which took place about 1400, the unfortunate Duc





CHATEAU GAILLARD.

d'Orleans built the great Château de Pierrefonds, which is very interesting as showing the transition from the old keep used purely as a stronghold to the mansion houses of Renaissance times. This transition marks a new spirit in the temper of the age. Great nobles were mixing more together, all classes were getting more refined and luxurious, and life and property were safer than formerly; a need was felt, therefore, for a dwelling which could be comfortable and at the same time capable of standing a siege. From this time onward, the defensive fort gradually merged into the private house, in which the Architectural characteristics of stormier times were merely used as ornaments.

The first step was the abandonment of the keep, and the substitution instead of groups of smaller towers, which were connected by covered passages. The outer wall of these passages was really the enceinte of the feudal castle carried up to a greater height. Thus the appearance of a stronghold was entirely changed. Under the old system, comparatively low enceintes strengthened by towers inclosed the various buildings of the château proper, over which the great keep towered up. The principle which governed this mode of defence was a universal distrust and suspicion which every man had for his neighbour. The lord of the castle and a picked garrison could shut themselves up in the great keep when all the rest of the town or castle was taken. This system, however, was soon found to be defective; it left the château too open, when taken as a whole, and no one was properly safe unless inside the keep, "with all the ropes cast off," so to speak. An instance of this occurred at the Siege of the Château Gaillard by Philip Augustus in 1204. After storming the forework A, and possessing themselves of that part of the building, the French succeeded, with incredible difficulty, in placing a battery against the entrance to the Enceinte. After storming this, they rushed in with such impetuosity that the garrison were completely surrounded before they could get back to the keep, and were forced to surrender. Under the new system the building presented the aspect of a four-sided building consisting of one vast wall strengthened by massive towers. The building thus became one whole, and the

towers became so many places of final retreat in the event of a siege. Another advantage of the new system was the increased comfort it afforded in times of peace. The covered passages rapidly became splendid suites of rooms; the buildings gradually lost their defensive character and softened down into the baronial residences and great châteaux of Francis I. time. The two systems are very well illustrated by comparing the plans of the Château de Coucy, built in 1223, and the Château de Pierrefonds, built in 1400.

Thus in these civil buildings Gothic faded imperceptibly into Renaissance, and we see a constant development, apart altogether from the Classic influence from Italy (which only affected the details), from the Norman keep of Early Gothic times to the great Renaissance château. In early Norman times religious and civil buildings were almost identical in style; as time wore on, Ecclesiastical work, rejoicing in the pointed arch and the constructive expedients thereof, struck off on its own tack, and worked out the beautiful creations of the Middle Ages. All the more strongly, therefore, it felt the shock of the New Classic Revival, as we see in the first Renaissance Churches, such as St. Eustache, Paris. There was something terribly inappropriate in Classic details being used for buildings whose constructive motto was "perfectly balanced roofs with practically no supports." With the growth of civil buildings Gothic forms were abandoned, and the château, which had gone right on in an unbroken development from the earliest Mediæval times, became Classic, like everything else. A last home was found for the fortified style in Scotland,

where it was developed in a most noble manner into a thoroughly national style which we as Scotchmen should be proud of. In no other country but Scotland, indeed, did this style ever become a comfortable domestic one; in France, the pure Classic had taken such hold that the fortified style was abandoned whenever the extensive use of cannon necessitated the building of special town fortresses. In England, also, the traditions of Mediæval times quickly vanished away, owing, no doubt, to the comparative peacefulness of the country, and the outcome of the

fortified stronghold, there, was the Elizabethan manor house. I think there can be no doubt that Scotland holds its own in the vigour of its domestic buildings against any country in the fifteenth and sixteenth centuries; compare, for instance, the manliness of Crathes or Midmar with the comparative tameness of an English Tudor manor house. In all these countries, however, the château had now lost its defensive character, and therefore, for us, the history of Mediæval fortification ends here.

A glance at the plan of the châteaux of Chambord and Bury will be interesting as showing the French Renaissance development of the fortified building. In these we still see the long, gallery-like buildings inclosing a courtyard, but the château proper is now massed into one block which forms the key to the entire plan. The flanking towers are now usually confined to the angles, and are often made square on plan for convenience sake. The plans of some of the early keeps we have considered are very interesting. I have already called attention to the plan of the keep of Provins. The first floor was the dwelling-house, the upper floors being reserved for defence, and the lower one containing vaults. M. Viollet-le-Duc has restored this keep with projecting hoardings on four faces of the upper floor, which, if correct, must have made it very formidable. The plan of the keep of Coucy shows internal buttresses to take the thrusts of the vaults. This was to leave the outer wall round, without any projections. The keep of Montargis is planned on the radiating system, and, though very good, has not the unity of the keep of Coucy, though it is certainly more comfortable. Coucy and the Château Gaillard are the two grand examples of towers built for defence alone. Considering that it was entirely built in a year, the Château Gaillard is wonderful. The prodigious forework shown on the plan seems to be of little use for defending the eye of the system; but we must remember that all round are precipitous cliffs, and at A is the only tongue of land which is anything like level, and therefore available for an army. In the great siege which this castle sustained from Philip Augustus in 1204, it was actually



SKETCH OF PART OF ENCEINTE. CHATEAU GAILLARD.



this forework that was captured first and stormed.

In this paper I have tried to show how intimately the Architecture of the times, as seen in these buildings, is connected with the life of the times. I think we are far too apt to consider only the final stages of our traditional ornament, without considering how it got there. Mr. Russel Sturgis, in the preface to his admirable new book on European Architecture, leaves out of account permanent military buildings, as having no influence on decorative Architecture. This I cannot agree with. In almost every case, we have seen to-night, the useful made the beautiful. For example, this keep of Provins is absolutely governed by principles of utility—that is to say, it was designed in the same way that a bridge is, or ought to be, designed. Not a feature here but is strictly made for its purpose, the whole forming the expression of the foremost thought in military engineering at the time it was built. And the result is a building with some claim to beauty, and interesting and venerable because a step to higher forms. Again, take the idea of flanking towers as represented by the Narbonne gate at Carcassonne. How admirable is this idea for defence! An attacking party, if presenting themselves before this gate, can be doubly attacked in flank by the occupants of the towers. The gate is secure as long as the towers stand. The bartizan is another example; its invention is also backed by a useful principle—we find its form with us to-day.

If the subject of this paper is rather remote from present-day practice, it is essential to a proper understanding of the times. Only by studying all forms of an Architectural age can we appreciate the proper value of the various forces and laws which govern styles, and the use of this member, the origin of that. Only thus can we see how the Architecture of past times at its best was dependent on the conditions of the age. It is needless to point the parallel. If our Architecture is to be real, to be vital, it must be the outcome of an intelligent understanding of the wants of the age. This can be the only true Architecture. To slavishly copy a style is as bad as ignoring the value of any one style. All styles are ours now. Let us use them intelligently.

Steps are being taken for the erection of a new Congregational Sunday school at Shaw, near Oldham, in place of the one recently destroyed by fire. It is proposed to build a school, with accommodation for 500 scholars, at a cost of £1400.

The proposal to illuminate the dome of St. Paul's on Jubilee Day is viewed with apprehension by some persons careful for the safety of the structure. Sir F. Dixon Hartland has called Sir M. W. Ridley's attention to the matter, and suggests that the enterprise shall be prohibited.

WITHIN a few weeks the latest addition to the list of the Gordon hotels will be opened at Folkestone, under the title of the Hotel Metropole. The hotel is situated on the Lees, in one of the finest positions in Folkestone, and stands in its own grounds of some four acres. It contains accommodation for 350 visitors, and comprises dining halls and drawing rooms, a library, and many fine suites of private apartments.

THE Architectural Association Notes for June are perhaps more than usually interesting. The Editor has a short article on the Jubilee celebrations of the Association, and a brief biographical sketch of Mr. Hampden W. Pratt, the newly-elected president. Professor T. Roger Smith contributes an article on "Architecture as Learnt in Schools of Art." Mr. Henry J. Leaning and Mr. H. D. Searles-Wood write under the heading "Classifying Builders' Work"; Mr. R. S. Balfour discourses on "The A.A. Travelling Studentship Competition Drawings, 1897"; and, in addition to a report of a paper on "Dodges," read by Mr. Henry Rose before the Discussion Section, other matters appertaining more closely to the Association are fully dealt with.

#### HUDDERSFIELD SEWAGE WORKS.

QUITE recently a Belgian deputation inspected the Huddersfield sewage works, and on their departure registered in the visitors' book their impression of what they had seen in the terms—"A perfect installation, deserving of commendation." The works were designed by Mr. R. S. Dugdale, C.E., the Borough Surveyor, and passing the entrance gates, on the left is found the weigh-office and on the right the valve chamber, fitted with sluices by which the entrance of sewage and of storm-water may be controlled. The volume now impossible of treatment is turned back into the river. While from  $7\frac{1}{2}$  to 8 million gallons of sewage are daily presented from the town sewers, only about half that quantity can be dealt with. The authorities are adopting measures to limit the quantity of liquid matter offered them, and with this object they are endeavouring to arrange that clean water streams shall not enter the sewers at all, and that manufacturers shall provide at their respective mills tanks where matter in suspension may be deposited before the liquid is finally carried away by means of the town sewers. Even then extension of the sewage works will be called for, and it was in this view of the contingency that the Whitehouse Farm, lying at the foot of Dalton Bank, was recently acquired at a cost of £5000. From the valve chamber, where the town's sewage enters the works, the distance between that point and what may be described as the

#### ADMINISTRATIVE BUILDINGS.

is occupied on the right by ornamental gardens, which give a very neat appearance to the enclosure; and on the left by buildings containing what is technically known as the roughing tank or detritus, where the solid matter is dredged from the sewage; and still farther on the same side the refuse-destructors, boilers, and a fine octagon chimney in brick rearing its shaft 90yds. above the surface, and constituting the highest in the district, save the one at Fieldhouse, belonging to the Leeds Fire Clay Company. The set of structures on the left have trees trained up their walls, suggesting rather buildings associated with a fruit-growing establishment than a place of necessity of a slightly more unsavoury description. The buildings generally are of blue brick, relieved by courses in stone, and the administrative section, coming across at right angles, is further relieved by a clock-tower, containing a useful timepiece, which strikes the hours. A couple of boilers are now at work for driving thirteen arc electric lamps of 1000 and 1500 candle power, numerous incandescent lamps, and the sludge presses, which deal with about 1000 tons of matter per month. It is hoped that when got into effective operation the destructors will generate enough steam to keep the electric-lighting plant at work without any demand upon the boilers. From the valve chamber the sewage is culverted to the detritus tank, 125ft. in length, where a dredger made by Messrs. Thos. Broadbent and Sons, engineers, Huddersfield, lifts from the tank fifty tons per week of the more solid matter. This, for the moment, is being removed by neighbouring farmers for tillage purposes. Arrived at the end of the roughing tank, the floating matter, consisting largely of oil and refuse wool, is removed. Manufacturers would do well to utilise both for their own gain, and so secure the removal of articles which are no little source of dirt and trouble at the sewage works. The wool refuse, now amounting to about 6 cwt. per day, at one time totalled four times that quantity, and was reduced through the efforts of a sub-committee, who made such representations to millowners as to bring about the change now recorded. As it is, the works manager is able to boast of an excellent suit of clothes made from such refuse wool, and other portions are being worked up for some such similar purpose. The sewage now ready for treatment passes through a measuring wheel, whose capacity is 3000 gallons per revolution, and is then treated with a precipitant known as ferozone, supplied by the International Water and Sewage Purification Company, London, who also are the

makers of the polarite used in the filter-beds. The sewage coming largely from mills, varies in colour and density almost hourly, and as certain coloured sewage requires the application of double the quantity of the precipitant to other kinds, the apparatus supplying it cannot be worked automatically, but has to be operated by hand, to suit the

#### EXIGENCIES OF THE MOMENT.

The action of the precipitant is easily observable when the process is conducted on a small scale in a testing-glass. The sewage, first seen as dark, even-coloured liquid, having received its due quantity of ferozone, soon begins to break up. The dense matter coagulates, and quickly presents the aspect of a black snow-storm, whose flakes ere long fall to the bottom of the glass. It is whilst these dense particles are in suspension that the sewage passes under the administrative buildings in culverts, and divides right and left, in order to reach the twenty-four settling tanks, a dozen on each side of the system, there laid out to view. From the tanks, where the sludge is deposited it passes inwards to the filter-beds, and after filtration is carried along the length of the system in open troughs or aerating channels, to be delivered again close to the administrative buildings into a stream with a pebbly, concreted bed, and banks of rock work, relieved by flowering shrubs and ferns, whence it leaves the works, and enters, five furlongs farther down, the river, near the weir at Colne Bridge. So pretty is the aspect of the stream that the onlooker would be little more the subject of surprise if gold fish or speckled trout were detected disporting themselves in the bright, clear water. In one of the settling tanks an experiment has been tried for the automatic removal of sludge, and so successful has it been that it must ere long be fitted to the remaining tanks. In the case of the twenty-three other tanks, sludge has at present to be removed by hand; the men, supplied for the purpose with fishermen's brogues and thick woollen jackets, having to descend into the sludge, and pass it out with the aid of suitable implements. The automatic arrangement is the monopoly of the International Company already referred to. The sludge afterwards reaches the press-room by gravitation, and here are four large presses operated by compressed air. By means of the presses about 60 per cent. of the moisture is removed, and the sludge-cake left is afterwards lifted by a hydraulic hoist to a convenient level, and then conveyed to a tip on the estate.

The opening recently took place of the new railway station which has been built in the Ashley Road, Boscombe, by the London and South Western Railway Company, at a cost of some £30,000.

THE Select Vestry of Liverpool has decided, by a majority of one, to give authority to a special committee to obtain a site upon which to erect buildings in order to obtain additional accommodation for the bedridden infirm.

ARRANGEMENTS have been made with the Stepney Estate, Llanelly, for the erection of a large hotel on the site of Bradbury Hall, which is now being demolished. The new hotel will face the Town Hall, and will have a frontage of 230ft.

MR. WALTER GOODMAN has painted a half-length portrait of the Right Hon. Lord Russell of Killowen, G.C.M.G., in pastels, and is exhibiting it at the Japanese Gallery, 28, New Bond Street. Mr. Goodman has portrayed Lord Russell in his robes and chain of office, without, however, investing him with the awe-inspiring wig which pertains to scarlet and ermine, point lace cravat, and golden collar.

MR. JOHN CLARK TAYLOR, a Boston citizen, has agreed to sell his residence and about 15,000ft. of land in Loring Park, Minneapolis, to a Boston syndicate for the sum of £8000. Plans are being drawn for a ten-story apartment house, containing forty flats, with elevators and every modern convenience, which it is proposed to erect upon the land purchased. The improvements will cost nearly a quarter of a million dollars, and the proposed building will be unique in its situation, which is in the midst of a city park of forty acres.



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
June 9th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE South Kensington report is not new, but it is urgent. Though the danger of these sheds in which we have housed our priceless treasures has been often talked of, no one, we fancy, has ever before realised it quite so clearly. Neither have we ever before been brought face to face with the position at a time when the nation had so ample a surplus of cash. The danger runs on from day to day, and any day when the sun is hot, and the winds dry, we might lose not merely treasures of enormous money value, but possessions which no money will replace. Do what we will, this risk will go on perforce for months and years before new buildings are complete. Why should not the common-sense of Parliament force Sir M. Hicks Beach to let the plans, which are complete, be put in hand at once?

RIVERSIDE building has now almost reached the stage described as a "boom," and not only in such popular centres as Richmond and Kingston, but in places like Twickenham, Teddington, and Staines. The waterside bungalow acquired sufficient popularity last year to justify later extensions. At Teddington the construction has been carried out somewhat on Venetian lines. Canals have been cut inshore to a considerable distance, and on their margins have sprung up quite architecturally attractive little dwellings. They are a happy medium between the tent and the more pretentious "residence."

THE Royal Palace Hotel extension has now been opened, and those who attended the inaugural reception last week were charmed with the perfect taste and sumptuousness of the decorations. The hotel accommodation, by the addition of the "Empress Rooms," has been increased by almost one-third, and certainly it may be said that the architectural beauty of the building has been augmented to an equal extent. The new suite is reached by a separate entrance, leading into a fine marble pillared hall, and which, in turn, leads into the "Grand Hall"—the feature of the extension. This room, with its cerise-tinted tapestry panels, wainscoting of polished birch and sycamore, and white and gold ceiling, has an extremely elegant appearance, whilst the foyer, which has a very prettily painted ceiling, is ornately decorated and upholstered in pale blue, white and gold. Supper and "crush" rooms, with a large number of bed and sitting rooms, have also been added, and everywhere the decorations are lavish. Messrs. Legge and Son are the Architects, Messrs. Bywater and Sons are the builders. Messrs. Norton and Co. and Messrs. Graham and Banks have executed the internal decorations, and Messrs. Dannison and Co. have extended the electric lighting system, and introduced many new designs in brackets, &c. The light installation in the supper room—the wall panels of which apartment are of beaten lacquer and of a handsome floral design—is carried out on an altogether new principle. The electric lamps are concealed behind the cornice, and whilst giving a

sufficient illumination averts all unpleasant glares, and somehow gives the apartment a cool and restful aspect.

HAVING had the Blackwall Tunnel auspiciously opened, the London County Council passes from the completion of its first great work to the promotion of another Thames subway. A Select Committee of the House of Commons has had under consideration the Council's Bill for the construction of a footway under the river from Greenwich, near the Ship Hotel, to the Isle of Dogs, immediately adjoining the station of the Blackwall Railway. The cost was estimated at £70,500, including lands and property. The scheme would give a roadway 8ft. wide and 9ft. 4in. high for foot passengers. Its two ends would be approached by circular shafts giving accommodation for reaching the level of the tunnel, which would be 40ft. deep at one side and 50ft. at the other. The object of the tunnel is to facilitate the passage of workpeople from the Isle of Dogs, where industrial undertakings are closely crowded together, to Greenwich, where there are very suitable places for residences.

It is admitted by experts that at least 80 per cent. of "antique objects" in existence at the present time have been manufactured within the last dozen years. A practical demonstration of how the thing is done was given before the Bow Street magistrate a few days ago in a dispute respecting the possession of certain "antique" ormolu articles, about which there had been an abortive trial. A firm of dealers claimed them, and two workmen did the same. The latter were particularly assertive in their ownership, saying they ought to know, because, as a matter of fact, they made the articles. To prove their point they set to work and showed, to the amusement of a critical audience, how ormolu was made "antique" by the aid of pumice powder. With respect to most of the articles, Mr. Vaughan decided in favour of the firm, but had so much doubt about an "ancient cabinet" that he ordered it to remain in the hands of the police until the deponents came to amicable terms.

IN the Sydenham Gallery the present collection of pictures is one of the best they have yet brought together. There are close on nine hundred works, oils for the most part, and contributed by both British and foreign Artists. Mr. John H. Bacon takes the Gold Medal in the English Section for a figure subject, "The Idol of the Village," which is pleasant in colour, well-composed, and filled with a warm, soft, well diffused light. Mr. George C. Haité, R.B.A., takes a gold medal with "In the Streets of Dort," an amazingly clever study of the impressionistic kind, not carried further than the stage of complete suggestion. Work very different is the Gold Medal water-colour, "On the Piazza," by Mr. Samuel J. Hodson, R.S.W. Here nothing is left to the imagination, but with delicate and careful brush every detail of the scene is touched in. Silver medals for water-colour go to Mr. G. D. Hiscox, Mr. John Eyre, R.B.A., Mr. Henry Bailey, and Miss Nora Davidson. The best canvas in the Exhibition comes from a foreign Artist, Vincenzo Caprile, to whom the judges had no difficulty in awarding the Foreign Artists' Gold Medal. This work is called "The Easter Lamb Market." The picture is filled with atmosphere, its tones are soft and clear; the work marked by restraint and refinement, both of colour and technique, which places it far before its neighbours. "Strand in Brittany," by E. Spoerer, takes the gold medal for sea-pieces, and there is no reason to quarrel with the choice, for the Artist gives a fine distance to his scene, and renders the quality of atmosphere and light with much cleverness. Silver medals go to Messrs. A. E. Proctor, J. L. Cloag, W. F. Calderon, G. Hilliard Swinstead, Wyke Bayliss, P.R.B.A., L. B. Hunt, H. A. Olivier, and A. O. Townsend for oil paintings of various kinds, and eight silver medals pass to the foreign Artists.

A FREE Loan Exhibition of Pictures was recently opened at the Polytechnic in the

Borough Road. Mr. David Murray, A.R.A., said their best thanks were due to Mr. J. S. Forbes for the pictures from his collection, which comprised three beautiful works by Corot, two by Josef Israels, and three by A. Mauve. Among the other pictures on the walls were Mr. Watt's "Tormentor," "Escaped," and the "Birth of Eve"; Mr. Alma Tadema's "Question," and portrait of Mr. A. J. Balfour; Mr. Wyllie's "Work-a-day England"; Mr. Solomon's "Delilah"; Mrs. H. M. Stanley's "Having it Out"; Miss Bruce's "Edipus and Antigone," and M. Paul Renouard's drawing of the "Corner of the Babies' Class" in a Board school.

THE Select Committee appointed to inquire into the administration and cost of the museums of the Science and Art Department has decided to make an immediate report to the House of Commons on the peril of destruction by fire to which the priceless collections at the South Kensington Museum are exposed. The necessity of providing, in place of the present temporary structures, buildings suitable for the exhibition of the objects of Science and Art collected at South Kensington, has been long under the consideration of successive Governments, and the Committee recommends that the construction of permanent buildings for these collections should be proceeded with without delay.

ONE of the largest and most important finds of papyri in Egypt has been made during the last winter by Mr. Bernard P. Grenfell and Mr. A. S. Hunt, of Queen's College, Oxford, at Behnesa, the ancient Oxyrrhynchus. The site of the old town, which is  $1\frac{1}{4}$  mile long by half a mile broad, and is situated on the little explored edge of the western desert between Fayum and Minya, had remained almost untouched by dealers and antiquity seekers, and offered to the excavators—what is in Upper Egypt now almost a thing of the past—a practically virgin field. Very few remains of buildings were discovered, the place having been long used as a quarry both for stone and bricks, but many of the ancient rubbish mounds yielded a rich store of papyri, while in three mounds the quantity of rolls found together was large enough to warrant the assumption that part of the archives had been thrown there at different periods. The papyri range from the Roman conquest to early Arab times, each century being largely represented, and are for the most part written in Greek, with a sprinkling of Latin, Coptic, and Arabic.

THE proudest feature of the ancient village of Kempsey, on the banks of the Severn, about four miles from Worcester, is its quaint old Parish Church, restored some thirty years ago. In this Church there is a monument built of solid stone and curiously carved, erected to the memory of Sir Edmund Wyld, who died in 1620 at the age of thirty-two. The recumbent figure of the knight lies under a stone canopy, supported by two small fluted pillars. His hands are folded on his breast, with his sword between them, and his helmet is by his side. The inscription above him tells that "he was solemnly here interred with great lamentation," also that he was "thought worthy the honour to be High Sheriff of this county."

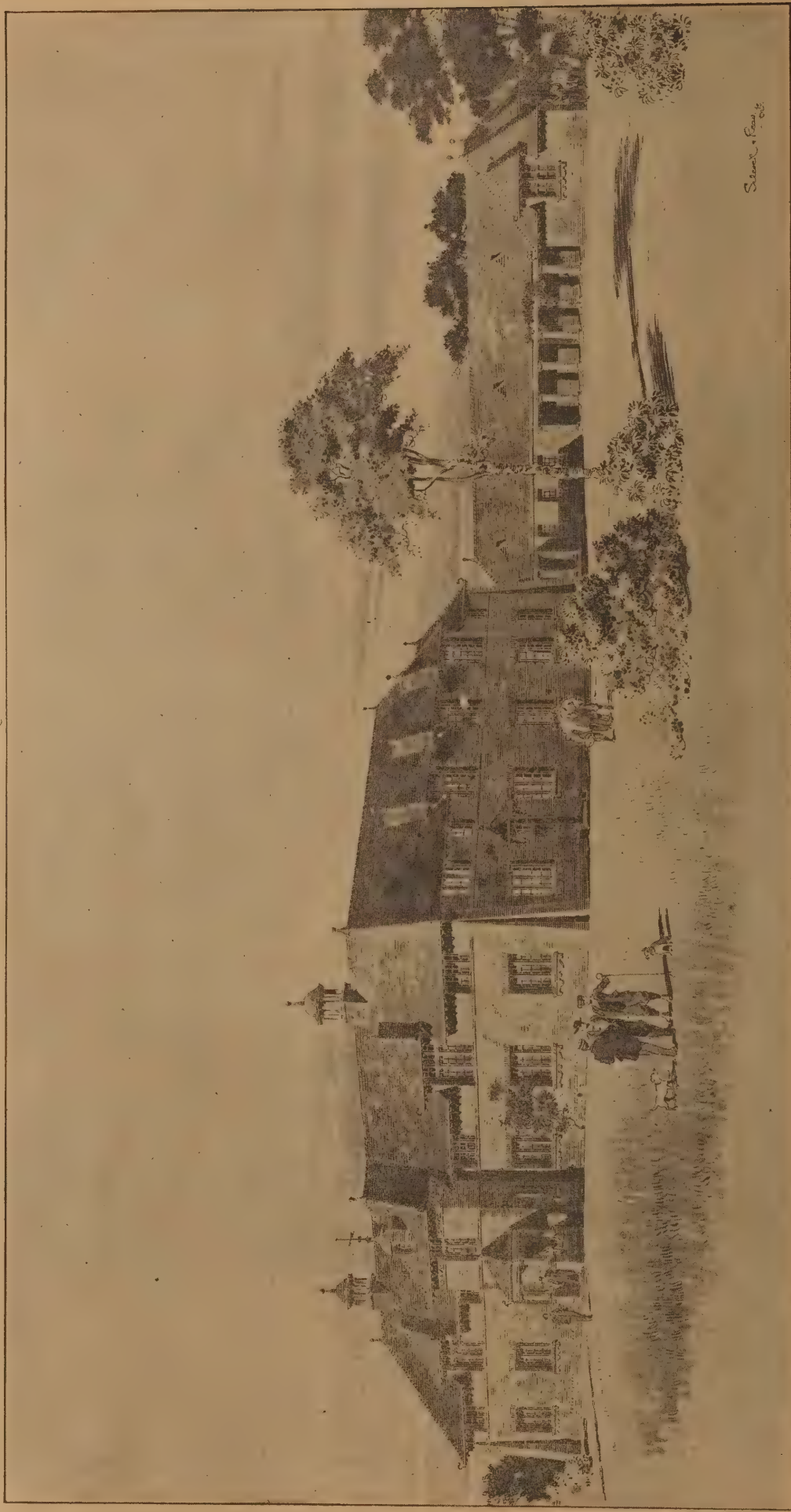
M. AUGUSTE FILON is now discussing English painters in the Paris *Debats*. M. Filon has visited the Royal Academy, the New Gallery, and the Grafton Gallery. The conclusion he has come to is that although there are so-called English painters, there is no such thing as an English school of painting. The opinion of M. Filon on this matter is, however, very much discounted by his candid admission that he is not an Art critic, and thus knows nothing about painting. For a real opinion we must go to M. Rochefort, who knows England better than M. Filon; and is what M. Filon on his own admission is not—a capital judge of pictures. M. Rochefort has recently been saying the most amiable things of English painters; and has been commending their work to the earnest attention of French Artists.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

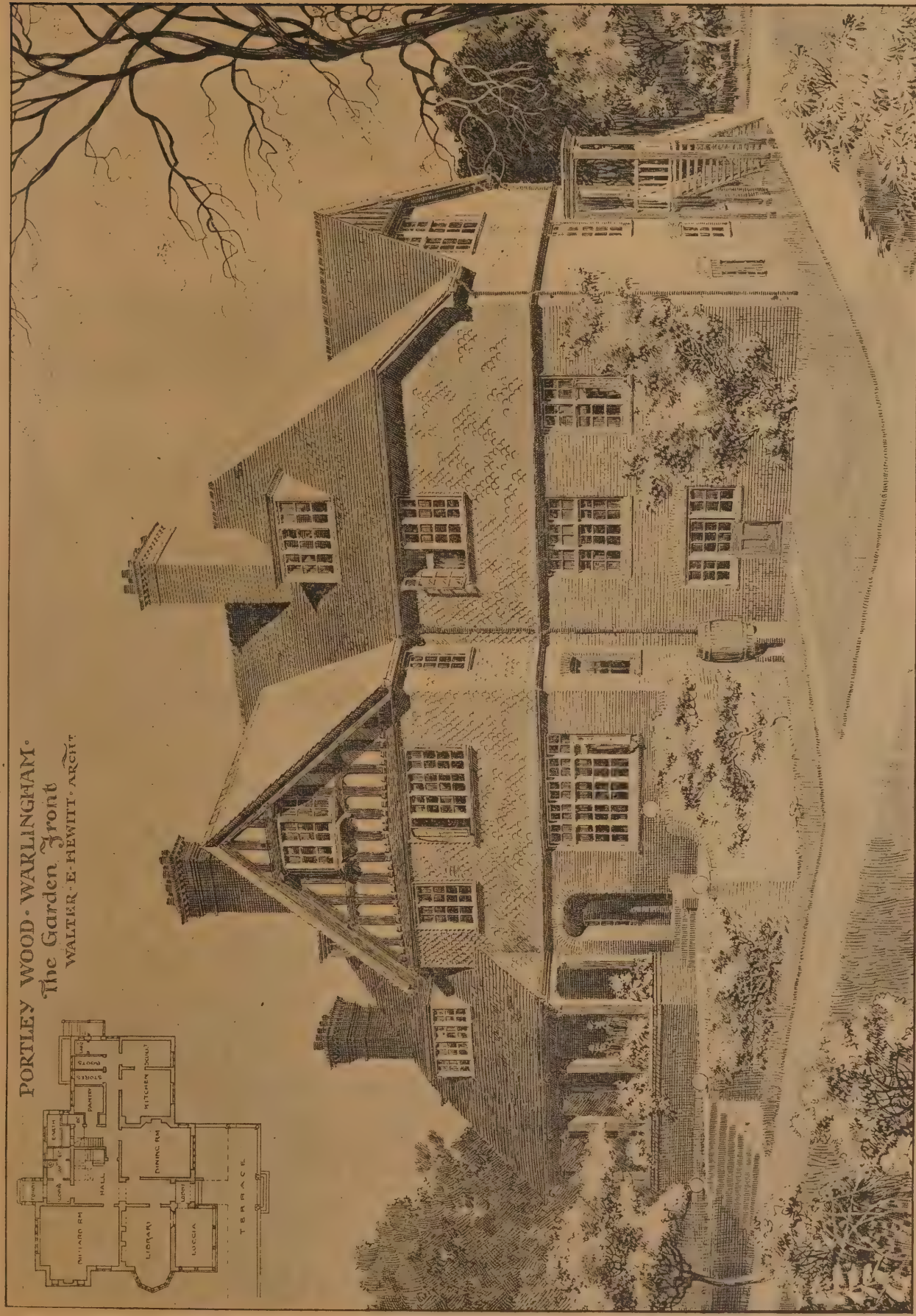


THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD, WEDNESDAY, JUNE 9, 1897.



DESIGN FOR AGRICULTURAL COLLEGE. MESSRS. SILCOCK AND REAY, ARCHITECTS.





PORTLEY WOOD, WARLINGHAM THE GARDEN FRONT. W. E. HEWITT, ARCHITECT.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



THE Bishop of London has just been comparing London, architecturally, with ancient capitals, to the disadvantage of London. Lord Rosebery said, a few days ago, that not even Rome herself, the city of great buildings, could show anything like the Blackwall Tunnel. The Bishop would certainly retort that, considering Rome's inferiority in applied science, her glorious aqueducts, the remains of which still exist, surpass anything the London Architects and engineers have ever achieved. At any rate, it is true that, in a London overtaken by the fate which befel the ancient capitals, only a few buildings would in a thousand years survive in a wilderness of brick-dust. The few relics of Old London still left are passing away. As the old places cannot be preserved, a "Society for the Survey of the Memorials of Greater London" is now, and has been for some time, engaged in compiling an illustrated register of notable buildings and localities. These lovers of London are doing a really good service to their contemporaries and to posterity. What would one not give for a similar register of Athens in the time of Pericles, or of Rome in that of Caesar? Not only are old buildings to be registered and photographed or sketched, remains of open spaces, "any beautiful tree," "any object of local life that may have a definite embodiment, or any interesting piece of handicraft, even if it be but a signboard or a wrought-iron gate," are being treated in the same way. There are left in London some remnants of old village greens, and a good many fine old trees; also one or two of the galleried inns that were still in their glory in the coaching days, and where at an earlier period the strolling actors strutted on the stage of their mimic world. One of these inns, still left in Holborn, is about to be given up to the house-breakers. A little while since there disappeared from Chancery Lane a famous relic of Dickens's London. The Society has been at work in the East End of London. It will shortly begin operations in Chelsea, a parish extremely rich in historical associations.

SOME valuable pictures by old masters have been selling at Robinson and Fisher's during the last few days. The more notable were a brilliant example of Hondekoeter, in the shape of a garden scene, with peacock and peahen, and other fowls, 1270 guineas; a pair of companion views, by Guardi, on the Grand Canal, Venice, sold together for 470 guineas; and a view of the Piazza, St. Marco, Venice, with figures, by the same, realised 250 guineas; a portrait of Cecilia Townley, afterwards Mrs. Strickland, 400 guineas; a perfect example of A. Van der Neer, a twilight scene on a canal or river; a work of the highest excellence, 335 guineas; and a portrait of the Infanta Maria Margarita, youngest daughter of Philip IV., attributed to Velasquez, but obviously an old copy, 215 guineas; a view in Venice, with gondolas, watermill, and sluices, by Caneletto, 600 guineas; a charming rural village scene, with Church, country inn, clusters of trees and figures, by Hobbema, 1900 guineas; a collection of fruit by De Heem, 1696, 265 guineas; a road scene in a forest, by the elder Crome, painted in 1818, 390 guineas; three beautiful little landscapes, by Gainsborough, in his early manner, sold for 125 guineas, 300 guineas, and 255 guineas respectively; an important example of Hondekoeter, two cocks fighting, with other fowls, signed, 2180 guineas; three cows, by Paul Potter, 345 guineas; portraits of Henry, Lord Arundell, Seventh Baron of Wardour, and of his wife Mary, 860 guineas and 1130 guineas respectively; a portrait of J. Everard, Ninth Lord Arundell, by Sir T. Lawrence, 700 guineas; a three-quarter portrait of an Italian noble, by Giorgione, 900 guineas; and a woody landscape by Ruysdael, 350 guineas. The two days' sale realised over £21,000.

At Earl's Court this year the collection of old English dwellings which occupies the site of the Indian village of last year is the representation of an old-fashioned English town, "comprising the most picturesque bits of English Architecture." The old buildings are very well done. There is a most picturesque public-house with the title of the "Eisen Sun,"

whose Architecture is about sixteenth century, but whose rooms include one furnished in the style of 1837, and another in the style of the present day. From the contemplation of these two rooms, observes Mr. Kiralfy ingenuously, we may see that whereas our forefathers were accustomed to an almost classic rigidity in the matter of furniture, foreign travel has made our rooms of to-day far more artistic than those of the past.

It would be interesting to know how the Royal Academy takes the Harpignies incident. The venerable landscape painter is seventy-nine years of age, and has exhibited at the Paris Salon for the last half-century. This year he sent a picture to the Academy, which was rejected. And now the news is published that the Medal of Honour of the Champs Elysées Salon, a distinction which is eagerly sought by even the greatest Continental Artists, has been given to M. Harpignies. Whether this will be taken by the Royal Academy as a polite snub remains to be seen.

THE new Queensferry Bridge, opened on the 2nd inst., is in three spans, with two stone abutments and two intermediate piers, the centre span being moveable. The two fixed spans are each 126ft. long, and the centre span 120ft. The abutments are of Connahs Quay stone, the approaches on each side extending some distance with a gradient of 1 in 16. The Flintshire abutment also carries the engine and toll-keeper's house, a brick building containing engines, boilers, accumulator, and other machinery, as well as a living-room and watch-room. The two piers are formed of clusters of screw piles, protected by wood pile fenders, sunk to a considerable depth into the sand bottom, and filled round with stone rubble to prevent scour. Each pier has 10ft. 6in. diameter solid steel piles, braced together every way, and fitted with Barber's patent mushroom screws. The bearing of the bridge on these piles is equalised by cap girders of steel plate rivetted into one piece. The fixed spans are each 140ft. total length by 25ft. width, having a roadway 18ft. wide and two footways of 3ft. 6in. each. They are supported by steel main girders of lattice form, resting at one end on the abutments and at the other end on the cap girders of the piers. The platform is constructed of steel corrugated flooring plates, or "trough decking," filled with concrete, asphalted and paved with wood bricks, with a cast-iron fascia and parapet. An elevated room is provided with windows facing up and down and across the river, and in this room is fixed the hydraulic starting valve controlling the movements of the bridge.

MR. MENDOZA has brought together a fair little exhibition of pictures, not immediately recent, by Artists of repute, including living Academicians and Associates. Mr. Frith is not often seen nowadays in so well concentrated a scene and in such harmonised colour as in the small canvas repainted in 1882, "The Squire Teaching his Sons to Box;" and a picture of popular interest, from the same Artist, is of the critical moment when Albert Edward placed the marriage ring on Alexandra, Princess of Wales. This was painted at the time of the wedding—1863. While Frank Holl was at the period of devoting himself to lugubrious subjects, he painted the touching picture, "The Burial of the First-born," but without that morbidity of tone which renders some such themes of his depressing. Quite an early picture by Mr. T. Faed, "The Thorn in the Foot"—it is half a century old and in first-rate condition—shows all that Dutch-like devotion to details of humble homes, and that ability to depict facial expression, which he developed so well in later life. There is a large coast piece, with excellently painted sky, by Mr. Peter Graham; two landscapes, of Mr. Leader's usual class and standard; a scene from "Tom Jones," by Sir John Gilbert; sporting scenes, by Mr. Heywood Hardy; a historical scene, "Cromwell at Bootham Bar, York," full of movement and of good execution, by Mr. Ernest Crofts; and paintings by Mr. Briton Riviere, Mr. Dendy Sadler, Mr.

S. E. Waller, or such elder masters as Shayer and Stark.

THE Committee which was appointed some time ago to raise subscriptions for the purpose of placing a portrait of Viscount Peel, the ex-Speaker, by the side of his predecessors in Speaker's House, has issued its final instructions to Mr. Orchardson, the artist. The late Speaker will be represented in his full-dress Speaker's robes, but the question as to whether he will be sitting or standing has been left undecided for the present. The Committee is somewhat inclined to favour a sitting posture, although each of the ex-Speaker's predecessors in office—Viscounts Eversley, Ossington, and Hampden—are represented in a standing position.

"A FEW months back, when walking through the squares or courts of Gray's Inn," says Mr. H. W. Brewer in one of his periodical letters in the Daily Graphic, "there was little to recall the fact to one's mind that any of the surroundings dated from the Middle Ages; least of all did the hall and chapel suggest ideas of antiquity, for they had been so completely coated over with modern plaster work and other Brummagem features that they seemed to be samples of the 'Strawberry Hill' Gothic style, and no one who had not seen the fine interior of the hall would have supposed it to date back earlier than the end of the eighteenth century. The removal of the plaster work and exposure of the old red brick walls and stone dressings now take us back to the days of the later Tudor sovereigns. It is, in fact, said that the hall was commenced in the reign of Queen Mary, and completed in the second year of the reign of Elizabeth. This date would certainly suit well, for other painters must have labelled her sadly. Unfortunately, the painter's name is unknown, but there is an Italian look about it, and one may hazard the guess that he was a Venetian from the richness and softness of the flesh tints. Anyhow, it is a most interesting portrait, and deserves more notice than it has hitherto received." It should be added that the restorations to the Hall, Council Chamber, &c., at Gray's Inn, have been carried out from designs, and under the direction of Mr. H. Isaacs.

"THE safety of Britain's art treasures in the National Gallery, Trafalgar Square," a correspondent writes, "I would submit, is a matter of national importance. A huge scaffolding of resinous wood, amounting to several tons, is now stacked close up against its front, in much the same way as laid in a grate, and immediately in rear are glass windows, communicating directly with the interior of the building. The risk of fire under these conditions is a very real one, and is to continue for a month. With twenty years' practical experience of fire brigade work, I do not hesitate to say that, given ignition in a fairly high wind, the National Gallery stands a very good chance of being totally destroyed. On the occasion of a large fire engines leave the district, and on Jubilee Day help may be rendered impossible."

DOWNING STREET evokes a host of memories. When, therefore, it is proposed to demolish the official residence of the First Lord of the Treasury and to substitute offices, adjoining the Treasury buildings, the first feeling, says the Telegraph, undoubtedly is that a number of historical associations, which, if they are not intrinsically valuable, are at all events politically interesting, would be, by such a project, somewhat ruthlessly swept away. Everyone knows that the Government Offices in Whitehall and the neighbourhood are to be extensively reformed, and that the approaches to the noble Palace of Westminster are to be made worthy both of the centre of political life enshrined at St. Stephen's, and also of the national business concentrated within this narrow, and not wholly convenient, section of the Metropolis. We may concede the necessity, even if all the details which are involved may not be wholly acceptable. The Admiralty and the War Office ought to be contiguous,



for reasons alike obvious and important; and there may be something in the appearance of Downing Street—that fascinating *cul-de-sac*, as Theodore Hook described it, an hour's inhalation of whose atmosphere "affects some men with giddiness, others with blindness, and very frequently with the most oblivious boastfulness"—which, to the artistic eye, does not consort altogether with its surroundings.

NEVERTHELESS, whatever may be the architectural shortcomings of this official home of our past historic life, there are many, we may be assured, who will view its disappearance with regret, and consent with some uneasiness to the practical expediency which ordains its rehabilitation. According to the evidence given by Mr. Shaw-Lefevre before the Committee on Government Offices, there is a good deal which a modern *Ædile* ought to recommend in order to beautify and improve Whitehall and its immediate entourage. There is one proposal above all which is interesting and valuable. Why, it is asked, should not the Prime Minister have an official residence adequate to his requirements? Is it not possible to utilise Dover House—the building which was long ago tenanted by the Duke of York, and which everyone recognises, with its low dome over the entrance-way, close by the Horse Guards—as a home for the First Lord of the Treasury, while his present residence in Downing Street might be transformed into public offices? This, at least, is the picturesque suggestion of a former First Commissioner of Works, which, because of its patent and explicit advantages, seems to deserve careful consideration. Dover House is not an ideal building for business purposes, but its large reception rooms would be extremely convenient from the point of view of a hospitable Prime Minister, aware of the social responsibilities of his position.

THE rooms of the Alpine Club in Savile Row are occupied at present by a large number of oil and water-colour studies by Mr. Albert Gos, Mr. Loppé, Mr. Henry Howard, Mr. H. C. Whaite, and others, representing mountain and glacier scenery, chiefly in Switzerland. Mr. Loppé contributes a striking study of a lurid sunset seen from the Grands Mulets. "Glen Slighachan" is the subject of an exquisite bit of work quite Turnerian in suggestion and full of variety, and entered by Mr. H. C. Whaite. The largest and perhaps most important picture is "Moonlight on the Matterhorn," by Mr. A. Gos. This work attracts much attention, but it is certainly deficient in atmosphere, and the moonlight effect, perhaps owing to an over-literalness in colour and detail, is not very obvious. The strongest picture in the rooms is Mr. Molineux's "Dawn on the Himalayas," representing high mountain regions glittering in frozen snow, with a smoky dawn behind. A glacier study by Mr. Loppé, in which the translucent ice-blocks are cleverly managed, deserves special mention. Many of the pictures are crude and unstudied. For example, the "Gorge of Boita," by Mr. Howard, is spoilt by the heavy inkiness of the foreground.

It is always a pleasure to go to the exhibitions arranged by the Burlington Fine Arts Club. The little gallery upstairs is now filled with a really very wonderful loan collection of European enamels "from the earliest date to the end of the seventeenth century." The most important methods, the most celebrated artists are represented; many of the pieces shown are of world-wide fame; and an excellent catalogue has been prepared, containing a description of each example as well as introductions, that set forth the main historical and technical facts, by Mr. J. Starkie Gardner and Mr. Alfred Higgins. With enamels, as with stained glass, the great beauty is colour; every case, every article in it, is a harmony to delight the eye. And we think this was a beauty understood by the most primitive as well as the most accomplished craftsman. Indeed, with time, the

enameller perfected his medium to such an extent that he could give a delicacy of drawing and modelling undreamt of by earlier Artists, sometimes with a freedom that carried him almost beyond the legitimate limits of his Art. The workers may have been "humble artisans," executing their tasks with all speed and economy, but the blues and greens of their reliquaries and pyxes and crosses and missal covers have never been surpassed in richness. The comparatively coarse work you get in the English *champlevé* of the seventeenth century—in the andirons and candlesticks of Case XV.—appropriate enough as it is in Design, has much the same charm of colour. But for the refinements of the enameller's Art you must turn rather to the Pénicauds, to Léonard Limousin, to the Courteys family, to the masters, that is, of the sixteenth and seventeenth centuries, who are here seen to advantage.

THE "Old Bell" in Holborn is to be demolished. The Christ Hospital authorities have advertised the ground for sale on building lease. With it will pass away one of the few remaining old London inns with galleried courts. For very many years a vehicle left the old inn every day for the heart of Bucks, John Hampden's country. But the Metropolitan Railway extension has killed that. Each year steals something picturesque from us of fast-waning historic London.

STEPS are being taken to approach Her Majesty's Government with the object of securing their aid in the carrying out of the project for constructing a tunnel between Ireland and Scotland. It is estimated that the cost would amount to between seven and ten million sterling, and it is confidently assumed that with a Government guarantee of a small rate of interest the capital would be speedily forthcoming. The idea has been taken up (or rather revived, for it was first seriously broached some years ago) in Belfast and the North of Ireland, where a local committee has been formed to promote it. A London Committee is also in course of formation for the same purpose.

LAST week Messrs. Christie conducted the sale of the well-known collection of pictures formed by the late Sir John Pender. The Pender collection included no fewer than 437 lots, and was of a very varied character. The Sir Joshua's are not all that they should be; and a number of portraits in the further room are only interesting as illustrating the form of ancestor-worship which is practised by some collectors. When we come to the Turners, it is a different thing altogether, and besides four fine works of that master, there is the finest John Phillip in the world, an excellent Wilkie, capital works by Callcott and Collins, a good Müller, and a fine Troyon. The central place is occupied by the famous "Mercury and Hersé," a large upright picture, belonging to Turner's "Claude" period, and first exhibited in 1811. "Mercury and Hersé" is a type of Turner that hardly ever comes into the market, and is comparable rather with the "Crossing the Brook" in the National Gallery than with any picture that has been sold of recent years. Much later is the very fine picture "The Wreckers," exhibited in 1834, and sold in the first Bicknell sale, in 1863, for 1800 guineas. The John Phillip, "La Gloria," is not only the masterpiece of the painter, but one of the greatest works of the English school, which assuredly must, now or at some future day, find its way to the national collection. Here, too, are to be found the celebrated "Prescribed Royalist" of Millais, and another early work, "The Enemy Sowing Tares"—a portrait, the story goes, of a painter of whom the young Millais disapproved. Mr. Leader's "At Evening Time it shall be Light" is one of the most popular of the more recent works in the collection.

BEFORE the Royal Society of Literature, at its rooms in Hanover Square, Professor W. M. Flinders Petrie gave a lecture on "Egypt and

Early Europe," in which he sketched out some of the evidence for connection between the two in very early times. The Master of St. John's College, Cambridge, presided. Beginning with the alien race whose presence in Egypt about 3000 B.C. was discovered a few years ago, he showed that pottery had been found in Spain and Bosnia, and also at Hissarlik, similar to that found in their tombs, and concluded from that and other evidence that this race was, as it were, a slice of European civilisation transferred to Egypt and dating from the latest neolithic age. Heshowed again that rude figures in various materials, possessing certain anatomical characteristics, which he roughly referred to Bushmen, were successively found in the south of France, Malta, and Egypt, indicating the southward recession of this people. Coming to about 2500 B.C., he exhibited pictures of seal-stones from Crete bearing ornamentation almost identical with that of Egyptian scarabs of the twelfth dynasty, and then proceeded to discuss the connection of Egypt and Greece in the Mycenaean age, which he said was now less dim to us than the condition of England after the Roman evacuation. He pointed out how the ornamentation of Egyptian objects, which belonged to 1500-1200 B.C., and the date of which could be made out with certainty, was copied, often unintelligibly, in Mycenaean remains. He also described various articles found in Egypt that embodied the characteristics of Greek Art of that period.

MESSRS. ADAMS AND Co.'s latest catalogue of their specialities should claim the attention of all sanitarians. In almost every department there is something specially interesting in the way of new Design. But in no department have Messrs. Adams and Co. shown such enterprise—at once inventive and artistic—as in that of latrines and closets. Here we have something entirely new. Their patent glazed ware slab closet, the "Epic," represents a new departure in the Design and manufacture of domestic sanitary appliances. The illustrations show that in one solid piece of highly-glazed earthenware, the closet-pan itself, with slab top, back skirting, flush-pipe, and closet outgo are all formed, and that on the same slab lugs for supporting the closet in the wall are provided. Next, is illustrated Adams's patent "Helios" valve pedestal closet, which is claimed to be the most perfect valve closet extant. Dispensing entirely with all wood casing, and the lead tray which have hitherto been inseparable from the valve closet, this apparatus combines in one piece of highly glazed earthenware the closet pan and valve in pedestal form. The "Lumina" Syphonic Closet is made in a slab of glazed ware, as the "Epic," and has a syphonic discharge readily set up by a two-gallon flush. Turning to lavatory ranges, the "Helios" commands a high position. It has ample strength without excessive weight, has an adequate self-contained overflow, and has many other improvements. In one pattern the basins are entirely supported above ground by glazed ware brackets. The valveless lavatory range is supplied with a continuous stream of water (so long as the stop-cock is turned on), the consumption of water being very materially reduced by the introduction of a special patent intermittent regulating valve. Adams' anti-syphonic trap, which obviates the necessity of a vent-pipe, and gives a permanent seal when applied to a lavatory basin, sink, urinal, or any general purpose, has special merits deserving of attention. whilst the design and construction of a number of glazed ware urinals—the "Helios," the "Insular," and the "Cresset" in particular—are worth more than passing notice. Messrs. Adams and Company manufacture special public baths and wash-house appliances; and an illustration of a combined sink and lavatory should be noted. The "Helios" water-pipe is claimed to be able, practically, to defy the severest frost; and especial value in the automatic flushing of house drains, &c., is claimed for their glazed ware syphon flusher. The patent Opaline for wall-linings, casings dado facings, panels, &c., is very decorative in appearance, and at the same time durable.



## Men Who Make.

### A VISIT TO THE BURMANTOFTS WORKS, LEEDS.

BY OUR SPECIAL CORRESPONDENT.

THE passer-by in suburban streets often enough notices a welcome splash of bright colour in the window of a house. Sometimes it is a deep rich yellow, or a radiant red; or, maybe, a full celestial blue. But, anyhow, it is bright and cheerful, affording a refreshing change from the brick and mortar monotony.



THE BURMANTOFTS WORKS, LEEDS. MAKING MODELS AND MOULDS.

Whence comes it? Well, in one sense, speaking philosophically, from the growth of a certain amount of crude artistic craving for pure colour; but to lay aside philosophy and speak practically, it probably comes from Leeds.

One is accustomed to associate almost any idea with Leeds, saving only the artistic one. But that is superficial judgment. Beneath the unbending utilitarianism of the northern character there exists a genuine artistic sense, and so, even in Leeds, if the visitor will but direct his steps towards Burmantofts he will find the place of origin, not only of the already suggested vases and ornate flower-pots, but many another work of beauty and brightness.

The other day I was favoured with a special escort over the Burmantofts works, and certainly Mr. Holroyd, the courteous managing director, has many things to be proud of, and that he may well ask the visitor to very carefully note.

Point one, and a by no means unimportant one either, is that here is found on the spot the clay of which the goods are actually composed. A seventy-yards shaft, out of which seem continually to be coming some very dirty-looking little trucks, is the outward and visible sign of subterranean excavations, extending for about a mile. I did not ask leave to investigate this part of the concern, but was content to be shown the grinding-up of the clay, and in one case was all but tempted to taste a handful, for the mixture, coloured as it was for terra-cotta, was for all the world like chocolate in one stage of its manufacture. Mr. Holroyd, however, gently restrained me from the gastronomic experiment, and we passed on to a room where models for the terra-cotta were being prepared in plaster-of-Paris—a material in great demand at Burmantofts, where two tons a day are used.

One or two drying-rooms were shown to me, and of one in particular I have the liveliest recollection. Personally, I claim for myself a highly sympathetic nature, but I am convinced

that the room in question would shrivel me up in no time, and I should become as dry as Euclid, or a treatise upon the differential calculus.

A most interesting process was traced in the making of glazed bricks. One man, whose deftness I noticed, makes, I was told, 3000 a day, and it did one good to observe the dexterity with which he flung the dab of clay into the mould and completed the operation. The output of glazed bricks alone here is over 100,000 a week.

In another large and airy shed the "dipping" or actual glazing of the otherwise completed brick was in progress, and from here the next

After watching the various stages in manufacture, it comes upon one as a sort of charmed surprise to be shown into a room where the finished articles are arranged and set forth in order and grouping. So skilfully is the show-room set out that the bright colours are in no sense obtrusive, but all tone together, and leave upon the mind a sense of colour, it is true, but a no less clear and definite sense of harmony as well, to say nothing of the endless variety of form produced by the skilled workmen and Artists who comprise the staff at the works.

### BIRMINGHAM IMPROVEMENTS.

A REPORT of the Public Works Committee of the Birmingham Corporation contains recommendations in relation to a variety of street and other improvements in the city. As the result of negotiations with the Great Western Railway Company, the latter has agreed to remove the columns supporting the disused viaduct in Great Barr Street and Montague Street, subject to its right to re-erect them in their present position if hereafter it should require to do so. In connection with the completion of the new General Hospital the Committee has authorised the paving of Loveday Street between Steelhouse Lane and Weaman Row and of Steelhouse Lane in front of the hospital with wood, at an estimated cost of £2300. As the new Meat Market is approaching completion, the Committee considers it desirable that the improvement to the foot and carriage ways in Bradford Street, Sherlock Street East, and Cheapside, arranged with the Markets and Fairs Committee, should be carried out. The estimated cost of the work is £750. Couchman Road, Saltley, having recently been widened and sewered, it has become necessary to have the foot and carriage ways completed, the cost of which is estimated by the city surveyor at £750. The sums above mentioned amount together to £3800. Owing to the

### EXTENSION OF BUILDING OPERATIONS

in Washwood Heath Road, it has been found necessary to extend the sewer from St. Margaret's Church along a portion of Church Lane and Washwood Heath Road, to a point about 320 yards east of The Grange. The cost of constructing a 12in. diameter pipe sewer along this length is estimated at about £2300. The attention of the City Surveyor having been called to the necessity for relieving the



THE BURMANTOFTS WORKS, LEEDS. FITTING TERRA COTTA AND FAIENCE.

shade of colour, occupy a large amount of space, and receive a full share of care and attention.

sewer in Bordesley Green Road of the water which finds its way into the sewer in times of storm, he has recommended the construction of



a surface-water drain from the present surface-water culvert in Arden Road along Bordesley Green Road as far as the railway, the cost of which he estimates at £360. The erection of a large factory adjoining the bridge in Spring Hill, over the old line of canal, rendered it advisable that the bridge should be set back. The Birmingham Canal Company is willing to allow the Corporation to make the necessary alteration, and it will maintain the widened portion of the bridge, in addition to the original structure, in perpetuity for the sum of £100. The City Surveyor estimates the cost of widening the bridge at £100, and the committee recommends that it be authorised to

#### SANITARY SCIENCE OF THE VICTORIAN ERA.

NOT the least important section of the Imperial Victorian Exhibition, now being held at the Crystal Palace, is that devoted to sanitary science. Its size is certainly not very great, yet there is much which marks the onward march of sanitation during the period of the Queen's reign. There are not, however, many exhibits which can lay claim to novelty, and indeed many of the stalls were met with at the recent Building Trades Exhibition. Some useful sanitary appliances are shown by The Loco Drainage Company, Limited, whose

former Company gives prominence to its "Granitic Stoneware," whilst Messrs. Broad principally show their impermeable channels, bends, dished gulleys, &c. Messrs. McNeill and Company have a stand for the display of their well-known asphalt roofing material, a model being shown demonstrating its application, and also a second model showing the application of their slag wool for fireproofing and sound-deadening floors. There is a small structure built of the well-known Opalite, by Messrs. William Griffiths and Co., of Bishopsgate Street Within—the sanitary claims of which we need not emphasise—and near this structure the patent system of the Magnetite Sewage and Water Purification Company, Limited, of Manchester, is explained. The principal of the system is to treat the sewage with aeolite before it enters the precipitation tanks. The Asbestos Company, Limited, has two stands. On the first the material is shown in its crude state, and on the second it is shown as a covering for boilers, &c. The N.A.P. Windows comprise a notable stand, and the application of the Company's patent fittings, which can be attached to the ordinary window, is prominently shown. The Company also has on exhibition its patent roller blinds, which greatly facilitate cleaning operations and the like. The N.A.P. Passable Cheeks have special advantages, in that they allow the fanlight to be opened inwards for cleaning, whilst, at the same time, the cheeks are glazed so as to entirely prevent draughts. Facing the N.A.P. Stand is that of Messrs. H. and F. Bonten, Elder Street, Commercial Street. They exhibit a collection of wrought-iron mouldings, both plain and architectural, and in the same part of the building there are numerous stands devoted to the display of gas stoves, &c. We must not forget to mention Couzens' patent gully traps, though it is not necessary to emphasize their efficiency—nor the stand close by which is given over to sanitary wares by Messrs. J. H. Sanky and Sons, of Essex Wharf, Canning Town, whose deep intercepting gullies and traps, and improved channel and kerb combined are their chief exhibits. A display of up-to-date washstands and lavatory appliances is made by Messrs. J. Mitchell and Co., and some pretty designs in hand basins are shown by Messrs. Shanks and Co., of Cannon Street. Messrs. Ewart's stand is entirely given up to various examples of their "Lightning" Geyser.



THE BURMANTOFTS WORKS, LEEDS. MODELLING.

have the work carried out. The committee also report that it is in negotiation with the Gillot trustees with reference to the provision of communication between Reservoir Road and Stirling Road, which they are of opinion would be of considerable convenience to the public. The Public Works Committee also presents its report upon the improvement of the River Rea, the widening of Edgbaston Road, and the continuation of Lower Edwardes Street. The necessity for the straightening and widening of the River Rea between Calthorpe Park and the City boundary has been before the committee for many years, and the work was commenced some time ago by forming a new course alongside Cannon Hill Park. At present, owing to the extremely tortuous course of the river in that neighbourhood, the lands abutting upon its banks are subject to flooding, and the

#### DEVELOPMENT OF THE LAND

for building purposes renders it necessary that the improvement be carried out at an early date, as otherwise its cost must be very seriously enhanced. It is proposed to commence the improvement at the point where the suggested continuation of Edwardes Street would cross the Rea. It is necessary to provide for storm overflows from the main sewer in Pershore Road, which in time of a heavy rainfall becomes surcharged. For this purpose an overflow will be provided at the point where it crosses beneath the Bournbrook and again at Edgbaston Road. The storm overflow in Edgbaston Road can also be utilised for dealing with the surface drainage in that road and other roads in the immediate vicinity, and the cost has been dealt with as part of the improvement. The cost of these works is estimated at £9000. As regards the extension of Lower Edwardes Street to join Edward Road, it is proposed to construct a bridge over the Rea fourteen yards in width at a cost of £1200. The bridge over the river by Cannon Hill Park would be removed, and a new bridge 48ft. in width constructed.

compulsory self-cleansing overflow pipe and rapid outlets have been found so efficient in preventing the insanitary condition in which the ordinary baths, sinks, &c., are often found.



THE BURMANTOFTS WORKS, LEEDS. IN THE STUDIO.

A rather extensive display of sanitary stoneware in various forms is made by The Albion Clay Company, Limited, and by Messrs. Broad and Company, Limited, Paddington, W. The

There are other exhibits—to which pressure of space precludes detailed reference—which considerably enhance the interest of a visit to the sanitary section of the Exhibition.



## Professional Items.

**ABERDEEN.**—New premises are to be erected in Union Street, on the west side of St. Catherine's Wynd, Aberdeen, for Messrs. Sangster and Henderson, drapers. The structure does not harmonise with the general architectural features of Union Street. The block will be five stories high, and will have a frontage on three sides—Union Street, St. Catherine's Wynd, and Netherkirkgate—but the main entrance will be from Union Street. The ground floor is arranged as shop and premises, and six suites of offices will be on the first floor, with frontage to Union Street and St. Catherine's Wynd, while the remainder of the flat facing Netherkirkgate will be occupied for fitting-rooms and saloons. The building was designed by Mr. R. G. Wilson, Architect, and the contractors are:—Masons, Messrs. Pringle and Slessor; carpenters, Messrs. Watt and Clark; slater, Mr. James Wilson; plasterer, Mr. George Gibb; painter and glazier work, Messrs. J. Garvie and Sons; ironwork, Messrs. McKinnon and Co.

**BIRMINGHAM.**—The Baths and Parks Committee has now completed its report upon the proposed construction of a Rotten Row along the boundary of Cannon Hill Park. The City Surveyor has prepared an estimate of the cost of carrying out the various works. The proposed Rotten Row would have a length of 754 yards and a width of 75ft., 40ft. being laid out as a sand-track for riding purposes, with a footpath 12ft. in width, the remaining portion being laid out in grass and shrubberies; the whole area consisting of 18,850 square yards of land. It would be necessary to construct a bridge over the Rea, connecting the Rotten Row with Cannon Hill Park, and the Row would be fenced with unclimbable iron fencing. Suitable entrance gates would be required at the entrance to the Row in Edgbaston Road. The estimate of the City Surveyor for carrying out the whole of these works amounts to £3500. The committee recommends that it be authorised to proceed with the construction of the Rotten Row and bridge, at the estimated cost of £3500, and that the Finance Committee be authorised and instructed to borrow that sum.

**BLYTH.**—In addition to the widening of the river, the deepening and widening of the channel, the construction of a huge import dock; the provision of additional mooring accommodation; and the extensions at the higher reaches near the Factory Point, and the High Pans, the Blyth Harbour Commissioners are about to lengthen the present piers. The east pier is to be lengthened by about 80ft. Another important work which will be of considerable local advantage is the formation of a new dock by the Blyth Dry Dock Company, Limited. This dock will be 480ft. long, with a 61ft. entrance, and a depth of water on the sill of 22ft. 6in. at spring tides. When completed, as it is expected to be in the course of about three months, the dock will be one of the largest along the North-East Coast.

**BRADFELD.**—Bradfield Parish Church has recently been enriched by the filling in of the only remaining plain window with stained-glass. All the windows are now completely restored, and the glass with which they are filled may be certainly regarded as worthily ranking among the best work of modern Artists. The new window is from the studio of Messrs. Joseph Bell and Sons, 12, College Green, Bristol. It is of the Perpendicular style of Architecture, and consists of three lights. The panels are formed by canopy work characteristic of the stonework; in the base are introduced angels bearing scrolls. The abutments are treated in a similar manner, and are filled with angels bearing musical instruments, and shields with the monogram of the Holy Name.

**CARDIFF.**—The plans of the new buildings for the Girls' Intermediate School in the Parade, Cardiff, have been approved by the

Charity Commissioners, and tenders for the execution of the work are now being invited by the Governors. During the past two years the demand for accommodation has so increased, that for some time the premises now occupied have been quite inadequate. The accommodation of the existing buildings, which include a house recently purchased, and two houses adjacent, purchased subsequently by the committee, provides for 183 children, while the proposed new buildings will accommodate an additional 252. The new buildings will be erected partly on the site previously acquired, and on land now occupied by two villas, which are at present used as temporary schools. The new schools will have on the ground floor an assembly hall 67ft. long by 35ft. wide, which will be centrally placed between the existing and the new schools, and on the ground floor will also be four classrooms, teacher's rooms, waiting-rooms, and lobby. On the first floor will be four classrooms and music-rooms, and an approach to the gallery of the central hall. On the second floor will be placed the cookery kitchen and lecture theatre, drawing, class-room, and a room reserved for a museum or library. The accommodation in the basement includes rooms for hats and cloaks, a dining-hall for the use of girls living at a distance, and a gymnasium. The main elevation towards the Parade is to be

—with marble columns and moulded spandrels. The first floor is carried on girders and stanchions from Messrs. Dorman and Long's, of Middlesbrough, encased in wood—excepting four ornamental stanchions in the centre of the frontage—and a bold bracketed cornice above. Stone has been freely used for bands, coigns, arches, panels, and columns. Red bricks for facings have been obtained from the Heaths Company at Leicester, and buff bricks for the bands from Huddersfield. There is a considerable amount of carving done to the stone in the spandrels and cornices, executed by Mr. Paley, of Leeds, from full-sized cartoons supplied by the Architects. Owing to the nature of the stone the carving had to be treated in a very free manner. The wrought-iron work has been executed by Messrs. Hockley Bros., of Doncaster. Messrs. Harold Arnold and Sons, of Doncaster, were the contractors, and the contract was £10,400. The building and land cost £15,000, and the total cost, including fittings, is £18,000.

**DRIFFIELD.**—The new police-court, station, and officials' residence, erected by the County Council on Wansford Road, Driffield, on a site purchased from Lady Downe, are nearly completed, and will be handed over to the authorities very shortly. The elevation of the main building is in the Tudor style, and has



THE BURMANTOFTS WORKS, LEEDS. BRICK DIPPING AND BRUSHING.

erected in Portland stone, and the back portions of the building are to be of red pressed brick.

**DONCASTER.**—The new and extensive premises erected by the Co-operative Society in Station Road were opened a few days ago. The building is a very imposing one. Messrs. Athron and Beck are the Architects, and they based their designs upon a building near Antwerp belonging to the old Dutch adventurers. The main gable is practically a copy of a gable in the Dutch building. The style may be described as Dutch Renaissance. The building in Holland is now pulled down, but sketches of it were taken fifteen years before by Mr. Beck. The new building stands on an area of 1265 square yards, and has a frontage of no less than 210ft. The front is broken up into three main divisions with gables, a tower at the West Laith Gate extremity, and a bold ventilating turret on the ridge of the central gable. The main gable is 80ft. high, and the tower rises to a height of 90ft. Owing to the large size of the rooms and the desirability of obtaining as much light as possible, the Architects adopted in the superstructure a series of small arched windows—instead of big windows with girders often put into business premises

an imposing appearance. The Architect is Mr. A. Beaumont, surveyor to the East Riding County Council.

**DUNDEE.**—The Gas Committee of Dundee Town Council recommends the following tenders for acceptance: For engine and dynamos, Siemens Brothers, London, £1505; boiler, Cooper and Greig, Dundee, £493; and arc lamps and accessories, Crompton and Company, London, £332 4s. It was resolved to recommend the purchase of two new batteries, the contractor taking the old plant. On that footing the offer of the Electrical Power Storage Company, Limited, London, amounting to £1112, was accepted. A large number of designs were submitted for street arc lamps.

**ECCLESFIELD.**—It has been decided to erect a new Wesleyan Chapel on a site which has been secured adjoining the old chapel, to accommodate 650 worshippers. The total cost is some £3000, and about £1500 has been raised.

**EDWALTON.**—New choir stalls have been fitted in the Parish Church, Edwalton. The stalls are beautifully carved in English oak



by Mr. Stocks, from designs by Messrs. Brewill and Baily, in harmony with the screen. They consist of two clergy stalls, with two benches on either side for the choir.

**EXETER.**—The Allan steamship Assyrian, now on its way to Newfoundland, has a large consignment of carved Devonshire oak from the studios of Messrs. Harry Hems and Sons, of Exeter, designed for the choir of St. John's Cathedral on that island, the fabric of which is now being rebuilt after total destruction by fire a few years ago. The work of making the choir fittings is being executed in Exeter by sections, and the present consignment consists, in the main, of clergy seats and desks. They are, like the building itself, in the fourteenth-century style of Gothic Art, designed by Messrs. G. G. and J. O. Scott.

**FLECKNEY.**—Plans for a new chapel have been submitted by Mr. George Starkey, of Leicester, the chapel itself being estimated to seat, with the galleries, 250, whilst provision in the upper and lower schoolrooms is made for 200 scholars. The estimate cost of the whole is £700, the builder being Mr. B. Gamble, of Fleckney. The building, which will take the place of the old one—erected in 1813—will consist of red Warwick bricks, with Derbyshire stone dressings, and it is, moreover, contemplated to considerably improve the approach.

**GATEACRE.**—The opening of new Sunday school buildings belonging to the Unitarian body took place a few days ago. The school has been built from the designs of Messrs. F. and G. Holme, Architects, Liverpool, the sole contractor being Mr. G. Dale, of Gateacre. The building is of brick, with stone finishings, in keeping with the old chapel, and is of a thoroughly substantial character. Internally there is a fine opened timbered roof. The building contains three principal rooms. The total cost of the building has been about £1650.

**GLENCARSE, N.B.**—A handsome rood-screen of carved wood has been erected in All Saints' Episcopal Church. The style of Architecture chosen is Gothic early thin pointed, the same as that of the Church. In the centre of the screen are gates leading into the chancel, with a cusped archway springing from small pillars, richly carved crocketed hoodmould, and surmounted by a handsome cross springing from the apex of the hoodmould and the centre of the rood-beam. The sides of the screen consist each of two arches, supporting pillars, with cuspings and hoodmoulds similar to those of the central arch. These sides rests upon an existing dado of stone, and have quatrefoil panels in the lower portion. The five arches and pillars support a handsome battlemented rood-beam with a deeply hollowed cornice and richly-carved patera. The screen was designed by the Rev. E. Sugden, of Coupar Angus, who has also designed the reredos in the Church, St. John's Hall and Church, Dundee, and several other works. The joiners were Messrs. How, Calderum Street, Dundee, and the carver, Mr. Beattie.

**HULL.**—Mr. J. T. Firbank, of East Hull, has offered to give an iron Church, completely furnished, to seat 400 people, as a commemoration in East Hull of the Diamond Jubilee. Arrangements will forthwith be made for the erection of this building, on the site recently selected, at a cost of £600. The iron Church will be used temporarily until the permanent Church, towards which the Archbishop of York has given £1500 from the Marriott Bequest Fund, is completed.

**NOTTINGHAM.**—In regard to the new M., S., and L. line to London, the work of excavation is progressing vigorously so far as the central station is concerned. Steam navvies are at work day and night, and the area, which a few months' ago was covered with dwelling-houses, is now a vast open space. The communication between Milton Street and Beck Street, through Parliament Street, has been improved. Nothing now remains of the old Ragged School save the remnants of the underground compart-

ments, and Newcastle Street is fast becoming a relic of the past. With regard to the construction of the line outside Nottingham, the erection of signal boxes and semaphores in the neighbourhood of Hucknall and Annesley is being steadily proceeded with, and much of the permanent way has been completed. The connection between the Great Northern and the M., S., and L. from the Eastercroft to Week-day Cross has been nearly completed.

**OMAGH, IRELAND.**—The new Presbyterian Church, which has been in course of erection for the last eighteen months, has now been opened. The building is an example of the English Gothic style. It is built of local blue stone, rock-faced, and the dressings, mouldings, and carvings are of finely-chiselled red sandstone from Dumfries. The roof, which rises to a height of 41ft., is covered with Bangor slates. The two main aisles are 64ft. by 41ft. In addition there are two spacious transepts, 23ft. 6in. broad, and across these are the side walls of the nave, carried by four stone arches, supported on moulded sandstone columns. One of the principal features of the internal arrangements is the cantilever method adopted by the Architect for the roof, which is carried on a single span of 41ft. The constructional timbers of the roof are open and exposed to view. The walls are sheeted to a height of 4ft. with tongued and grooved pitch-pine sheeting. The seating capacity is arranged for 440 on the ground floor, and in addition there is a gallery facing the pulpit, approached by a staircase close to the main entrance hall, which accommodates about fifty. The lecture hall possesses a fine open timber roof, and is well lighted and ventilated. The building was carried out by Mr. Joseph Colbourn, Londonderry; the internal plumbing work by Messrs. James Loudon and Co., Belfast; the heating apparatus supplied by Messrs. Musgrave and Co., Limited, Belfast; and the stained-glass windows by Messrs. Carlisle and Wilson, Belfast. Mr. Charles Goodwyn was clerk of works, and the entire work was carried out under the superintendence of and from plans supplied by Mr. Vincent Craig, Architect, Lombard Street, Belfast.

**RIPON.**—At the monthly meeting of the City Council a plan was submitted of the proposed Victoria clock tower to be erected at the junction of North Road, Palace and Princess Roads. The structure, as designed by Mr. G. Corson, Architect, Leeds, will be 43ft. high, and have a base 10ft. square. In the centre, on the city side, will be a statue of the Queen, and the other side will bear shields with the Royal arms and the arms of Ripon and the diocese. The clock—which will have four dials—is being constructed by Messrs. Potts and Sons, of Leeds.

The Ripon Board of Guardians has approved of the erection of an infirmary for the Workhouse, plans of which have already been passed by the Local Government Board. The cost is to be £2650. The Building Committee recommended that the Architect, Mr. F. H. Hargrave, be also clerk of the works, and that he be paid £175 for the whole of the work, but the Board decided to have a separate clerk of the works. Mr. Hargrave asked £170 for his fees as Architect. A proposal that he be paid £155 was eventually carried.

**SWANSEA.**—At a meeting of the Re-building Committee of the Swansea Parish Church it was stated that the contractors (Messrs. Cornish and Gaymer) would complete the nave portion of the building by July 31st, and that the opening would take place on August 5th. It was further explained that it was not intended to consecrate the nave until the other part of the building had been completed. The nave portion of the building has cost £14,000 in construction, and it is estimated that £10,000 will be required to complete the chancel and tower.

**TORQUAY.**—Mr. E. H. Harbottle, Architect, of Exeter, after inspecting the tower of St. Marychurch, has presented a report of quite a serious character. To a large extent the tower will have to be rebuilt, or, at all events, in

many places the existing stones will have to be replaced. To prevent the tower possibly falling it has been deemed necessary to immediately shore up the entrance to the tower with heavy baulks of timber. The state of the tower is extraordinary, considering it was only built some thirty years ago at a cost of about £2000. A curious feature is that the top of the tower is the best built portion of the whole. Its great fault is that the stone used for decorative purposes, free-stone, was not laid on its natural or quarry-bed, and it has scaled off in large pieces owing to the action of the weather. Another fault is the quality of the mortar used, some of it being crushed to dust by the weight of the tower, and this is considered a serious element of danger in several places. To restore the tower the cost is estimated at about £800. Portland stone will probably be used, similar to that employed in the spire of the Roman Catholic Church close by, and in the tower of St. John's Church, Torquay.

**TORRY, N.B.**—The new Episcopal Church of St. Peter is at present in course of erection on the north side of Victoria Road, Torry. In its details, following on the lines of the late Scottish Gothic work, the building, when completed, will consist of nave, with porches on the north and south sides; chancel, with a chapel and bell-turret on the south; and sacristy and choir-vestry on the north sides. With the exception of the window tracery, which will be of free-stone, the whole of the exterior stonework will be of pink granite, the general surface of the walls of thin split-faced courses, all dressings for doors and windows being slightly axed. The roof, covered with Scotch slates, will be continuous over nave and chancel, its apex being 68ft. from the floor of the nave. The height of the nave walls will be 47ft. The nave arcade consists of five arches with piers 10ft. apart and 26ft. 3in. from the floor to the springing. The total length of the Church internally is 116ft. 6in., the width 52ft. 6in. The contractor for the mason work is Mr. John Morgan, Aberdeen. The Architects are Messrs. Kinross and Tarbolton, 18A, Howe Street, Edinburgh.

**WALTON.**—The new Bishop's chair, which has just been placed within the sanctuary of St. John the Evangelist's Church, Walton, has been designed by Mr. C. E. Deacon, Architect, of North John Street, Liverpool, in the Early English or thirteenth-century style of Gothic Art. The new episcopal chair is framed in massive oak. The back is carried high, terminating with a crocketed gable. Within the tympanum is a shield bearing the arms of the See of Liverpool, surmounted by a bishop's mitre. In the back rail, amidst carved foliage, occurs the date, 1897. The work was executed by Messrs. Harry Hems and Sons, of Exeter.

A MAUSOLEUM, to cost about £50,000, is being erected in Fairmount Cemetery, Newark, N.J., for Gottfried Krueger, a millionaire brewer of that city, which when completed will have few equals in point of architectural beauty in the United States.

The Cardiff Board of Guardians has purchased Llancarvan House for the purposes of a new dispensary office, and Mr. Edwin Seward, the Architect, has been instructed to prepare plans and specifications for the necessary alterations and additions.

An ancient window, of small dimensions, has been discovered in the north aisle of St. Michael's Church, Lewes, during the work of renovation. The window is believed to be of about the same period as the Priory in Southover, which was destroyed in the reign of Henry VIII., and it is proposed to place a figure in the cavity.

PERHAPS the smallest piece of painting in the world is that executed by a Flemish artist. It is painted on the smooth side of a grain of common white corn, and pictures a mill and a miller with a sack of grain upon his back. The mill is represented as standing on a terrace, and near it is a horse and cart, while a group of several peasants is shown in the road near by.



## Trade and Craft.

### BUILDING BYE-LAWS AT BRISTOL.

W. G. Lewis and G. Richards, builders, of Bedminster, were summoned for erecting two houses in a street before it was properly formed. Mr. Wise, who prosecuted on behalf of the Bristol Sanitary Authority, said the bye-laws provided that before any building operations were commenced the street had to be laid with a foundation of clinkers, &c. If this was not done before the Sanitary Authority took over the road, the occupiers of the houses had to walk through a perfect quagmire. Some builders seemed to think it an unnecessary provision, but the Sanitary Authority intended to see that the law was observed.—Defendants pleaded guilty.—A fine of 10s. each and costs was imposed.

### THE NECESSITY OF HOARDINGS.

The case of *Bridgwater v. Commissioners of Sewers of City of London*, heard in the Chancery Division last week, arose out of the preparations for the forthcoming Jubilee celebration. The plaintiffs brought this action for an injunction to restrain the defendants, the Commissioners of Sewers, from interfering with a hoarding and gantry (i.e., a covered way over the pavement of the street), erected by the plaintiffs in front of No. 56, Ludgate-hill, and alleged to have been approved by the Commissioners in January last. It was stated that the plaintiffs were erecting on the site of No. 56, under a building agreement, a large building at an expense of £15,000, and that by their contract they were under an obligation to complete the work by September 29th. It was admitted that no formal licence had been granted for the erection of the hoarding, but it was proved that a deposit in respect of a licence had been paid, and it was contended that an authority had been given and acted upon, that expense had been incurred by the plaintiffs on the faith of the acts of the officers of the Commissioners, and that therefore it was not competent to the Commissioners to revoke the authority. The neighbouring owner objected to the hoarding on the ground that it would obstruct his view of the Jubilee procession, and also that he could not let seats to view the procession while the hoarding continued. The Commissioners, deeming the hoarding unnecessary at the present time, had caused it to be pulled down. On the part of the plaintiffs it was stated that the hoarding was necessary in order to enable them to complete the works within the time stipulated, and that it was impossible for them to wait for the re-erection of the hoarding until after June 22.—After some discussion, terms were arranged between the parties. Mr. Justice Kekewich ordered that the costs should be paid by the defendants.

### MESSRS. SHANKS AND CO.

The sanitation of ships is not the least important of the many branches of Messrs. Shanks and Co.'s extensive business, and their new catalogue dealing with this section is replete with illustrations of interesting novelties. Baths, closets, cisterns, drinking fountains, hoppers, lavatories, &c., all come within the scope of their enterprise, and all are alike apt subjects for new and ingenious treatment. Among the new features we may mention the new "Britannia" under water-line closet, the chief characteristic of which is that in the event of mistake, the whole closet can be unscrewed from the discharge and supply pipes, and the defect made good without any disturbance of the discharge pipes or having recourse to plugging. The "Nautilus," Shanks' latest closet for ships, marks a new departure in this line of sanitation, containing as it does the adaptation of the syphonic principles to ships' closets. The basin is made in one piece, of strong fire-clay, and is provided with the firm's patent "Perfecto" seat extension. A new system of bath-heating for ships is also illustrated in the catalogue under notice. The heater can be combined with the standing waste, and a much more compact arrange-

ment is thereby secured. Sheet metal basins have lately claimed the attention of Messrs. Shanks and Company; and it is a form of basin which is often preferred on account of its lightness and non-liability to fracture. Lavatories are made in various designs, a collection of folding examples being particularly worthy of notice. They have no supply tanks, but are fitted with a patent combined hot and cold supply tap, or cold tap only, with a small receiver fitted with connection for waste pipe. Some of the folding lavatories are very elaborate in their ornamentation, and the woodwork of the casing can be stained and polished any shade to match the surroundings. The catalogued collection of baths is strikingly varied, and new designs of fountains are also shown.

## Enquiry Department.

To the Editor of THE BUILDERS' JOURNAL.

SIR.—I shall be obliged if you will describe the difference and give the reason of name in the following:—British plate glass, British polished plate glass, patent plate glass, rough plate glass, Hartley's  $\frac{1}{4}$  in. rolled, rough cast plate, rough hammered plate.

Yours obliged,  
ENQUIRER.

Farnham, May 28th, 1897.

*British Plate Glass.*—This glass is cast upon a table which gives it whatever smoothness or polish its surface possesses. It is usually sold as "ordinary glazing."—*British Polished Plate Glass.*—This is cast in the same manner as the above, and the upper surface, which cools with slight and hardly perceptible waves, is afterwards polished with emery-wheels, and finished off with rouge, &c., to an absolutely true and highly polished surface. It is sold as best glazing, or, if of a very even thickness throughout, as silvering quality.—*Patent Plate Glass* is similar to the above, but is specially thin; is polished upon both its sides, and is specially adapted for air-tight show cases and the best looking-glasses on account of its lightness for the first purpose, and the thinness for the second purpose, for the less thickness of glass there is between the silver, the more beautiful and brilliant the mirror.—*Rough Plate Glass* is composed of the commonest quality of glass cast in sheets.—*Rough Cast Plate* is very similar, but is of special thicknesses, and often cast to special sizes.—*Hartley's  $\frac{1}{4}$  in. rolled.*—This is cast (not blown) glass, and, after the molten metal is poured upon the casting table, rollers with grooves in them are run over it giving it that corrugated appearance which is formed of small flutes in the glass; all the new, fancy glasses, such as Muranese, &c., are made in the same way. Hartley's rolled plate glass can also be obtained  $\frac{1}{4}$  in.,  $\frac{1}{2}$  in., and  $\frac{3}{4}$  in. thick, it is made in a large pattern having about four flutes to the inch, and a small pattern about eleven flutes to the inch. The process of rolling, in addition to the pattern it impresses upon the glass, hardens and consolidates the sheets.—*Rough-Hammered Plate Glass* is not much used now. Years ago, before Hartley's patent glass was invented, it was used where strength was required, as the process of hammering consolidated it similar to what is described above under Hartley's, but the latter has for many years superseded it, and, although it can be specially ordered, and would in consequence be invoiced as hammered, it is more than probable that in most cases ordinary rough-plate glass is all that would be supplied.—ED.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR.—In the final R.I.B.A. Exam. a design is required among the Testimonies of Study. Have you had any paper, &c., on Design published? I don't remember. Or may I ask what you think would be best to do for this branch?

London students have a great advantage over Provincial fellows in getting up the exams. There are no lectures or classes what-

ever in Newcastle, except building construction.

The papers on "Iron Roofs" appearing in your journal I have found very useful.

Yours faithfully,

M. G. M.,  
Student, R.I.B.A.

We do not quite gather from your question whether you wish for advice "How to Design," or whether you want to know a subject suitable for the purpose of the examination. If the former is what you mean, we cannot, any more than others can, give you explicit instructions, for the simple reason that you ask for something impossible. No one can tell you *how* to design or *how* to draw. You must carefully study old examples, not for the superficial things in them which may please you, and which, more often than not, are the result of accident, but for the reasons which underly the design—the anatomy of it. If you carefully study the work of the modern masters, such as Norman Shaw, the younger Scott, Bentley, Sedding, Stokes, &c., in a similar manner, you will find all the qualities which obtain in the work of the old men equally apparent in these also. You cannot have better guides. But *don't* attempt to copy. Try and reason out clearly everything you do, and have a definite answer as to why you did this or that, and then your work can never be bad. Let your elevation express, in the simplest manner possible, your plan, and place no features for the sake of what you think may be "effect" only. We would advise you to read most carefully, and think out every sentence well, of Beresford Pite's excellent essay on "Design in Drawing" in recent numbers of *The Architectural Review*. If you follow his advice in as simple and direct a manner as you can, you are sure not to go wrong. But weigh his words carefully and well. The same remark applies to *Drawing*. We should advise you to get Ruskin's "Elements of Drawing." Consider each sentence there as a collection of precious stones. They are worth more to you than jewels. They contain some of the wisest words ever written upon drawing and design, and will never fail to help. As to a suitable subject, choose a simple one, such as a house to cost about £2000, or a public library or museum for a small county town.—ED.

THE work in connection with the new police court at Highgate, which is to be built at the junction of Archway Road and Church Road, near the Highgate station of the Great Northern Railway, has just been commenced.

MR. E. E. GEFLOWSKI, a sculptor who has executed many important works, has just completed a statuette, a reduction of his large statue of the Queen at Singapore. This statuette, which has been submitted to, and approved by, the Queen, is to be reproduced in plaster and various metals.

MR. STOREY is now hard at work at Rome upon the memorial bust of the late Lord Randolph Churchill, which is to be placed in the members' entrance to the House of Commons. When completed, the bust will be placed on a small bracket immediately facing that of the late Mr. W. H. Smith.

SOMETHING like 496 applications have been received at Spring Gardens for licences in respect of temporary structures to accommodate persons desiring to see the Jubilee procession. Of those 328 were granted and 33 refused, the remainder being under consideration. The City Architect has made many alterations in the plans, and all applicants have been warned to prevent overcrowding and take precautions against the risk of fire.

THE Bill to authorise the acquisition of lands known as Churchyard Bottom Wood, Highgate, for the purpose of a public open space, gives power to the Ecclesiastical Commissioners to sell the woods in question to the Hornsey District Council, which is to keep it open for public use for purposes of exercise and recreation, it being specially empowered to erect in the woods a suitable keeper's lodge and a shelter for public use.



## SOCIETY MEETINGS.

**Sheffield Society of Architects and Surveyors.**—The Sheffield Society of Architects and Surveyors inspected the Deepcar works of Messrs. J. Grayson Lowood and Co. Limited, silica brick and glazed brick manufacturers, on the 29th ult. The firm's manufacture of bricks draws upon a practically inexhaustible store of ganister underlying a large portion of the estate of Lord Wharfedale. The ganister is of an average thickness of three feet, and overlying it is a bed of coal from eighteen inches to two feet thick, which just serves to feed the brick kilns of the firm. As won from the mine the ganister is exceedingly hard. The first process on arrival at the pit bank is the breaking of the ganister, for which, as the party saw on Saturday week, some very powerful machinery is required. After the crushing the ganister is ground down with water into a stiffish paste, and then moulded into bricks. The machinery of these various processes for silica brick-making is very ingenious. From the moulding presses the bricks are conveyed to drying floors—chambers with cast-iron floors, the temperature of which can be regulated to a nicety by means of steam. After the drying floors come the kilns, and the silica brick is then a finished product. An equally important branch of the firm's activities is the manufacture of fire-brick and tuyeres, stoppers, nozzles, &c.—articles in great demand in the steel trade of Sheffield.

**Bristol and Gloucester Archaeological Society.**—Brimpsfield Church, which was visited by the Bristol and Gloucester Archaeological Society a few days ago, is a most interesting building. At the entry to the chancel, a tower has been let down in a most curious fashion into the building, cutting into the Early Norman arch of the chancel, and slicing off the later Early English pillars that supported an earlier bell turret. Arches have been thrown from these to the outer walls to form supports, and hagioscopes cut through to permit of a view of the high altar that stands against the dead east wall unlit by any window. Without, the Church formerly stood on the north of the priory, and to the south-west the famous castle that played so great a part in local history in mediæval days. Elkstone Church, which was also visited, was found to be full of strange detail and minute work. On the tower were sculptured on the buttresses strange figures of men playing mandoline and clarinet, with dogs perched above them. The interior is deeply interesting, the east window being exceptionally quaint and unique. The great gargoyles upon the upper part of the tower are strangely grotesque.

**Iron and Steel Institute.**—In accordance with previous announcements, the autumn meeting of the Iron and Steel Institute will be held at Cardiff on August 3rd, 4th, 5th, and 6th next, at the house of the South Wales Institute of Engineers, Park Place, Cardiff. Visits will be made to the Bute Docks, the Cardiff-Dowlais Works, Penarth Docks and other works on the Taff Vale Railway, and the Dowlais and Cyfarthfa Steel Works. A reception will also be held at the Free Library, Art Gallery, and Museum Building by the Mayor. A ball, given by the Marquess of Bute, and a Welsh concert at the Park Hall, are also included in the programme. A detailed programme will be issued when the local arrangements are further advanced, which will also contain a list of the papers that are expected to be read.

**British Archaeological Association.**—At the eleventh meeting of this Association, held at the rooms in Sackville Street, Mr. C. H. Compton, vice-president, in the chair, Mr. Quick, the curator of the Horniman Museum, exhibited some curiosities recently brought from Benin by some of the officers engaged in the late expeditions. These curious objects had been saved from destruction by fire at the time of the capture by reason of their having been in a stone house. One of them was a carved ivory staff of office, having the representation of a human figure holding a peculiar form of bell in an inverted position; this form of bell, it was said, was found only on the West Coast of Africa. This staff was

carried by the executioner or one of his attendants, and its ornamentation showed evidence of Portuguese influence. Another object from the same region was a carved wooden case, having a sliding cover bearing the image of the sacred bird (the Ju-Ju bird). This case was used for the transmission of documents. An armlet and bracelet belonging to one of the wives of the king was also exhibited. Mr. Quick also exhibited some prehistoric implements found in excavating further foundations of a house near the Victoria Embankment, consisting of the remains of a weapon or instrument formed from the antler of a deer, also the shank-bone of a horse or an ox.—Mr. J. Cave Browne exhibited a seal bearing a foreign coat of arms and coronet, which seal was given by a dying French officer to an English officer, who had given him a drink of water upon the field of Waterloo.—Papers were read in the absence of their authors by Mr. Patrick, Hon. Sec., from Mr. J. T. Irvine, descriptive of some prehistoric flint instruments found at Overton Longaville, in Huntingdonshire, by the Dowager Marchioness of Huntley, which were illustrated by some very careful drawings. The other paper was explanatory of some recent discoveries on Brandon Hill, Bristol, by Dr. Fryer, where, at an early date, a hermitage and chapel were erected, but the first known occupant of which was Lucy de Newchurch in 1351. These discoveries were made during the excavations for the foundation of the Cabot Memorial Tower, which is to occupy the site of the ancient hermitage. The excavations had been carried down to the millstone grit rock, of which the hill is composed, when a flooring of thin cement was met with, and on the removal of a portion of this floor a well-made grave was found, measuring 5ft. 6in. in length, and about 2ft. deep, tapering from the shoulders to the feet. The grave lay east and west, and was carefully lined with masonry. The grave contained a skeleton, and close by were found the remains of two other skeletons. Some fragments of green glazed tiles were also found. The excavation produced several beds of ashes and dark-coloured earth, and some early tobacco-pipes and leaden bullets, which were found about 4ft. above the earlier remains, indicating pretty distinctly the position of camp fires during the sieges of Bristol in 1643-4. Dr. Fryer also contributed a short note on the composition of an Inca ornament, derived from the analysis of the metal of which it was composed.

**The Surveyors' Institution.**—Mr. Daniel Watney presided at the annual general meeting of the members of this institution at the temporary offices, Savoy Street, Strand. The 29th annual report of the council showed that during the last twelve months there had been a net increase of 112 in the number of all classes on the roll, the total membership now being 2702. The total revenue for the year was £7334, and the expenses amounted to £5596. The total investments calculated at current prices now represented a sum of £35,226. At the preliminary examinations in January last, held simultaneously in London, Dublin, and Manchester, there were 133 student candidates, of whom 91 passed; and of 236 candidates who offered themselves for the professional examinations, 151 passed. The council congratulated the members on the progress of the institution during the past year in every one of its numerous channels of activity. The report was adopted on the motion of Mr. A. Harston, seconded by Mr. Ernest Swain.

**The Lancashire Federation of Building Trade Employers.**—The fourth half-yearly meeting of the Association was held at the Bull Hotel, Burnley, on Tuesday, June 1st. The President, Mr. Cunliffe, Bolton, was in the chair, and, in moving the adoption of the report, said that the past half year had been a busy one, and, though there had been no large accession of strength to the Federation, much work had been done to extend the organisation. Manchester had not yet become affiliated, but there was undoubtedly a growing feeling among employers there favourable to their cause. He hoped to see the time when these federations, having become general, should be amalgamated in one central or national body,

and then they would be strong enough to defend their interests and attack the abuses which undoubtedly existed.—The Secretary report stated that one local association, Warrington had joined during the half year but as two of their smaller branches had become for a time disorganised, the strength of the Federation remained about the same as before. The relations with the operatives were reviewed at some length, the disputes at Chorley, Colne, Blackpool, Preston, &c., were dealt with, and detailed account given of the action taken with reference to the numerous demands throughout the country for advances in wages or alteration in the working rules.—The report was adopted and ordered to be printed and circulated; the treasurer's accounts, which showed a large balance in favour of the Federation, were presented and approved.—Mr. James Storrs, of Stalybridge, was unanimously elected President of the Association for the ensuing year. Mr. W. Cunliffe, Bolton, was elected Vice-President; Mr. J. H. Thompson, Bury, Hon. Treasurer; and Messrs. W. Shepherd, Rochdale, and J. Tinline, Bury, Hon. Auditors. The secretary, Mr. John Tomlinson, 11, Croft Street, Preston, whose two years' term of office expired, was unanimously re-elected for a similar period.—The New Employers' Liability Bill was considered, and in view of its provisions, which seem likely to become law, it was deemed advisable that the Executive should take into consideration the best means of protecting the members, either by the formation of an Accident Insurance Company on mutual lines, or by endeavouring to obtain more favourable terms for federated employers.—A long discussion took place on the anomaly in the Operative Masons' Trade Rules in the different towns respecting sawn and read-worked stone, and ultimately, on the motion of Mr. Parker, Longridge, seconded by Mr. Smith, Burnley, it was decided to test the feeling on the subject by a vote of the federated employers.—The subject of the railway companies' crane charges for stores &c., was considered, and on the motion of Mr. A. Lewis, Blackburn, seconded by Mr. Tinline, Bury, it was decided to take united action with a view to obtain a modification of the charges.—A hearty vote of thanks to Mr. Cunliffe, Bolton, for his services as president during his year of office, was received with acclamation.

It has been resolved to pull down the historic but dilapidated old workhouse, Havel-street, Camberwell, at "the earliest possible date." This decision has been forced on the Guardians through the insanitary state of the building.

## Announcements.

## Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage. All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

## Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIX PENCE per annum by half-yearly or annual prepayments.

## Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS. Per line, Sixpence. Minimum charge, eight pence. Three Insertions for the price of Two. Prepayments in the above advertisements is absolutely necessary. Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open. Prices on application. Small Advertisements for current week's issue received up to first post Monday morning included.

Editorial and Publishing Offices  
Effingham House, Arundel Street,  
Strand, W.C.



# TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BRISTOL.**—For alterations to Messrs. Jolly and Sons' Messrs. College Green, Bristol. Messrs. R. Milverton Drake and John M. Pizey, Architects.—  
A. J. Beaven ... £2,430 | T. H. Brown\* ... £2,370  
\* Accepted subject to slight deviation.

**BURSLAM.**—For the erection of offices, Moorland-road, for the Potteries Stipendiary Commissioners. Mr. Edwin Penn, Architect, Stoke-on-Trent.—  
Chas. Cope ... £1,423 | J. H. Broadhurst ... £1,105  
Hall and Robinson ... 1,108 | W. Simpson ... 1,104  
G. A. Foster ... 1,190 | N. Bennett ... 1,101  
W. Cooke ... 1,183 | Grant and Son ... 1,089  
Bagnall ... 1,157 | J. J. Longden, Burslem\* 1,054  
Valley and Wooliscroft 1,149  
\* Accepted.

**CANNOCK (Staffs).**—Accepted for the construction of new, &c., for the Urban District Council. Mr. Jno. Peake, Surveyor, Council Offices, Cannock.—  
Enoch Blewitt, contractor, Hednesford ... £1,749 15

**CARNARVON.**—For the construction of a sea wall. Mr. W. Bowen Jones, Engineer, Harbour Offices, Carnarvon.—  
Geo. Webb & Co. £2,761 12 6 | Owen Morris, Carnarvon\* ... £2,750 0 0  
\* Accepted.

**CASTLEFORD (Yorks).**—Accepted for the erection of a public hall and offices, Jenson-street, for the Concert and Lecture Hall Company, Limited. Mr. R. M. McDowall, Architect, Castleford.—  
Excavating, Bricklaying, and Masonry.—  
A. S. North, Castleford ... £1,950 0 0  
Carpentering, Joining, Plumbing, and Glazing.—W. Wilson & Son, Castleford 1,360 0 0  
Slating.—W. Allison, Castleford ... 102 10 0  
Plastering.—G. W. Binns, Castleford ... 835 0 0  
Painting.—J. H. Butler, Castleford ... 84 16 6

**CULLEN (Banffshire).**—Accepted for the erection of a dwelling-house, North Castle-street, for Mr. Alex. Runcie. Mr. Jas. Perry, Architect, Buckie.—  
Masonry.—J. Stevenson, Cullen ... £45 10  
Carpentry.—W. Davidson, Cullen ... 107 5  
Slating.—A. Mitchell, Cullen ... 24 18  
Plumbing.—W. Beveridge, Cullen ... 12 0  
Plastering.—J. Ingram, Cullen ... 23 10  
Painting.—J. Murray, Cullen ... 5 10

**FOLKESTONE.**—For the supply of 3,000 tons granite, &c., for the Corporation. Mr. John White, Borough Engineer, Town Hall, Folkestone.—

	Belgian.			
	Broken Granite.	Granite Chippings.	Kerb.	Channel.
	per ton.	per ton.	per ft. run.	per ft. run.
	s. d.	s. d.	s. d.	s. d.
A. and F. Manuelle	12 5	8 5	—	—
Kaltenbach and Schmitz	11 5	9 4	—	—
Coopers, Limited (Cherbourg Quartzite)	11 0	6 9	—	—
J. Sommerfeld*	11 0	7 10	—	—
Wm. Griffiths	—	—	1 3	1 1½
B. Nowell and Co.	—	—	1 23	1 24
J. Sommerfeld	—	—	1 24	1 24
A. and F. Manuelle	—	—	1 24	1 13
Coopers, Limited	—	—	1 2	1 13
Blichfeld and Co.	—	—	1 13	1 13
E. J. Van Praagh and Co.	—	—	1 13	1 13
J. Goodchild and Co.*	—	—	1 1½	1 1½

[All of London.]

**CROYDON.**—For alterations and additions, including new class-room, girls' department, at the Board School,

Birchchange-road, South Norwood. Mr. Robert Ridge, Architect, 12, Katharine-street, Croydon.—  
E. P. Bulled and Co. ... £459 | W. Akers and Co. ... £419  
J. and C. Bowye ... 449 | J. Smith and Sons\* ... 405  
\* Accepted subject to the approval of the Education Department.

**ELGIN (N.B.).**—For the erection of houses, Glendullan Distillery, Dufftown, for Messrs. William Williams and Son Aberdeen. Mr. C. C. Doig, Architect, Elgin.—

**Building.**—George Milton, Bands Cullen ... £380 0 0  
**Carpentry.**—A. Garrow, Dufftown ... 275 0 0  
**Plumbing.**—Ross Bros., Dufftown ... 63 12 6  
**Plastering.**—Scott and Sellar, Aberdeen ... 109 14 6  
**Slating.**—J. Wilson, Dufftown ... 71 14 6  
**Painting.**—Garden and Ward, Dufftown ... 18 3 0

**FENNY STRATFORD.**—For the erection of four villa residences in Bletchley-road, Fenny Stratford, for Mr. J. Coles. Mr. T. H. Bishop, Architect, Leighton Buzzard.—

**Kinglee.** ... £2,350 | Edwards ... £2,040  
**Cook and Sons** ... 2,197 | Slaymaker & Harlow\* 2,016  
Kemp and Sons ... 2,048  
\* Accepted.

**HANWELL.**—For the erection of a block at Hanwell Asylum for twenty-nine nurses and servants, a set of rooms for a head attendant, &c., for the London County Council.—

E. C. & J. Keay, W. Harbrow, Limited ... £42,427 0 0 | Bernadsey\* ... £34,766 7 8  
Humphreys, Ltd. 37,419 0 0 | Hill and Smith (incomplete) ... 32,770 0 0  
Kirk & Randall (conditional) ... 36,944 0 0  
\* Accepted.

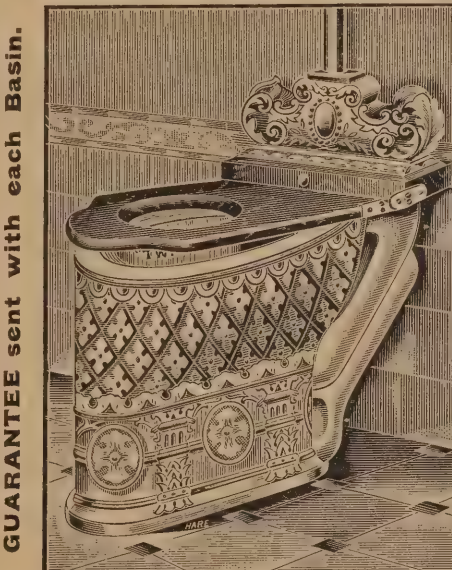
**THE SMOKELESS FIRE Co. Ltd.,**  
Sole Proprietors of Marsh's Patents  
FOR THE  
**COMPLETE COMBUSTION**  
OF FUEL.  
Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFESBURY AVENUE, LONDON, W.

**BILLS OF QUANTITIES, &c.**  
Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.  
J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.



**HOISTING APPLIANCES**  
OF ALL KINDS.  
Catalogue, 40 Pages, Free.  
**WESTON AND OTHER Pulley Blocks**  
in Stock, with any length of  
**CHAINS.**  
Chain Maker on Premises for Repairs, &c.  
**LONDON HOIST AND CHAIN CO.**  
32, Norton Folgate, E.C.

**"ECLIPSE" PATENT GLAZING.**  
THE ONLY ABSOLUTELY IMPERISHABLE GLAZING.  
Extensively used during the last fourteen years for H.M. Government, the principal Railway Companies and Corporations, and for all kinds of Buildings in all parts.  
MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.  
**MELLOWES & CO.** Works, SHEFFIELD. LONDON, 28, Victoria St., Westminster, S.W.  
Telegraphic Addresses—"ECLIPSE, SHEFFIELD," "MELLOWES, LONDON."



**TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.**

Perfect Sanitation, Healthy Houses  
OBTAINED BY ADOPTING THE  
**"TWYCLIFFE"**  
Patent Pedestal Syphon W.C. Basin.  
A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.  
Advantages claimed for the "TWYCLIFFE" Syphon:  
Perfect safeguard against sewer gas and the evils arising therefrom.  
Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.  
Practically noiseless in action.  
Simple in construction, reliable in action.  
No complicated mechanism to get out of order.  
Easily fixed as an ordinary Basin.  
High-Class Article of Superior Material, Workmanship and Construction.

**HOMAN & RODGERS, ENGINEERS.**  
ORIGINAL PATENTEES OF ALL GIRDERS FORMED OF JOISTS AND PLATES  
CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).  
FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS, USED IN OVER 2000 BUILDINGS.  
ROOFS, BRIDGES, PIERS, GRANITIC PAVING STEPS, ASPHALTE.  
SECTION OF BRICK FLOORS.  
LONDON {OFFICES: 17, GRACECHURCH STREET, E.C. | WORKS: NINE ELMS LANE, S.W. | MANCHESTER {OFFICES: 10, MARSDEN STREET, WEST GORTON. | WORKS: WEST GORTON.  
Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue. | Telegraphic Address: "NAMOR, MANCHESTER." Telephone No. 637  
**FIRECLAY BRICK WORKS, PARKSTONE, DORSET.**



**LEIGHTON BUZZARD.**—Alterations to house in North-street, Leighton Buzzard, for Mr. F. J. Chew. Mr. H. T. Bishop, Architect, Leighton Buzzard:—  
Garside ... £300 0 | Dawson ... £298 10  
Yirrell ... 300 0 | Cook and Son\* ... 287 10  
\* Accepted.

**LEIGHTON BUZZARD.**—For drainage and sanitary work at the "Plume of Feathers" Hotel, Leighton Buzzard. Mr. T. H. Bishop, Architect, Leighton Buzzard:—  
Tutt ... £157 | Garside ... £153  
Yirrell ... 154 | Cook and Son\* ... 149  
\* Amended and accepted.

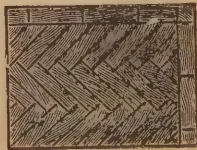
**LEIGHTON BUZZARD.**—For the erection of isolation hospital, lodge, laundry, &c., in Stoke-road, Linslade, Leighton Buzzard, for the Hospital Committee of the Linslade Rural District. Mr. T. H. Bishop, Architect, Leighton Buzzard. Quantities by Messrs. Middleton and Brown:—  
Grist ... £3,488 | A. E. Dawson ... £3,052  
C. Hart ... 3,120 | D. Cook and Son ... 2,948  
Tutt Bros ... 3,115 | Webster and Cannon ... 2,900  
H. Fincher ... 3,100 | Edwards and Sons ... 2,899  
Garside and Son ... 3,060 | Yirrell (accepted) ... 2,895

**LEIGHTON BUZZARD.**—Accepted for the erection of a house in Grove-road, Leighton Buzzard, for Mr. C. H. Avenue. Mr. T. H. Bishop, Architect, Leighton Buzzard:—  
W. D. Cook and Son ... £622 10

**LONDON.**—For rebuilding the Church Schools of St. George, Hanover-square, in Farm-street, W. Mr. Philip A. Robson, Architect, 9, Bridge-street, Westminster. Quantities by Messrs. Leaning and Son, 28, John-street, Bedford-row, W.C.:—  
J. Shillitoe and Son ... £15,435 | Jerrard and Sons ... £14,036  
Lascombe and Son ... 15,050 | Dove Bros\* ... 13,675  
J. Longley and Co. ... 14,515 | G. F. Wright ... 13,589  
Foster and Dicksee ... 14,425  
\* Accepted.

**LONDON.**—For erecting a new sorting office at Penrose-street, Walworth, S.E., for the Commissioners of Her Majesty's Works and Public Buildings. Mr. Henry Tanner, Architect:—

		For old material.
T. and A. Raikes ...	£3,045	£50
B. E. Nightingale ...	2,215	49
Barlow and Roberts ...	2,135	35
William Downs ...	2,017	—
Cheesum and Sons ...	2,000	59
J. G. Minter ...	1,981	89
A. J. Thompson ...	1,941	100
W. H. Lorden and Son ...	1,941	100
J. Marsland ...	1,897	18
Henry Brown ...	1,865	25
R. H. Galbraith ...	1,863	15
Henry Leney, Penge (accepted) ...	1,836	49



**WOOD-BLOCK PAVING.**  
(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.  
Estimates and full particulars on application to  
**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM JOINERY WORKS,  
Clapham Junction, S.W.

**LADDERS, BARROWS, STEPS, TRESTLES, SCAFFOLDING, For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

**LONDON.**—For erecting a new stable and coach-house, for Mr. G. Dyer, Croxted-road, West Dulwich. Mr. W. H. Duffield, Architect:—  
Huxtable ... £443 | Common ... £391  
Henry Leney, Penge\* ... 347  
\* Accepted.

**LONDON.**—For the erection of new premises, Swan-street, Southwark, for the Standard Bakery Company. Mr. R. E. Crossland, Architect:—  
Holloway Bros ... £8,513 | Patman and Fothering-ham ... £7,151  
Jas. Smit and Sons ... 7,547 | Harris and Wardrop\* ... 6,963  
John Grover and Son ... 7,525  
J. Carmichael ... 7,396  
\* Accepted.

**LONDON.**—For alterations, alterations, and fittings at the "White Hart Hotel," Gipsy-lane, Upton Park, E., for Mrs. M. A. Fry. Mr. Fred. A. Ashton, Architect, 177, Romford-road, Stratford, E.:—  
A. E. Symes ... £2,075 | Hearle and Farrow ... £2,300  
J. and H. Cocks ... 2,502 | W. J. Maddison ... 2,255  
W. Shurmer ... 2,470 | C. Simmons ... 2,200  
W. Watson ... 2,420

**LONDON.**—For erecting new Conservative Club, Charlton, S.E. Mr. John Rowland, Architect:—  
H. J. Stevens ... £3,276 18 6 | Minter ... £3,070 0 0  
W. Mills ... 3,166 0 0 | Marney ... 2,996 10 0  
H. L. Holloway ... 3,147 0 0 | Thomas & Edge ... 2,987 0 0  
Balaam Bros ... 3,081 0 0 | Sanford ... 2,785 0 0  
Proctor ... 3,080 0 0

**LONDON.**—For alterations to the "Crown and Anchor" public-house, Jamaica-road, Bermondsey, S.E. Mr. Chas. H. Plack, Architect:—  
Howell J. Williams ... £750 | Courtney and Fairburn ... £500  
Balaam Bros ... 668 | Evans ... 474  
Bennett ... 562 | Eddie ... 430  
Burman and Sons ... 420

**LONDON.**—For repairs and painting at the Clerkenwell Fire Station, for the London County Council:—  
G. Munday and Son ... £265 19

**LONDON.**—Accepted for the erection of the Dalston Theatre of Varieties, for Mr. C. Liles. Messrs. Wylson and Long, Architects, 14, King William-street, Strand:—  
Kirk and Kirk, Westminster ... £14,500

**LONDON.**—For erecting higher standard rooms, manual training centre, &c., Beethoven-street, Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
J. and M. Patrick ... £6,141 | Stimpson and Co. ... £5,323

**LONDON.**—For casing and finishing wall of school-keeper's house, Bell-street (Edgware-road) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
G. H. Sealy ... £150 0 | A. M. Sparks ... £91 10  
T. Nicholson ... 118 0 | E. T. Foley ... 79 0  
W. Brown ... 108 0 | Perkins and Co.\* ... 75 0  
R. A. Yerbury & Sons ... 100 0  
\* Accepted.

**LONDON.**—For the enlargement of Buckingham-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
Treasure and Son ... £2,157 0 | W. M. Dabbs ... £1,790 0  
Kilby and Gayford ... 2,073 | Willmott and Sons ... 1,775 10  
E. Lawrence & Sons ... 1,835 0 | C. Cox ... 1,736 0  
Perkins and Co. ... 1,842 0 | G. S. S. Williams ... 1,717 0  
J. and M. Patrick ... 1,840 0  
Stimpson and Co. ... 1,823 0  
\* Accepted.

**LONDON.**—For erecting new school at Camberwell Gate, for the London School Board. Mr. T. J. Bailey, Architect:—  
F. and H. F. Higgs ... £25,507 | T. Boyce ... £22,520  
J. Shillitoe and Son ... 24,873 | W. Downs ... 22,381  
Lathey Bros ... 22,850 | J. & M. Patrick ... 2,207  
J. Longley and Co. ... 22,840 | W. Smith ... 21,836  
G. E. Wallis and Sons ... 22,837 | E. Lawrence & Sons\* ... 21,743  
\* Accepted.

**LONDON.**—Tender for upper standard rooms, &c., Napier-street School (Hoxton), for the London School Board. Mr. T. J. Bailey, Architect:—  
W. King and Son ... £6,325 | R. A. Yerbury and Sons ... £5,151  
J. Willmott and Son ... 5,760 | T. L. Green ... 5,372  
F. and F. Wood ... 5,612 | G. S. S. Williams & Son ... 5,318  
W. Shurmer ... 5,698 | Kilby and Gayford ... 5,298  
W. J. Mitchell ... 5,597 | Clarke and Bracy ... 5,298  
W. Grear and Son ... 5,449 | J. Grover and Son ... 5,251  
W. M. Dabbs ... 5,515 | E. Lawrence and Sons ... 5,105  
W. Smith ... 5,493 | C. Miskin ... 4,949  
C. Cox ... 5,445 | W. Scrivener and Co.\* ... 4,923  
Perry and Co. ... 5,154  
\* Recommended for acceptance.

**LONDON.**—For heating at "Chancer" Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
H. C. Price Lea and Co. ... £205 0 0 | Richardson & Co. ... £288 17 0  
Co. ... 680 0 0 | J. Wontner-Smith, Gray, and Co. ... 583 0 0  
Teale and Somers ... 680 0 0 | J. C. and J. S. Ellis, Ltd. ... 575 0 0  
Maguire & Gatchell, Ltd. ... 678 10 0 | Turner and Co.\* ... 537 10 0  
W. G. Cannon and Sons ... 649 0 0  
\* Accepted.

**LONDON.**—For heating Clyde Street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
J. Defries and Sons, Ltd. ... £290 0 | Rosser and Russell, Ltd. ... £210  
W. Simons ... 289 0 | Duffield and Co. ... 194  
J. and F. May ... 237 0 | Bates and Pearce ... 181  
J. F. Clarke and Sons ... 221 0 | A. J. Kallaway and Co.\* ... 150  
Vaughan and Brown, Ltd. ... 221 0  
\* Accepted.

**LONDON.**—For enlargement of Eltringham-street School, Wandsworth, for the London School Board. Mr. T. J. Bailey, Architect:—  
F. & H. F. Higgs ... £1,956 0 0 | Lathey Bros. ... £1,813 0 0  
J. Garrett & Son ... 1,900 0 0 | J. & C. Bowyer ... 1,798 0 0  
W. Akers & Co. ... 1,894 0 0 | E. Triggs ... 1,792 14  
W. Downs ... 1,890 0 0 | J. & M. Patrick ... 1,779 0 0  
J. F. Ford ... 1,858 0 0 | E. P. Bulled and Co.\* ... 1,752 0 0  
J. Smith & Sons ... 1,839 0 0  
Rice and Son ... 1,835 0 0  
\* Recommended for acceptance.

**LONDON.**—For fitting up Room 37 in basement of Houses of the Board, for the London School Board. Mr. T. J. Bailey, Architect:—  
T. Crawley ... £39 0 0 | Illingworth, Ing-ham, & Co.\* ... £31 9 9  
Wake and Dean ... 37 0 0  
W. H. Lascelles & Co. ... 31 10 0  
\* Accepted.

**LONDON.**—New school, Leo-street, for the London School Board. Mr. T. J. Bailey, Architect:—  
F. and H. F. Higgs ... £27,269 | Lathey Bros. ... £25,42  
B. E. Nightingale ... 26,115 | J. Shillitoe and Son ... 25,24  
J. Crover and Son ... 25,689 | E. Lawrence and Sons ... 25,12  
Stimpson and Co. ... 25,650 | W. Downs ... 24,8  
J. and M. Patrick ... 25,483 | C. Cox (accepted) ... 24,67

**LONDON.**—Erecting cookery and laundry centres, Mansford-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
J. and M. Patrick ... £1,221 | E. Lawrence and Sons ... £1,05  
Kilby and Gayford ... 1,131 | C. Cox ... 1,01  
W. M. Dabbs ... 1,054 | G. Munday and Sons\* ... 98  
\* Accepted. \* Recommended for acceptance.

**LONDON.**—For sanitary and drainage works at Pri-chard's-road School (Hackney-road), for the London School Board. Mr. T. J. Bailey, Architect:—  
J. Garrett and Son ... £2,255 0 | Johnson and Co. ... £1,860  
Stimpson and Co. ... 2,135 0 | R. A. Yerbury and Sons ... 1,860  
R. P. Beattie ... 2,004 17 | Sons ... 1,822  
E. Lawrence & Sons ... 1,962 0 | Lathey Bros. ... 1,739  
E. Triggs ... 1,937 0 | W. Akers and Co.\* ... 1,739  
\* Accepted. \* Recommended for acceptance.

**LONDON.**—For supply of carpenters' tools on a running contract, for the London School Board:—  
Per dozen sets. Pe dozo sets.

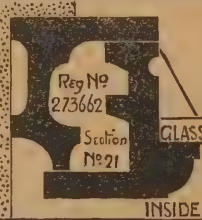
Thos. J. Syer and Co. ... £5 2 | R. H. and J. Pearson, Ltd. ... £4  
Moseley and Son ... 4 16  
James Woodcock and Sons ... 4 10  
H. and C. Davis and Co. Ltd. ... 4 10  
H. S. Timson ... 4 9  
Buck and Hickman ... 4 8  
\* Accepted.

**LONDON.**—For the supply of watering cans and lavatory baths on running contracts, for the London School Board:—  
Watering Cans. Lava'tory Baths.

F. Braby and Co., Ltd. ... £2 0 0  
Winstone and Co., Ltd. ... 1 16 0  
H. S. Timson ... 1 16 0  
F. Bird and Co. ... 1 16 0  
R. H. and J. Pearson, Ltd. ... 1 15 0  
N. H. and J. Pearson, Ltd. ... 1 13 9  
Rowson, Drew, and Co. ... 1 8 0  
\* Accepted.



DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS



WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.

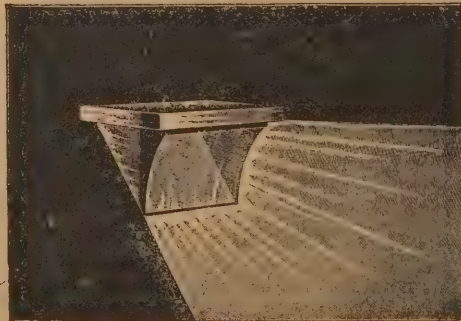


# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.



"DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation falling on anything which happens to be below.

WILSON'S "SAFETY" PAVEMENT  
LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as do away with the studs.

WILSON'S IMPROVED PATENT  
HORIZONTAL FLOOR & ROOF LIGHTS

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



LONDON.—For heating at Rushmore-road Schools, for the London School Board. Mr. T. J. Bailey, Architect.—  
J. Fraser and Son ... £386 0 J. F. Clarke and Sons £221 0  
J. and F. May ... 226 0 J. Wontner-Smith, ...  
J. C. & J. S. Ellis, Ltd. 262 0 Gray and Co. ... 217 10  
W. G. Cannon & Sons 230 0 H. C. Price Lea & Co.\* 215 0  
\*Accepted.

LONDON.—For infirmary and isolation ward at the "Shaftesbury" training ship, for the London School Board. Mr. T. J. Bailey, Architect.—  
T. Barty ... £4,576 Lathey Bros. ... £4,190  
F. Lawrence and Sons ... £4,530 S. Parmenter ... 4,148  
W. Grear and Son ... 4,424 Treasure and Son ... 4,100  
J. Longley and Co. ... 4,300 H. T. Carter ... 3,731  
J. Shillito and Son ... 4,238 H. R. Rons, Grays† ... 3,400  
H. Everett and Son ... 4,220  
\*Recommended for acceptance.

LONDON.—For boiler-house, &c., at Sleaford-street, for the London School Board. Mr. T. J. Bailey, Architect.—  
E. Triggs ... £195 Holloway Bros. ... £160  
W. Hammond ... 182 Lathey Bros. ... 157  
R. E. Williams and Sons 179 J. Garrett and Son\* ... 148  
\*Accepted.

LUTON.—For residence, boundary fence, and walls, "The Downs." Mr. A. Wilkinson, Architect, Luton.—  
Smart ... £1,140 Saunders (accepted) ... £1,053  
Pryer ... 1,125 Angel (excluding bound-  
Kingham ... 1,097 dary wall) ... 1,017  
LYTHAM (Lancs).—For the execution of street works, &c., for the Urban District Council.—  
Jackson Clough, Lytham and Oldham ... £4,612

MIDDLESBROUGH.—For erection of large block of business premises, Jubilee Hall, &c., in Linthorpe-road, Middlesbrough, for the Co-operative Society, Limited. Walter G. Roberts, Architect, el, Albert-road, Middlesbrough.—  
W. and H. Pounder, ... G. Lambert & Son, ...  
Middlesbrough £7,134 0 Middlesbrough ... £5,782 0  
Wm. Thompson, ...  
Middlesbrough\* ... 7,078 15  
\*Exclusive of fittings and fixtures.]

MIDDLESBROUGH.—For kerbing, flagging, &c., Bessemer-street, Grange-town, for the Eston Urban District Council. Mr. T. W. Stainthorpe, District Surveyor, Grange-town, near Middlesbrough.—  
Jones's Annealed Concrete Com-  
pany, Limited ... £140 16 7  
John Tyson Dixon 140 0 2  
MITCHAM.—For the construction of a sewer, &c., Church-  
chart, for the Croydon Rural District Council. Mr. R. M. Chart, Surveyor, Vestry Hall, Mitcham. Quantities by Messrs. Franklin and Andrews, Ludgate-hill, E.C.—  
Peters and Son ... £5,142 Killingback ... £4,627  
Jennings ... 4,881 Lawrence & Thatcher ... 3,790  
Petretie ... 4,606 Adams ... 3,760  
Ford ... 4,445 E. Iles, Wimbledon\* ... 3,603  
\*Accepted subject to approval by Local Government Board.

NOTTINGHAM.—For new technical centre, &c., Leen Side Bead School, Nottingham. Mr. A. H. Goodall, Architect, Nottingham.—  
J. Hutchinson ... £1,780 0 0 J. Skerritt ... £1,627 15 6  
Appleby and Lam-  
bert ... 1,690 0 0 G. A. Pillatt ... 1,597 0 0  
W. Maule ... 1,600 0 0 H. Vickers ... 1,526 0 0  
T. Cuthbert ... 1,657 0 0 T. Barlow\* ... 1,516 0 0  
\*Accepted.

QUEENBOROUGH.—For the erection of a Congrega-  
tional Chapel, Queenborough. Mr. W. T. Rule, Archi-  
tect, Sheerness.—  
Bowes ... £1,531 Laurence Seager ... £1,298  
Payne and Son ... 1,370 Joseph Bligh, East-  
Hughes ... 1,353 church\* ... 1,067  
Skinner and Co. ... 1,310  
\*Accepted.

RHONDDA.—For the erection of a mission church at Trealan, for the Rev. J. D. James, M.A., Vicar of Llwynypia. Messrs. Griffiths and Jones, Architects, Pontypridd and Tonypridd.—  
Jno. Griffiths ... £880 0 D. Evans, Sons & Co.,  
Charles Bros. ... 870 10 Penygraig, Glam.\* £700 0  
Rowlands and Lloyd 825 0  
\*Accepted.

RUBON (Wales).—For additions, &c., to Welsh Baptist Chapel, Rhos, for the trustees of the Welsh Baptist Chapel, Rhoslanerchrugog. Mr. J. G. Owen, Architect, 7, Preston-grove, Liverpool. Quantities by the Architect.—  
John Davies ... £1,582 16 Jenkins and Jones,  
Ivan Davies ... 1,350 0 Johnstown, Rubon\* £1,320 0  
J. T. Jones ... 1,297 0  
\*Accepted.

SANDBACH.—For alterations, &c., to the Commons House, for the Urban District Council. Mr. Alfred Price, Architect, Elworth, Sandbach.—  
John Strinden ... £311 0 William Jones ... £384 0  
John Mellor ... 390 10 Samuel Brereton\* ... 235 0  
\*All of Sandbach. \*Accepted.

SEDGFIELD (Durham).—For the execution of sewerage works, East Howle Colliery Village, Ferryhill, for the Rural District Council. Mr. Wm. Snowdon, Surveyor, High-street, Sedgfield.—  
J. W. Wilkinson ... £415 12 0 J. Heslop, Fitting, ... £392 1 0  
J. Manners ... 403 10 0 ton\*  
G. T. Manners ... 426 10 6  
\*Accepted.

SOUTHWARK.—For the erection of new premises, Swan-street, Southwark, for the Standard Bakery Company. Mr. R. E. Crossland, A.R.I.B.A., Architect.—  
Holloway Bros. ... £8,313 Patman & Fothering-  
Jas. Smith and Sons ... 7,547 C. Hughes ... £7,151  
John Grover and Son ... 7,525 Harris and Wardrop  
J. Carmichael ... 7,386 (accepted) ... 6,963

ST. ALBANS.—For a pair of semi-detached villas, Upper Worley-road. Mr. S. D. Edmunds, Architect, 50, Hill-street, St. Albans.—  
C. Miskin and Sons, ... G. Wiggs, Watford ... £880  
St. Albans ... £1,100 J. and W. Savage, St. ... 850

ST. LEONARDS-ON-SEA.—For the erection of school buildings, Bopeep, for the U.D. School Board. Messrs. Elworthy and Son, Architects, London-road, St. Leonards-on-Sea. Quantities by Architects.—  
H. E. Cruttenden ... £3,855 Barford and Gasson ... £3,210  
J. Geary ... 3,790 C. Hughes ... 3,190  
F. Cruttenden ... 3,697 Eldridge & Cruttenden,  
E. Gussell ... 3,222 St. Leonards-on-Sea\* 3,172  
\*Accepted.

SWANSEA.—For the erection of a block of cottage homes, Cockett, for the Union Guardians. Mr. Richard Watkins, Architect, Bryn-y-mor-cessant, Swansea. Quantities by J. Marles & Sons £1,322 7 3  
Lloyd Bros. ... 1,200 0 0 J. and F. Weaver, 1,080 0 0  
D. Jenkins ... 1,190 0 0 John Tucker ... 1,048 9 0  
Thomas Watkins, ... J. and D. Jones 1,027 10 0  
and Co. ... 1,156 17 0 Wm. Williams,  
William Lane ... 1,150 0 0 Eaton Town  
Thos. Davies ... 1,142 0 0 Brynhyfryd,  
Thos. Waters ... 1,141 8 7 Swansea\* ... 1,022 0 0  
G. Davies ... 1,100 0 0  
\*Accepted.

TIPTON (Staffs).—For metalling, paving, &c., the main-  
road, Toll End, for the Urban District Council. Mr. W. H. Jukes, Surveyor, Owen-street, Tipton.—  
J. Gittings ... £900 0 J. Ford, Coalville,  
J. Bott ... 875 10 near Leicester\* ... £851 0  
\*Accepted.

WALTHAMSTOW.—For the erection of two villa resi-  
dences at Prospect Hill, Walthamstow, for Mr. J. Hitchman. Mr. J. Williams, Dunford, Architect, 100, Queen Victoria-street, E.C.—  
W. Shummur ... £1,994 E. Fuller and Son ... £1,040  
G. Beary ... 1,972 Walter Lawrence ... 1,899  
J. A. Read ... 1,944

WEST BRIDGFORD (Notts).—For laying sewers, &c., on the Mutual Freehold Land Association's Estate, for the Urban District Council. Mr. W. H. Radford, C.E., Angerow, Nottingham.—  
W. Moss ... £14,590 0 0 Jas. Holmes ... £12,543 18 8  
Cope & Raynor ... 14,493 14 0 Sidons & Free-  
T. Smart ... 14,296 0 0 man ... 11,200 0 0  
H. H. Barry ... 13,351 3 0 Bower Bros.,  
J. H. Vickers, Ltd. 13,396 14 10 Halifax\* ... 10,981 0 0  
Matthew Hall ... 12,738 2 10  
\*Accepted.

WINCHESTER.—Accepted for the erection of a sana-  
torium, for the Council of the Winchester High School. Mr. Thomas Stophar, Architect, 57, High-street, Winchester.—  
Fielder and Son, Winchester ... £1,200

ADAMS' MANTELPiece FOR SALE.—  
A Sienna and Statuary Marble. Came from an old house in Ireland.—RADLEY, ROBSON, and MACKAY, 16, Old Bond-street, W.

WANTED.—The first 26 numbers or Vol. I. of "The Builders' Journal and Architectural Review." New or Second-hand.—JOHN ANDERSON, Pathhead House, Hamilton, N.B.

TO ARCHITECTS and SURVEYORS.—  
OFFICE to LET, near the Strand; capital light, immediate occupation. Rent £25 per annum.—Apply to Box, 507, Office of the BUILDERS' JOURNAL.

Price 3s.

GLOSSARY OF TECHNICAL TERMS  
used in Architecture and the Building Trades.  
By GAVIN JAMES BURNS, B.Sc., F.S.I.  
Contains explanations of over 2000 terms.  
London: E. and F. N. SPON, 125, Strand.

CIVIL SERVICE TECHNICAL EXAMS.  
—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

SANITARY INSPECTORS' EXAMINA-  
TIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required.—For particulars and testimonials apply CERTIFIED Coach, 31, Herbert-road, Plumstead, S.E.

R.I.B.A. EXAMS. PREPARATION  
personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library. Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

THE LONDON (TELEPHONE {Holborn, No. 1011.})  
DRAWING & TRACING OFFICE,  
98, Gray's Inn Road, Holborn, W.C.  
(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed. The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays—One.  
Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

WORKING DRAWINGS, TRACINGS,  
PERSPECTIVES, SURVEYS,  
COMPETITION DRAWINGS,  
Black Line PHOTO-COPIES and Blueprints.  
Quantities, Specifications LITHOGRAPHED.  
MODELS, DIAGRAMS, &c.

TRACING and PRINTING Rooms, HATTON GARDEN, connected by Private Telephone.

TO LOCAL SURVEYORS.—ASSISTANCE  
in the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL. 26

# McNEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.) McNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

F. McNEILL & CO., Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

## THE SUNBURY LINCRUSTA-WALTON. WALL DECORATION.

NOVELTIES for 1897—DADOES, FRILLINGS and CEILINGS at 1s. a yard, 21in. wide.

CHEAP DECORATIONS, DELICATE COLOURINGS, supplied by all Decorators, Furnishers or Builders in the United Kingdom.

LINCURSTA WALTON, tested and triumphant, "King of Wall Hangings" the only Wall Decoration on the Market.

SOLID in colour, SOLID in relief, and SOLID in value.

Write for Price List, Illustrations of "JUBILEE" and "NATIONAL EMBLEMS," &c., to

FREDK. WALTON & CO. Ltd., Sole Patentees and Manufacturers,

Telephone, 3769.

2, NEWMAN ST., OXFORD ST., LONDON, W. Telegrams: "Lincrusta-Walton," London.



**COEDFRANC BOARD SCHOOLS.**

**CLERK of WORKS WANTED** to superintend the alterations and extensions to the Coedfranc Board Schools at Skewen.

Salary £2 2s. per week.

The work will probably last about six months.

Applications, with testimonials, on forms which can be obtained from us, to be sent in on or before the 14th inst. to the undersigned, endorsed "Clerk of Works."

By order,

CUTHBERTSON and POWELL.

Water-street, Neath,  
June 1st, 1897.

**LONDON PLATE-GLASS INSURANCE CO. LTD.**

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

**MODERATE RATES. PROMPT REPLACEMENTS.**

**SURVEYS AND ESTIMATES FREE.**

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

*Applications for Agencies Invited.*

**Liberal Terms for Business Introduced.**

**AN ARCHITECT** offers liberal terms and a permanency to a **MANAGING ASSISTANT**, who must be thoroughly capable in design and draughtsmanship, and fully qualified to discharge the duties of this position in a first-class office.—Address, with full particulars and references, to **ALPHA**, care of G. Robertson, 30, Hemstall-road, West Hampstead, London, N.W.

**LONDON COUNTY ASYLUM, BEXLEY, KENT.**

An **ASSISTANT CLERK of WORKS** is REQUIRED for the superstructure of the above Asylum.

Salary £3 3s. per week.

Candidates must not be over 45 years of age.

Persons desirous of applying must write to the undersigned for a form of application.

Applications to be addressed to the Clerk of the Asylums Committee, No. 21, Whitehall-place, London, S.W., endorsed "Assistant Clerk of Works," and be delivered by or before **NINE o'clock a.m. on MONDAY, JUNE 14th.**

No personal canvassing permitted. Selected candidates will be written to.

R. W. PARTRIDGE,

Clerk of the Asylums Committee.

May 28th, 1897.

**THE QUANTITY SURVEYOR** to the CORPORATION of SOUTHAMPTON requires the SERVICES of an ASSISTANT for a term of six weeks. Experienced in squaring, abstracting, and billing.

Applications, in candidates' own handwriting, stating experience and salary required, to be addressed to the Quantity Surveyor, Municipal Offices, Southampton.

**ARCHITECT'S ASSISTANT WANTED.**

Good and expeditious draughtsmanship indispensable. One used to public-house work preferred.—Apply, stating age and salary, to **H. H.**, care of J. G. Hill and Co., 7, Archway-road, Upper Holloway, N.

**THE GIRDERS' COMPANY** intend to ELECT a practical SURVEYOR for their property.

Printed particulars of the duties, and of the appointment, can be had on application at the Company's Offices, Girdlers' Hall, No. 39, Basinghall-street, E.C.

Applications, in writing, stating age, qualification, and experience, with copies of testimonials, must be delivered at such offices by **TEN o'clock on the morning of MONDAY, JUNE 14th next.**

Dated 27th May, 1897.

"That stately publication."—*Daily News.*

# THE Architectural Review

PRICE **6<sup>D</sup>** NETT.

## A SUPERB ART MONTHLY.

The JUNE issue contains

THE DECORATIVE WORK OF  
SIR E. J. POYNTER, P.R.A.  
*Profusely Illustrated.*

### FIRE AND ARCHITECTURE:

The Ruined Palaces of Paris after the Commune:  
BY R. PHENÈ SPIERS.

AT THE ACADEMY: Second Series.

Order Early, as a Limited Number will be Issued.

**WOOD BLOCK FLOORING.**

**MASTIC** for laying above supplied in any quantity.

W. BRIGGS, Chemical Works, DUNDEE,

SOLE MAKER OF

"Tenax" Building Rock Composition  
For Wall Cavities.

**PILKINGTON'S**

WORKS:

CLIFTON JUNCTION,  
NEAR MANCHESTER.

MANUFACTURERS OF HIGH CLASS TILES.

F Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR

CHURCHES, PUBLIC BUILDINGS AND

PRIVATE RESIDENCES.

London Show Rooms:

Lyric Chambers, 45, Whitcomb Street W.C

Manchester Show Rooms

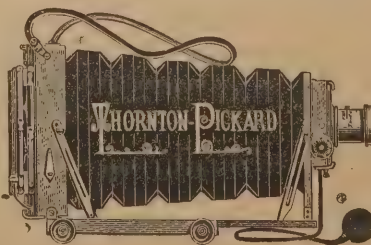
37, Cross Street

Reading Cases may be had on application  
to the Manager. Price 1s. 9d. each.



**GODWIN'S TILES**  
for PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects and Builders  
13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGBURY WORKS, WORTHINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards  
FLOOR TILES  
in Stock.  
Quick Supply!  
Best Quality!  
Low Price!



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.  
**CAMERAS AND SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.





# Surveying and Sanitary SUPPLEMENT.

JUNE 9TH, 1897.

## ON THE CONSTRUCTION OF JUBILEE STANDS.

By E. J. GIFFORD READ.

THE demand for seats to view the forthcoming Diamond Jubilee procession is calling forth efforts on the part of private individuals, syndicates, and public authorities, to meet the demand by special construction, in the one case to increase the accommodation of private houses, and on the other to utilise to the utmost every vacant piece of ground or open space adjoining the thoroughfares passed over by the procession. So energetically is this work being pressed, and so enormous are some of the undertakings, that, when the day arrives the streets of London will probably form a spectacle as unique in the way of display and decorations as the occasion which has called it forth.

Although the erections along the route may be termed temporary structures, many of them are quite monuments of construction, and are the outcome of considerable scientific and artistic ability on the part of eminent Architects and engineers.

The erections may be conveniently grouped under two heads; first, those on open spaces; and, secondly, those in, or attached to, existing houses. Many of the open spaces and vacant plots have been acquired by speculators at enormous cost, and, in order to accommodate the greatest number with the best view of the procession, several stages have been erected with tiers of seats above each other; indeed, in one stand there are as many as three tiers, making a total height of nearly 50ft. The simplest form is that of one tier on the ground-floor, and the difficulties of cost and construction increase in accordance with the height and number of stages adopted.

Before proceeding to describe particular stands, it may be as well to consider what are the leading principles which should guide their construction.

The procession passes along a certain determined line, and the positions of the stands, and consequently those of the sightseers, are at various distances and directions from it. It becomes, therefore, very necessary to give the tier of seats such an inclination that everyone may sit comfortably and see the show.

For instance, in the diagram Fig. 1, if the stand be facing a wide thoroughfare 55ft. from the centre line, and the crowd of people be allowed to be as far as X, the eye of the lowest person on the stand must not be below the point A, and the slope of the first tier of seats must be steeper than the line OA as at A B. The second tier must be steeper than OC as at C D, and so on; but, supposing the stand to be against a narrow street only 25ft. from the centre line, and the crowd to be as far as x, then the sight line of lowest tier must not be below a, and the slope of the seats will be as at a b. The sight line and slope of the second

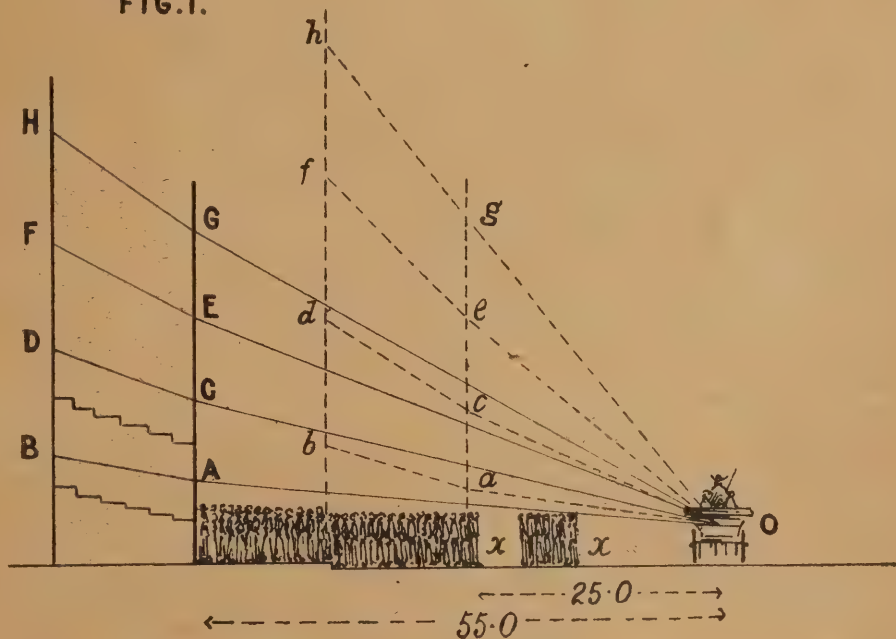
tier will be as cd, the third at ef, &c. Thus the view from the first tier may be more favourable than that of the former stand, but the upper tiers increase so rapidly in steepness as to be almost prohibitive at g h, whereas, in the former case they would only have a moderate slope as G H.

Another point to be observed is that the flooring of the seats above any particular stage must be sufficiently high to allow of an extended view to those seated below. This applies more particularly to places from which a distant view can be obtained of

out in the stand in front of the National Gallery facing Trafalgar Square.

As to the accommodation to be given each seat, it might be remarked that an ordinary rush-bottom Church chair occupies 1ft. 4in. in width, and a third-class Metropolitan Railway carriage, which cannot by any stretch of imagination be considered as luxurious, gives 7ft. 8in. to five persons, or 1ft. 6½in. each, a fair allowance per seat would be 1ft. 6in. in width by 2ft. 6in. back to back, this will allow of persons passing those seated, and as people must in the majority of cases be in their seats

FIG. 1.



the procession either approaching or departing from the stand, and of course need only be considered in stands of more than one stage.

In a single stage on the ground-floor the construction is a comparatively simple matter, as the posts and bracings being under the seats their number and position can be varied at pleasure; but when a second and third stage have to be constructed above it, the difficulties begin, from the fact that the fewest number and smallest size of posts must be used in order to obstruct the view as little as possible, in some cases a few large posts are used and intermediate ones provided of small iron pillars.

The maximum number which a stage will accommodate obviously necessitates the minimum space to be allotted to each seat, many of the stages are formed with steps on which hired chairs are placed; in others the steps are formed into continuous benches, this is carried

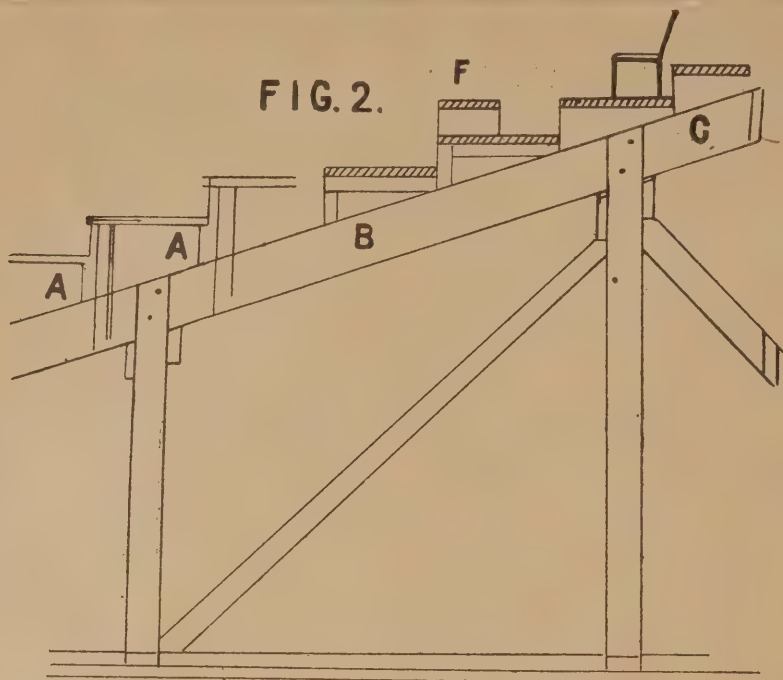
a considerable time, it is better to exceed the above dimensions rather than diminish them.

The number of seats can thus be estimated for any selected site, and the method of carrying them may be considered. In most cases, when procurable, 6in. square posts will be used, and these should be braced both ways, at intervals of about 8ft. in height, thus leaving a maximum height of pillar sixteen times the diameter. A fir-post under such conditions would carry about five tons. Then, in order to determine the distance apart of the posts, it is necessary to estimate the load coming upon the structure.

An average person seated will weigh about 10st., or 1½cwt., and if we allow ½cwt. for timber, this will make 1½cwt. per seat, double this for the chance of people passing each other on any particular timber, and we have 3cwt. per seat, which, I think, amply sufficient for all these temporary structures.

However, the County Council, after carefully





going into these matters, have decided that all the parts of the stands must be proportioned to bear a load of 1cwt. per foot super, irrespective of the size of the seat. This would give for the seat I have taken above, 2ft. 6in. by 1ft. 6in., a load of 3½cwt., and for 3ft. by 1ft. 8in. 5cwt., instead of the 3cwt. stated.

The 6in. square post, carrying five tons, must therefore not bear more than 100 square feet, or they may be placed 10ft. apart each way. Assuming the posts to be placed 10ft. apart, the main bearing beams should follow the slope of the stand and be halved on to each post. This will form a series of sloping trestles which must be held together with collar beams, and braced transversely to keep them upright as in Figs. 2 and 3.

At this distance apart of main beams the seating will have to be carried by transverse beams or purlines as at A, and the boarding of the steps will be in short lengths nailed across the step. But it is generally found more convenient to put the trestles closer together or to introduce one or more intermediate beams as at D E.

The boarding can then be nailed in long lengths with the step instead of across it, the thickness varying from 1½ to 3in., according to the spacing of the beams. When the stand is on or near the ground the slope is usually very moderate, and the steps can be formed by simply nailing checks on to the raking beams, as at C in the above figure; but when the stand is high above the ground, the slope of the beams is much greater, and stools have to be made for the steps, as at A or B. If hired chairs are to be used, they are simply placed on the steps and secured together by battens, otherwise small secondary stools or benches are built along on the front part of the step, as shown at F.

(To be continued.)

A SELECT Committee of the House of Commons has had under consideration the City of London Sewers Bill, under which it is proposed to dissolve the Commission of Sewers of the City of London, and to provide for the execution of the powers, duties, and authorities of that Commission by the Common Council of the City. Mr. Gabriel Goldney, Remembrancer of the City of London, was taken at length through the various statutes which had been passed with reference to the Commission, the first dating back as far as 1662. The Corporation was simply asking for powers that had been conferred on other boroughs in the kingdom by the Municipal Corporations Act of 1882. Other evidence having been given, Mr. Pember addressed the Committee on behalf of the City Council, after which the Chairman announced that the Committee found the preamble proved.

# THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.

(Continued from page lxvii.)

BY ALEXANDER DREW.

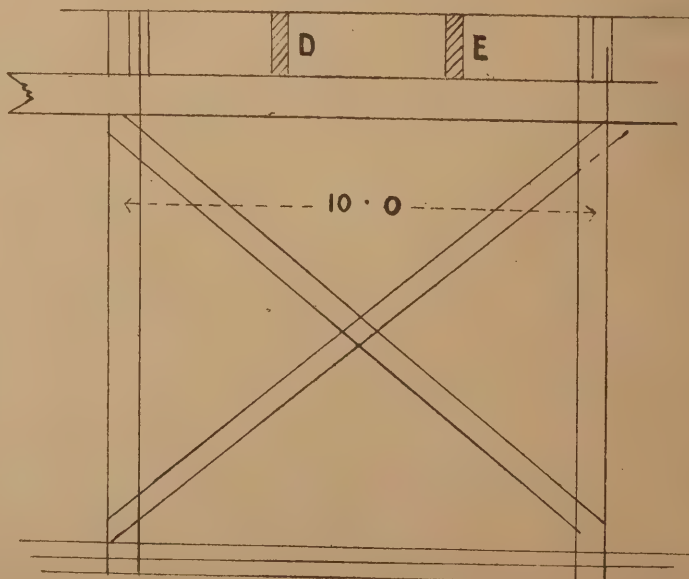
## No. V. OF SERIES.

THE manner in which these struts can be connected to the rafter, or at their lower end to the ties, is very varied; and only one or two simple suggestions can be indicated. No. (14) shows a strut of round section with the upper end formed either into an eye or a jaw (see further on), while the lower end is reduced in size, and provided with screw and nut. The L section strut is shown at (15), the upper end having one side folded on to the other, thus giving greater stiffness and thickness at this point where the bolt or rivet hole is formed; the lower end is shown as split up and set round to form a kind of jaw, between which the main ties can be set, and connected by a single bolt; it should be noted that ordinary iron will not stand such treatment as that just described, a very good quality of iron or mild steel is required to allow of this working, and to resist the tendency the bar has to split up the centre during this setting. At (16) the upper portion of the T strut is cut

off square and allowed to butt against the lower edge of the rafter, to which it is connected by means of a junction-plate on each side; at the lower end two arrangements are shown; in the one the table is notched away for a certain distance, and the web is allowed to pass in between the lower junction plates; in the other arrangement two set or bent plates are rivetted to the end to form a jaw, of much the same type as the lower end of (15). (17) shows a side view of a double flat strut, these flats are set in somewhat the manner shown, and kept in position by rivets and packings at intervals, thus giving the required side stiffness to the strut; it may be noted that this curve should be more or less regular, and that the packings or distance pieces should be placed sufficiently near together to check any tendency the bars may have to yielding in the direction of the thickness. As an example of how-not-to-do-it, the dotted lines at the upper extremity show how such a strut is sketched in some text-books; it will be obvious that any compressive strain will tend to force the bars outwards at the projecting angle near the top, and as no distance piece is at this point, there is little to resist this tendency, and consequently the member is considerably weakened by such an unnecessary and unpractical formation. With double angles, as at (18), it is usual to carry these up to the root of the rafter, and pass the bolt or rivet right through. The same arrangement, where possible, is used for (19), except that the web is here shown as cut away to allow more space for the connecting bolt. In (20) the same arrangement is indicated.

In passing from struts to ties, it will be found that the number of different sections here used is considerably limited. The usual section is that of a solid round rod; but occasionally flat rectangular sections may be used, and these latter, as will be presently seen, have in some cases an advantage over the round section. If the ties be also subjected to cross bending, as where the main tie is used to support a ceiling or such like, the section must then be chosen such as will give the required stiffness, either flat, L, T, H, or channel may be used, as the particular circumstances demand. In the case of the first noted section, that of the solid round, it would be a very wasteful and most unpractical method of connection to simply drill a hole through this bar to allow of its being connected to the other members; what is always done is that the ends are shaped in some manner so that a convenient connection may be made, and the full strength of the bar be retained throughout. There are practically three forms which these end connections take, the first called an eye, the second generally termed a jaw or double eye, while the third is the screwed

FIG. 3.





nd. In forming these ends the assistance of the smith is required; and while the particular style or shape may be modified to a very great extent, it should be particularly borne in mind that in nearly every case the simplest and easiest made form, and that which entails the least amount of welding, is undoubtedly the best. Occasionally it is necessary to keep in view the appearance or neatness of the framework, and in such a case only is it justifiable to employ many of the more or less elaborate styles of tie ends which may be met with in many existing structures, or in most text-books on this subject. At present it is only necessary to consider two types of eye, that shown at (A) and (B); the first is that generally known as a "Balled Eye"; the second or ornamental type may be called a "Peened Eye." To understand the relative cost and efficiency of these two forms it is necessary to study the manner in which they are produced; but only a word or two can be said on this point here. In the first case the rod is cut to the required length, and round its end is clipped a wrought-iron ring; this end is now put into the fire, and when it has been brought up to a welding heat, it is placed in a special tool under the steam-hammer, and quickly worked up into the form of a solid ball at the end of the rod; while this is still hot, it is placed between the ordinary faces of the steam-hammer, and flattened out till the ball is reduced to about the thickness of the rod, after which the bolt hole may be either punched out while still hot, or drilled afterwards when the eye has cooled. In the second form of eye a flat bar of about the section of the eye itself is taken, and while hot is gradually worked into the shape shown, a short length of round section being made beyond the octagonal portion of the shaft; when this has been done the rod which has to form the tie is taken, and this separate end is welded or shut on to the same. A very little consideration of what has just been said will show the values of these two forms; in the second case a considerable amount of time and cost is involved in the working of the solid bar into the shape required, and afterwards welding on to the rod; and this latter portion is in itself so difficult to ensure a thoroughly good connection, even when the most skilled workman is employed, that it is well whenever possible to reduce such joinings to a minimum. No practical means has yet been devised by which a weld can be tested, and it is by no means unusual that the best looking finish may cover the worst result. The first method practically dispenses with this weld, and is easily and quickly made, so that for all purposes in which appearance is not absolutely essential, the "Balled Eye" is undoubtedly the cheapest, and by far the best.

Turning now to jaws, it is unfortunate that

practically no means exist whereby welding can be here dispensed with, as in the balled eye just noted; but while this is true, it is possible by a little care to reduce this smithing and welding to its simplest and cheapest form. (C) and (D) show two forms chosen to illustrate this; in both cases the two halves of the jaw are first formed, these are then welded together, and the shank formed, the whole being afterwards welded on to the rod itself. In (C) the two halves are welded together in as simple a manner as possible, and no elaboration is attempted with the shank; but in the case of (D) the halves must be specially shaped, and particular care and trouble is necessary to produce the close rounded inner corner between the jaws, while time and money is spent in forming the octagonal shank. Some might claim a better appearance for this jaw, but where this can be dispensed with (if it is admitted that such does exist) the first described jaw is the cheaper and the better one.

The last form of end noted is that in which a screw is provided, nuts being supplied to make the necessary connection. If the rod be of very ample strength for the stress to which it is subjected, the usual arrangement is to cut the screw direct on the rod itself (E); this, of course, implies that the rod is weakened to fully the extent to which the thread is sunk into the material. Should the full strength be desired, the end may be formed with an "Enlarged Screw" as at (F); that is to say, the diameter of the screw is so much increased that its strength is at least equal to that of the rod itself. If a tie with a screwed end forms an important member in the structure, special care should be taken in specifying how this end is to be formed; of course, there is no difficulty when the screw is cut direct on the rod, but in the case of an enlarged end, if the length be small it should be specified that the rod be *upset to form the extra thickness*, and the screw cut thereon. Where the length of screw is considerable, this upsetting (which is done by heating the rod for the required length, and striking it on the end in the direction of its length, so as to swell out or enlarge the diameter at the heated portion) would probably be difficult to perform, and in such a case it might be necessary to allow the enlarged end to be welded on.

CALVERLEY District Council has decided to carry out a scheme of sewage disposal. The sewage will be carried by means of a pipe from the present terminus of the outfall through an existing culvert under the Leeds and Liverpool Canal, and thence by gravitation to a point on the farm where precipitation tanks will be constructed.

## Surveying and Sanitary Notes.

MR. RIENZI WALTON, C.E., Inspector to the Local Government Board, held an inquiry in the Council Chamber, at the Bradford Town Hall recently, into the application by the Bradford Corporation for sanction to borrow £50,000 for works of sewerage and drainage. The Town Clerk said the proposed sewers would comprise new ones required for the drainage of districts in the borough, new sewers to replace old sewers which were no longer suitable, and special relief sewers for the carrying off of storm water. From time to time £282,000 had been expended in the construction of sewers alone, in accordance with the main sewerage scheme of Bradford, and these works were distinct from sewage disposal works. That total amount had all been expended, and £50,000 was required to go on with the scheme. The total amount which the Corporation was authorised to borrow under the provisions of the Sanitary Acts and Public Health Act was £1,593,680. Nearly the whole of that amount had been borrowed from time to time, while £474,462 had been repaid. However, the Corporation was well within its powers, because the annual rateable value of property within the borough was £1,097,661.

At an inquiry at Launceston respecting the application of the Town Council for powers to borrow £4000 for sewage disposal works, the Town Clerk stated that at present the town was drained by four sewers—the central sewer draining houses north of the Church tower and falling into the Kensey near the goods shed of the Great Western Railway Station; the western sewer draining the west end of the town, and connecting with the central sewer of St. Thomas; the Dockacre sewer draining Broad Street, Church Street, and the eastern side of the town, and falling into the Kensey about 300 yards west of Ridgeway Mill; and the St. Stephen's sewer draining the urban parish of that name, and falling into the Kensey near the outfall of the present sewer. It is proposed by the new scheme to lay a 12in. main sewer from the outfalls of the existing sewers and carry the sewage for 1½ miles to sewage disposal works to be constructed near the South-Western Railway, abutting on the Tamar. There the sewage will be strained and mixed with a precipitation, and run into settling tanks, whence the sludge will be drained off periodically, and dug into the land, the clarified liquid being filtered through special filter beds and finally run over 2½ acres of land, whence it will be discharged into the river by clear-running water.

## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
June 11	Abergavenny—Class-rooms, Park-street Schools	Managers	E. A. Johnson, Architect, Abergavenny.
" 11	Guilford—Buildings	Gaslight and Coke Company	W. Titley, Gas Offices, Guildford.
" 11	Senghenith, Wales—Chapel		Mr. Bruton's Offices, Queen-street, Cardiff.
" 12	Barrow, Lancs.—Club, Abbey-road		J. Y. Mcintosh, 6, Cornwallis-street, Barrow.
" 12	Bunney—Roof, Bunney Church		Mr. Carver, Churchwarden, Bunney.
" 12	Deal—Cloak-room, &c., South-parade	Corporation	Borough Surveyor's Office, 16, High-street, Deal.
" 12	Egham—Pulling down and Rebuilding	Ashby and Co.	W. Menzies, Englefield Green, Surrey.
" 12	Foxford, Co. Mayo—Glebe-house, Offices, &c.	Rev. Theo. Landey	J. G. Skipton, Architect, Northgate-street, Athlone.
" 12	Maryport—Wash-houses, &c.		92, Senhouse-street, Maryport.
" 12	Queensferry, Scotland—Baths		J. M. Henry, 7, South Charlotte-street, Edinburgh.
" 12	Spilsby, Lincs.—Culvert, Bonthorpe	Rural District Council	F. J. Dixon, District Surveyor, Spilsby.
" 12	Southminster, Essex—House	Miss M. H. Totham	B. Totham, Southminster.
" 12	Windermere—Vicarage		J. F. Curwen, 51, Highgate, Kendal.
" 14	Bradford—Shops, Dwelling-houses, &c.		Mawson and Hudson, 2, Exchange-buildings, Bradford.
" 14	Edenbridge, Kent—House, &c.		Beale, Madeira Park, Tunbridge Wells.
" 14	Grimsby—Diamond Jubilee Homes	Trustees of the Bridge Estate	H. C. Scaping, Architect, Grimsby.
" 14	Hampton, Middlesex—Shop, &c., Station-road		Co-operative Society Stores, Station-road, Hampton.
" 14	Horncastle, Lincs.—Repair of Bridges	Rural District Council	Office of J. E. Chatterton, Clerk, Horncastle.
" 14	London, N.—Stabling, Ambulance Shed, &c.	Hornsey Urban District Council	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate.
" 14	London, N.—Greenhouse (60ft. by 12ft.)	Hornsey Urban District Council	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate.
" 14	Northampton—Chapel	Primitive Methodist Trustees	A. Hartley, Architect, Carlton-chambers, Castleford.
" 14	Northampton—Wales School	Ystradyfodwg School Board	J. Rees, Hillside Cottage, Pentre.
" 14	Pontrhyndda, Wales—School	School Board	J. C. Rees, Church-place, Neath.
" 15	Coeffranco—Alterations, Schools	Devon County Council	H. Masterton, Surveyor, Boutport-street, Barnstaple.
" 15	Ashreigney, Devon—Restoring Bridge	Guardians	J. G. Gibbins, Molesworth House, Palace-place, Brighton.
" 15	Brighton—Alterations, Warren Farm Schools	Urban District Council	S. A. Goodall, Town Hall, Fenton.
" 15	Fenton, Staffs.—Culvert (125 yards in length), &c.		R. P. Nelson, Dalton.
" 15	Ireleth, Askam-in-Furness—Class-room, Ireleth School		W. V. Huntley, Secretary, Welsh St. Donatts, Cowbridge.
" 15	Swansea—Shedding (3000ft.), &c.	Agricultural Society	W. Jacques, 2, Fen-court, E.C.
" 15	West Ham—School Works	School Board	T. W. Liddiard, Cleveland, High-street, Walthamstow.
" 15	Walthamstow—School Furniture	School Board	



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—Continued.</b>			
June 17	Barking, Essex—Retort House (83ft. long by 60ft. wide)	Gas Company	Company's Office, 55, High Holborn, London.
" 17	Delph, near Oldham—Shed (3000 square yards)	Guardians	J. Kirk and Sons, Architects, Huddersfield.
" 17	Dewsbury—Cottage Homes		Holton and Fox, Architects, Westgate, Dewsbury.
" 17	Halifax—Villas (three pairs)		M. Hall, 29, Northgate, Halifax.
" 18	Chartham, near Canterbury—Chimney Shaft, &c.		W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 19	Denny, Scotland—Dwelling-houses (Thirty-six)	Co-operative Society	R. M'Lelland, Architect, Motherwell-road, Bellshill.
" 19	Oswestry—Alterations, &c., Club		Shayler and Madoc-Jones, 19, Church-street, Oswestry.
" 21	London, S.E.—Fittings, &c., New Dulwich Library	Vestry of Camberwell	C. W. Tagg, Vestry Hall, Camberwell, S.E.
" 23	Leven, Scotland—Hotel		Swanton and Legge, 196, High-street, Kirkcaldy.
" 24	Liverpool—Offices	Royal Insurance Company	J. F. Doyle, 4, Harrington-street, Liverpool.
" 24	Salford—Artisans' Dwellings (Sixty-six)	Corporation	Borough Engineer's Office, Town Hall, Salford.
" 25	Aughur, Co. Tyrone—Repairs, &c.		Rev. F. Doherty, Tully House, Augher, Co. Tyrone.
" 25	Hampton, Middlesex—Engine-house, &c.	Urban District Council	T. Shone, 47, Victoria-street, Westminster, S.W.
" 28	Corsham, Wilts.—Additions, &c., Mansion House		Office, T. Holloway, Chippenham, Wilts.
No date.	Newport—Hospital	Hospital	R. J. Lovell, 46, Queen Victoria-street, E.C.
"	Chell, Staffs.—Additions to Workhouse	Wolstanton and Burslem Union	W. H. Walley, Architect, Burslem.
"	Hull—Additions to Stepney Paper Mills	Messrs. Mayfield	T. B. Thompson, Architect, 15, Parliament-street, Hull.
"	Ilkeston, Derbyshire—Schools, Regent-street	Rev. J. P. McCarthy	J. Hart, Architect, Corby, Grantham.
"	School, near Tadcaster	Kippax School Board	Bromet and Thorman, Architects, Tadcaster.
"	Exmouth—Two Shops, Exeter-road	F. W. P. Orchard	Kerley and Ellis, Architects, Exmouth.
"	Peterborough—Seven Houses, Farcot	New Peterborough Brick Co., Ltd.	F. H. Cooke, Surveyor, Peterborough.
"	Whitley, Northumberland—Eight Houses		A. Stockwell, Architect, 11, Pilgrim-st., Newcastle-on-Tyne.
"	Peterborough—Entrance to Agricultural Show		J. G. Stellebrasse, Architect, North-street.
"	Kilkenny—Additions to Royal Oak Inn, Upper John-st.		Jas. Byrne, C.E., Carlow.
"	Edinburgh—Villa, Colinton		E. C. H. Maidman, Architect, 13, South Charlotte-street, Edinburgh.
"	St. Clement, Norfolk—Church Works, Terrington		Hicks and Charlewood, Architects, 42, Grainger-street, Newcastle-on-Tyne.
"	Bracebridge, near Lincoln—Additions to Asylum		F. H. Goddard, Architect, Lincoln.
"	Burnley—Two Houses, Scott Park-road		Geo. Farrer, Nicholas-street, Burnley.
"	Cheshunt—Three Villas		Jas. Bunce, Turner's Hill, Cheshunt.
"	Denaby Main—Church, St. Albans, and Presbytery		Empsall and Clarkson, Architects, 7, Exchange, Bradford.
"	Ashton-under-Lyne—House, Grafton-street		T. George and Son, Architects, Old-square, Ashton.
"	Ashton-under-Lyne—Spinning Sheds, Oxford Mills		T. D. Lindley, Architect, Ashton.
<b>ENGINEERING—</b>			
June 11	Blackburn—Engineering and Shed Works	Guardians	J. Aspinall, Architect, Victoria-street, Blackburn.
" 12	Haslingden—Tanks, &c.	Sewerage Board	H. L. Hinnell, 41, Corporation-street, Manchester.
" 14	Clitheroe, Lancs.—Filter-bed	Corporation	Office, Borough Engineer, Clitheroe.
" 14	Dublin—Timber Jetties	Public Works	Office of Public Works, Dublin.
" 15	Wallasey, Cheshire—River Wall, &c.	Urban District Council	T. Moulding, Public Offices, Egremont.
" 16	Southampton—Boilers, &c.	Corporation	Municipal Offices, Southampton.
" 17	Madrid—Dredging, &c.	Spanish Government	Ministry of Public Works, Madrid.
" 21	London, E.—Graving Dock, &c.	Proprietors	W. Jaffery, 3, Victoria-street, Westminster.
" 21	Queenstown—Waterworks	Town Commissioners	Town Commissioners' Office, Town Hall, Queenstown.
" 22	Wootton Bassett—Railway (3½ miles in length)	Great Western Railway	Office, Engineer, Paddington Station, London.
No date.	Thrapston—Two Brick Culverts	Rural District Council	G. Siddons, Surveyor, Thrapston.
"	Thornbury, Glos.—Pipe-laying (1120 yards)	Gas Company	S. Fudge, Secretary, Gas Offices.
<b>IRON AND STEEL—</b>			
June 14	London, N.—Street Lanterns (100), &c.	Hornsey Urban District Council	E. J. Lovegrove, Council Offices, Southwood-lane, Highgate.
" 14	Warrington—Ironwork, Roofing, &c.	Sanitary Works Committee	J. Deas, Bank House, Sankey-street, Warrington.
" 15	Salisbury—Roof (70ft. span and 50ft. long)	Gas Company	N. H. Humphrys, Gasworks, Salisbury.
July 1	Kettering—Sewage Disposal Ironwork	Urban District Council	T. R. Smith, Engineer, Market-hill, Kettering.
"	Uitenhage, Cape Colony—Pipes	Corporation	Library of the Institution of Civil Engineers, Great George-street, London.
<b>PAINTING—</b>			
June 11	Ashford, near Staines—Painting District School	West London School District	Superintendent at School, Ashford.
" 12	Colchester—Barracks, &c.	War Department	R.E. Office, Colchester.
" 14	Cockfield, Durham—Painting, &c., Chapel		W. Dunning, 16, Burnt-houses, Cockfield.
" 14	Wanstead—Painting, &c.	School Board	School Board Offices, Wanstead, N.E.
" 15	London, S.W.—Painting Casual Wards	Chelsea Guardians	Lansdell and Harrison, 12, Compton-terrace, Highbury.
" 15	London, S.W.—Painting, Whitewashing, &c., Infirmary	Chelsea Guardians	Lansdell and Harrison, 12, Compton-terrace, Highbury.
" 16	Swindon—Painting, &c.	School Board	Office, W. Seaton, Public Offices, Swindon.
" 24	Crumpsall, Manchester—Painting, Whitewashing, &c.	Guardians	H. R. Chambers, Workhouse, Crumpsall.
<b>ROADS—</b>			
June 11	Brighton—Road Materials (5000 tons)	Town Council	F. J. C. May, Town Hall, Brighton.
" 11	Elgin—Concrete Paving		D. Mackintosh, Surveyor, Elgin.
" 11	Horbury, Yorks.—Pitching, Ballasting, &c.	Urban District Council	C. R. Spencer, Council Offices, High-street, Horbury.
" 11	Preston, Lancs.—Paving, Flagging, Channelling, &c.	Corporation	Borough Engineer, Town Hall, Preston.
" 12	Arnold, Notts.—Paving, &c.	Urban District Council	W. H. Higginbottom, Bridlesmith-gate, Nottingham.
" 14	London, N.—Road Works	Hornsey Urban District Council	E. J. Lovegrove, Council Offices, Highgate, N.
" 14	Wolverhampton—	Public Works Committee	J. W. Bradley, Town Hall, Wolverhampton.
" 14	London, W.—Paving	Central London Sick Asylum	Asylum, Cleveland-street, W.
" 16	Clacton-on-Sea, Essex—Paving, Making-up, &c.	School Board	C. Bell, 3, Salters' Hall-court, E.C.
" 16	Hurst, Lancs.—Paving, Flagging, Kerbing, &c.	Urban District Council	A. B. Robinson, Surveyor, Town Hall-buildings, Clacton.
" 17	South Wimbledon—Forming Road, Sewers, &c.	District Council	W. H. Knott, Council Offices, King-street, Hurst.
" 23	Friern Barnet—Kerbing, Channelling, &c.	Park Estate	R. J. Thomson, 64, Hill-road, Wimbledon.
" 23	North Walsham—Granite	Urban District Council	E. J. Reynolds, Beaconsfield-road, Friern Barnet.
" 24	Eccles, Lancs.—Materials, Flag Rock Kerbing, &c.	Urban District Council	Surveyor, Council Offices, North Walsham.
" 25	Walthamstow—Making-up and Laying Concrete Flags	Highway Committee	Office, Borough Engineer, Town Hall, Eccles.
<b>SANITARY—</b>			
June 14	Wibsey, near Bradford—Sewers, &c.	North Bierley Urban District Council	P. Ross, Council Offices, Wibsey.
" 18	Chatburn, Clitheroe—Removal of Refuse	Rural District Council	Office, J. Eastham, Clerk, Clitheroe.
" 19	Holyhead—Sewerage Works	Urban District Council	J. L. Griffith, Stanley House, Holyhead.
" 21	Hendon—Sewerage Works	Urban District Council	S. S. Grimley, Offices, The Burroughs, Hendon, N.W.
" 23	Croydon—New Surface-water Drain	Rural District Council	J. Wilson, 49, London-road, Croydon.
" 21	Sandgate—Public Convenience	Urban District Council	A. R. Bowles, Surveyor's Office, Sandgate.
" 24	Eccles, Lancs.—Sewers	Highways Committee	Office, Borough Engineer, Town Hall, Eccles.
" 29	Brownhills, Staffs.—Sewerage Works	Urban District Council	H. B. Nicholls, 59, Corporation-street, Birmingham.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 14	Shaw, Lancs.—Plans for Sunday School		Rev. F. W. Nicholson, 10, Refuge-street, Shaw.
" 16	Morecambe—Designs for Hotel	£100, £50, £25, £15	Baxter and Abbott, Back-crescent, Morecambe.
" 21	Rugby—Plans for Municipal Buildings	30, 20 guineas	Urban District Council.
" 24	Gloucester—Plans for proposed Infectious Diseases Hospital	£100, £50, £30	Corporation.
" 29	West Hartlepool—Designs, &c., for Laying out Pleasure Grounds		Corporation.
July 1	Elne, France—Water Supply Scheme		La Marie, Elne, Pyrénées Orientales.
" 20	Howth—Presbyterian Church	£20 (merged £10)	Rev. J. Wilson, 4, Rhoda-villas, Howth, Co. Dublin.
" 31	Booth—Designs for Technical School	50, 30, 20 guineas	Corporation.
1898			
Jan. 30	Carlton, Victoria—Children's Hospital	£100, £50, £25...	Hospital Governors, Pelham-street, Carlton, Australia.





### Architecture at the Paris Salon. By our Special Correspondent.

THE Architectural Exhibition at the Salon strikes one at once as being so entirely different, both in aim and achievement, to that at the Royal Academy. It would seem that no attempt is made to give anything approaching a record of the year's work in building, as seems to be the idea at the Academy. Architecture appears to be valued at the Salon for its artistic or archaeological qualities. It is free from the tyranny of the eminent practitioner. Common-place designs by important personages, drawn by others less important but more artistic, do not constitute the principal thing here. The chief feature of the designs is the great importance attached to the plan, and their reasonableness and sublime common-sense, and in the drawings—as draughtsmanship—the extraordinary facility and power with which they are presented. Here one seems to breathe a clear, intellectual atmosphere; cold, perhaps—too cold for emotionalism—but bracing to the healthy nature. What is perhaps most interesting to the foreigner out of touch with the feeling of contemporary French Design is the large number of beautiful drawings of old work. Such is the set of about twenty coloured drawings of the Early Christian decoration of a Church at Mistra, in Greece, by Mons. L. Yperman, giving the present condition of the paintings; or the drawings of an elaborately modelled and painted ceiling, by Mons. Eustache; or, again, the drawings of some marble mosaic decoration at St. Mark's, Venice, or the elevational drawing of the façade of St. Giles, Provence. These are all done with a command of the colours and the brush that is simply amazing. There is little of the pen-and-ink work with which we are familiar, everything being represented by colour; and here we think they are right. The brush does not so easily lend itself to tricky effects as does the pen; it insists on a knowledge of colour values, and tends to a broader and more dignified treatment. The Restoration drawings this year include a large and elaborate set of the ruins at Pergamos. There are first plan and elevational coloured drawings of the ruins in their existing condition, with water-colour sketches from different points of view, and then another coloured set giving the conjectural restoration of the buildings with details of certain parts. There is value in this sort of work. It is thorough and comprehensive. It aims at an understanding of the work of the past and contrasts forcibly with the scrappy sketches of picturesque odds and ends in which the English student so delights. There is, perhaps, from our point of view, a danger in this—a tendency to overdo all this sort of thing—to exalt Draughtsmanship and Archæology above Design; to know so much, and have so keen an appreciation of the works of the past, that they become sufficient for us, and there is no desire to create anything new. But, for all that, we cannot but feel grateful to the care and patience which has placed so much valuable work at the service of the student. The original designs, being by Frenchmen, are naturally French in sentiment, and, when we have said that, we have said enough, and perhaps too much, for some people. There are very few to our taste, but possibly they are none the worse for that. Frankly, we do not

much like them, but, all the same, we feel that we ought to—we have a sort of suspicion that it would be better for us if we did; and we cannot but envy their high standard of technical skill. Works that compel an unwilling admiration, in the teeth of our prejudices and insular tastes, must have something in them. We borrow our sentiment from no one; but to see difficulties which we have ourselves to confront overcome in such a masterly way is of the greatest assistance. Taking the Exhibition as a whole, there would appear to be a very high standard of knowledge and skill, but a dearth of ideas. Though it may seem a paradox, this is, perhaps, its strong point, and a proof of the artistic insight of the French nation. Original ideas are scarce, very scarce; at certain epochs there are none. It

**Art in the East End.** THE East End will soon supplement its meagre virtues by a claim to the artistic. At last, the proposed Art Gallery, which has been a subject of agitation for over seventeen years, is within measurable distance of becoming a realised fact; and the realisation of a scheme of such obvious utility is surely a matter for general satisfaction. Mr. Passmore Edwards having undertaken to build a permanent gallery in Whitechapel, and the remaining £15,000 necessary to the carrying out of the scheme being forthcoming, Canon Barnett will, no doubt, be able to complete the purchase of the site this month. The possible criticism, that an Art Gallery in the East End would meet with little or no appreciation among



SAN MARIA MAGGIORE, ROME. WATER-COLOUR SKETCH BY A. N. PRENTICE.

is but a weariness of the spirit to dish up the old ones over and over again, or to wrench from literature those appropriate to that Art, and to try and present them in the plastic Arts, as we see at the Academy. The French seem, at present, to confine their energies to keeping up a high standard of criticism and technical skill, a fertile soil for new ideas, an exhilarating atmosphere for men of original genius when it shall please the Fates to send them. Certainly there is much at the Salon which calls for attention, and much which, despite what seems to us to be oddities of style and sentiment, calls for admiration, though, as we have said, our admiration is often checked by a certain laxity of feeling. It cannot be doubted that there are always some good points to be noted by an inspection of the work of our French neighbours.

the ranks of those for whose benefit the institution is sought to be established, is at once disarmed by the amazing popularity of the picture exhibitions periodically held at Whitechapel; it has, in fact, been clearly demonstrated that even in the uncongenial atmosphere of such an unpromising quarter as the dismal East End, the love of Art is not completely choked, and that a section of the community, at any rate, can raise itself above the prevailing sordidness and squalor into the ethereal serenity of Art. In a word, Art is every whit as much appreciated in Whitechapel as in Regent Street, and the hollowness of the theory which was cherished half a century ago, that only the comfortable classes can afford to appreciate Art, has now been fully exposed. Why, then, should all, or nearly all, the picture galleries of London



be centred in one quarter? If Art is needed at all, it is needed in the East End—in the East End where the toiler moves daily through a wilderness of grim and grimy bricks, innocent of the many beauties of the country-side, or the charms of the thousand and one objects which engage the painter's brush. To the end they would preserve their innocence were not the painter and the Artist to come to their assistance. Even with the new gallery, which it is hoped will soon rear its head against its old and begrimed neighbours like a star on the artistic horizon, it would of course be impossible to obtain a continual sequence of loan collections the year round. It is suggested, however, that in the course of the year at least two first-class Exhibitions, with frequent loan exhibitions from South Kensington, might be held. And the latter proposal is certainly much to be commended, inasmuch as it would aid in the circulation of the Art treasures, which, the latest report on the subject informs us, are in imminent danger of destruction by fire at South Kensington. Anyway, the necessity of—not one, but several—Art Galleries in the East End is a plain truth, and the sooner the need is supplied the better.

#### YORKSHIRE CHURCHES.

THE East Riding Antiquarian Society has just opened another season with a successful excursion to the Wold district embracing North Newbald, Sancton, and North Cave. The first halt was at North Newbald, which, as rightly observed by a Hull historian, possesses the finest among the many fine parochial edifices in the East Riding built in the Anglo-Norman period. Some architectural critics look upon the fabric as one of the most perfect Anglo-Norman country churches in the kingdom, and it is well-known that the late Archbishop Thomson termed it his Norman Cathedral. Mr. F. S. Brodrick, Architect, of Hull, who accompanied the members of the society in their tour, puts the date of the foundation of the Church at about 1140. The Norman chancel, which was of the same date as the nave, and had probably a circular apse, has been pulled down, and the existing chancel, of fifteenth century work, built. Originally there were at the east end of the transepts two chapels, which also had circular apses. There are no less than four beautiful Norman doors, the most beautiful being the one at the west entrance on the south side. Above it, almost in a vesica, is a statue, which is surrounded by

#### CHEVRON AND OTHER MOULDINGS.

It has been supposed that the figure represents St. Nicholas, to whom the Church is dedicated, but Mr. Brodrick thinks that this supposition can hardly be correct, as none of the emblems of the patron saint are shown. As stated in Murray, it is more likely to be a figure of Our Lord in His Majesty, the right hand being raised in dispensing grace, and the left hand holding a volume or book dispensing knowledge. Against this theory, however, was the fact, says Mr. Brodrick, that there is no nimbus, but this may have been destroyed. Attention was directed to the triplet window which has been inserted in the south transept, the date being about 1220, and to the corbel table, in which are some very interesting figures carved in the Norman period. Inside the Church there is an extremely handsome font of the Early English period, with clustered columns and stiff ornamental foliage round the bowl. It is in its original state. The massive tower rests on four semi-circular arches which have bold chevron mouldings resting on columns with bold capitals. Of the monuments, perhaps, the most interesting is the tablet on the north wall of the chancel to the memory of Sir Philip Monckton, Bart. Sancton, about two miles from North Newbald, was next visited. The chief feature of the Church is a fine octagonal tower in the Perpendicular style of Architecture. The village is pleasantly situated in a deep valley, and although in itself containing

little of special interest, its surroundings have, to quote Mr. J. G. Hall, proved a prolific source of antiquarian and archaeological research, as almost every field in and around the parish

#### IS RICH IN RELICS

of the Britons, Romans, and Saxons. The food jar of the ancient Briton, with his implements of flint and stone; the cinerary of the Imperial Roman, with coins of that people; the bronze arms and substantial pottery of the Anglo-Saxon, with coins of the Heptarchy, and down to the time of Elizabeth, have all been found in the neighbourhood. The Church of All Saints', North Cave, was next inspected. It is an ancient building, and a great part of the exterior is covered with ivy. The oldest part of the Church is the tower arch, the responds to which are of Norman character. Following this is the arcade, which is in the very Early English style. The fabric, according to the explanation of Mr. Brodrick, was originally, no doubt, an aisleless Norman Church. The aisles were added in Early Decorated times, about 1320, the windows being examples of the simplest yet graceful form of tracery. The windows on the north side are smaller than those on the south side. The chancel arch is of similar date to other work in the Church, but has apparently been rebuilt—why in such an unsightly shape people of the present day cannot imagine. The clerestory was added in Late Perpendicular times. At the same period the upper part of the tower was built, and the west window inserted. In recesses on either side of the chancel are alabaster recumbent figures to the memory of members of the Metham family, former owners of the manor.

#### HOSPITAL ACCOMMODATION IN NORWICH.

THE annual report upon the sanitary condition of Norwich, for the year 1896, has just been issued by Mr. H. Cooper Pattin, Medical Officer of Health. Dr. Pattin says: "The system of scavenging adopted by the Sanitary Committee in October, 1894, works well, and with continuously increasing efficiency. At the same time, I think it well to point out that the scavenging costs some £6000 a year, and with an increasing population is tolerably certain to cost more—albeit, I know that it is carried out with every possible economy—and I suggest for the consideration of the Council that it would prove a prudent economy to do what other towns have done (e.g., Sheffield and Leicester), pay a portion of the

#### COST OF CONVERTING 'BINS,'

&c., into water closets, looking for and finding recoupment not only in lessened scavenging charges, but in what is infinitely more important, improved healthiness in the citizens, and a heightened appreciation of the decencies of associated life. A movement which, if it do nothing more than stimulate a healthy public opinion, cannot fail to be most helpful to the Sanitary Committee, has been recently inaugurated in the city in the shape of a 'Sanitary Aid Association.' This association proposes to aid the Sanitary Authority by bringing (through a Central Committee) under its notice any insanitary conditions which its individual members may become acquainted with in Norwich; and if it succeed, as I fervently hope it may, in creating a public opinion which cannot be other than a source of strength to the Sanitary Authority in dealing with insanitary property, &c., the possibilities of its usefulness are practically unlimited. Representative clergy of all creeds have joined this newly-formed Sanitary Aid Association (doubtless feeling that it is of little use to propound the moralities until you have provided the decencies of life), as well as influential laymen; so that the representations of its Central Committee will command the respect as well as receive the prompt attention of the Sanitary Authority." Under the head of "Fever Hospital" Dr. Pattin says:— "However gratifying from our point of view the anxiety to share in the benefits conferred by the hospital may be, from another aspect it

becomes very disheartening to those responsible for the administration of the institution, and in particular to its medical superintendent; we have to

#### CAMPAIGN AGAINST INFECTIVE AILMENTS

with such inadequate forces. We ought to have beds provided in the proportion of 1 per 1000 of the population—as a matter of fact we have only one bed to every 2250 of the people—the mere statement of which fact enables the reflective to at once realise our situation. That we made the fullest use of our restricted resources is very certain; and that the hospital is so highly appreciated by the people remains a source of great satisfaction; and makes all associated with it desirous of seeing its possible usefulness afforded every possible opportunity of development. The lack of hospital accommodation was responsible for quite forty per cent. of the cases of scarlet fever which occurred during the latter part of the year; our being unable to remove the first case from a dwelling constantly led to the occurrence of more cases in the family or immediate neighbourhood." The doctor once again speaks strongly of the inadequacy of the Fever Hospital accommodation, even in non-epidemic times. "The administrative block is, in particular," he says, "altogether too small for our requirements. As matters stand at present I am obliged to use one of the wards in the central pavilion as a sleeping-room for the ward-maids and another for a discharging-room, so that one-half of the said central block cannot be used for patients at all. Now, when our severely restricted ward accommodation is considered, it will be seen that this means a wasteful and altogether

#### UNDESIRABLE STATE OF AFFAIRS,

and one which, in the interests of economical administration, should be promptly remedied. Even if no additional ward accommodation were provided, the suitable enlargement of the administration block, and the provision of a properly arranged discharging ward would enable us to treat a dozen additional patients. But to meet the requirements of the city, the population of which it should be remembered increases at the rate of more than 1000 a year, I am of opinion that (a) an enlargement on the ground floor of the administrative block, with additional bedrooms on the first floor, and the construction of a second floor over both old and new portions (which the existing walls will easily support) so as to provide separate bedrooms for at least twelve nurses, and a large common room for the servants; (b) the erection of a porter's lodge, to which should be attached a small properly constructed 'discharging room'; (c) a new pavilion providing accommodation for twenty-four patients, with a play-ward for the convalescent children at right angles to the wards, and over the entrance, bath and duty rooms of the new pavilion (the provision of a play-room would, indeed, be a boon, particularly in wet weather); and (d) an extension and improvement of the laundry accommodation are requisite. Towns with lesser populations than that of Norwich provide much more ample accommodation, e.g., Huddersfield and Southampton, the Council of which latter borough has recently determined to spend some £30,000 in providing fever hospital accommodation."

#### IMPORTANT NOTICE.

In consequence of the difficulty in circulating the next issue of the BUILDERS' JOURNAL on the day of the Jubilee celebrations, it has been decided to publish one day earlier, so that there may be no delay in obtaining copies in the country.

A REFUGE has just been erected on the west slope of Néouvielle. It is built of stone at a height of about 7500ft., and contains a number of necessities. Keys are deposited in the hotels of the neighbourhood.

THE scheme for the erection of a municipal grain silo at the Salford Docks has collapsed. The site originally agreed upon by the Salford authorities and the Canal Company was found to be unsuitable.



## THE CONSTRUCTION OF JUBILEE STANDS.

By R. J. GIFFORD READ.

(Continued from page 1xx.)

AS an example of a stand with one tier on the ground may be mentioned that on the green facing Parliament Street, Westminster. It is on level ground, and, except that the plan of the front is octagonal, is about as simple a form as could be devised. A general cross-section of it is shown in Fig. 1, and the whole stand is a repetition of such a section with the principals placed about 6ft. apart. It will be seen that the posts stand at the intersection of two sets of 11in. by 3in. sills placed at right angles across each other, and simply resting on the grass lawn. The back posts, which are about 18ft. high, are 9in. by 9in., and the shorter ones 6in. by 6in., placed about 7ft. apart, and cross-braced both ways with 8in. by 3in. The sloping beams which support the steps are 11in. by 3in., halved into the tops of the posts, and immediately below them are 9in. by 3in. horizontal collar beams, bolted to the posts, which lend a further support to the sloping beams.

The steps supporting the seats are about 2ft. 4in. wide by 9½in. rise, formed with triangular chocks nailed to the slopes, and covered with 3in. planking. The seats consist of small stools built on the front edge of each step, and continued throughout the length of each bay. Access is gained to the stand by two staircases at the back, and two gangways are cut through the stools for access to the seats. The front portion of the stand abuts against the iron railings of the green, which are protected with a close boarded fence.

Other examples of this type are to be seen in front of the National Gallery, in front of St. Paul's, and a vast range on the south side of Constitution Hill, built for H.M. Office of Works by Messrs. Mowlem and Co. Another very large one is that occupying the churchyard to the east of St. Martin's Church. This varies in height from a few feet in front to 35ft. at the back, and carries thirty-eight rows of steps. These vary in width from 3ft. in front to 2ft. 3in. on the upper portion at back. The posts supporting it vary from 9in. by 9in. at back to 6in. by 6in. in front, cross-braced both ways by 8in. by 3in. Also, on account of the uncertainty of the foundations from vaults and graves in the churchyard, it was deemed advisable to spread the weight on each post, which was about six tons, over as wide an area as possible. This was done by putting four spurs or struts to the base of each post and butting them on to cross sills, which were packed up by planking on the pavement; by

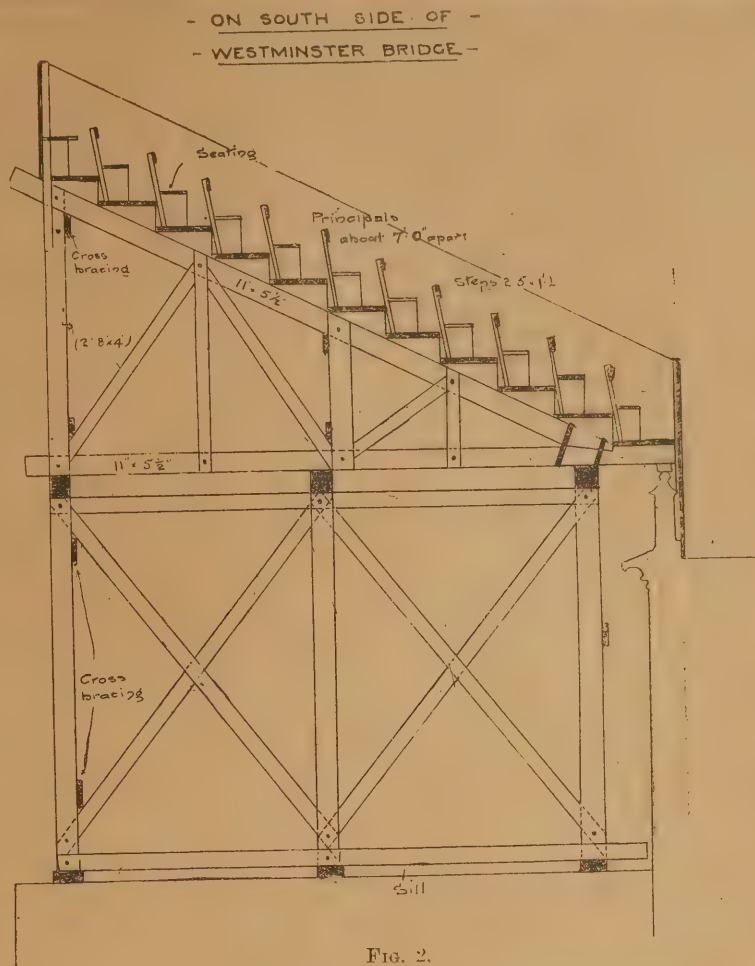


FIG. 2.

this means the pressure was reduced from about 1½ tons to 6cwts. per square foot of bearing surface.

The stands above mentioned are of the simplest character, but there is another type of one tier stand where the conditions of the site require the stand to be set up a considerable height above the base, in order to look over some obstacle. An example of this is given in Fig. 2, which is one erected on the south side of Westminster Bridge. Here the base of the stand is situated on the wharf just above high water, and consists of a series of large trestles cross-braced both ways, and of sufficient height to raise the stand above the parapets of the bridge. The stand itself consists of triangular trusses, framed up complete and resting on the trestle work below, and is,

therefore, of a different character to those before mentioned, where the sloping beams are supported by independent props resting on the ground. It will be noticed also in Fig. 2 that the seats are formed of benches with backs to them of a very simple character, and are fixed at the back of each step, not on the front as in the previous case.

Another example of this type is that in Trafalgar Square, where the base of the structure is on the low level, and the stand had to be raised up about 12ft. in order to look over the balustrade on the high level.

Fig. 3 shows a section of a stand raised up above the wall fronting Devonshire House, Piccadilly. The strutting is cleverly arranged, and it will be noticed that the steps are carried on stools resting on longitudinal bearers or

A CROSS SECTION OF STAND  
PARLIAMENT SQUARE WESTMINSTER  
H.M. OFFICE OF WORKS.

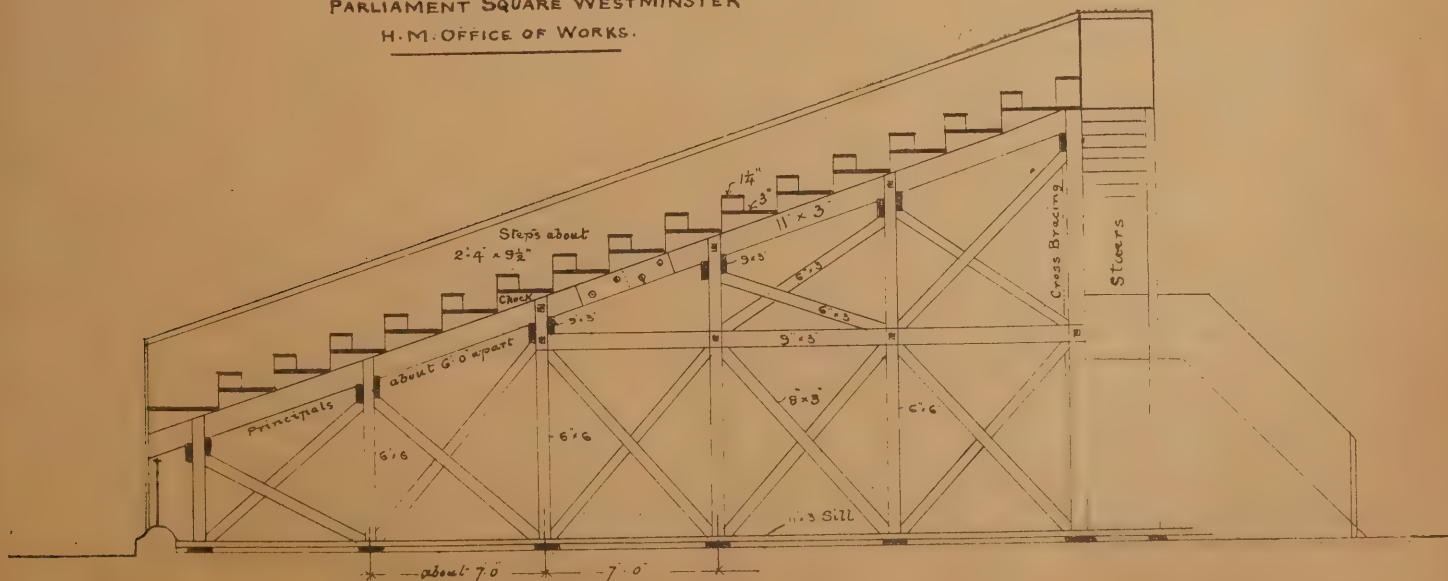


FIG. 1.



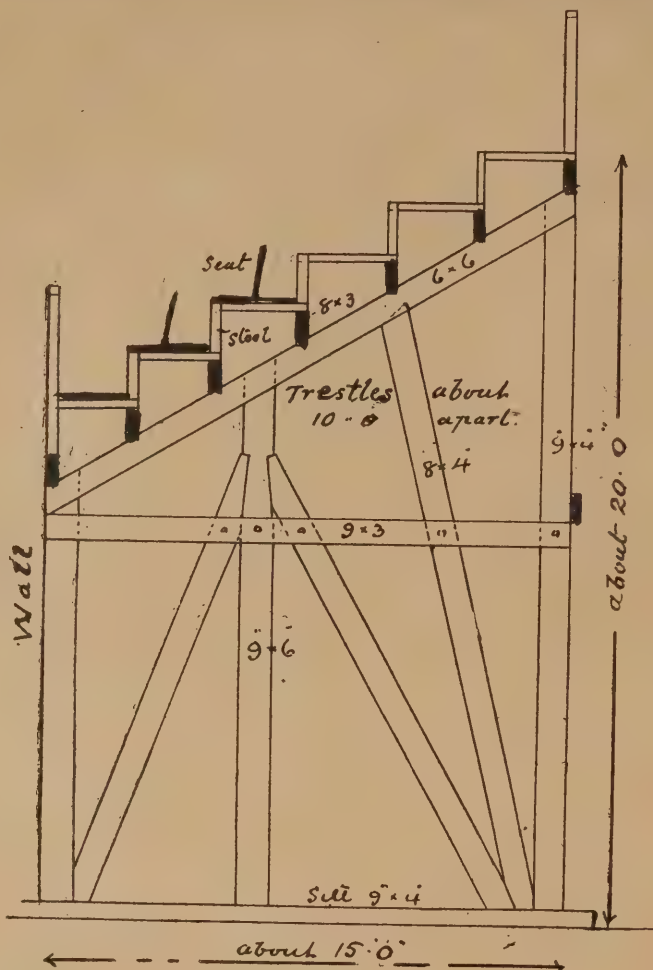


FIG. 3. AT DEVONSHIRE HOUSE, PICCADILLY.

purlins, and not on the sloping beams like those above.

An example of a stand with two tiers is shown in Fig. 4, which is one being erected at the Church of St. George the Martyr, Borough, from designs of Mr. Waring, C.E. The foundations in the graveyard being very uncertain, it was considered advisable to support the weight of the stand on large timber baulks laid crosswise on the soil. By this means not only is the weight distributed, and the pressure reduced to a minimum on the soil, but any weak spot is bridged over by the timbers, which are strong enough to support any one post should the ground give way beneath it. It will be seen that the upper tier of this stand is supported by posts front and back and by two rows of posts passing through the seats of the lower tier. The posts are braced with timber trusses both longitudinally and crosswise, and these support the sloping bearers, 11in. by 3in., placed 2ft. apart, which carry the steps for the seats. In this case, as in many others, hired chairs are placed in the steps instead of fixed benches.

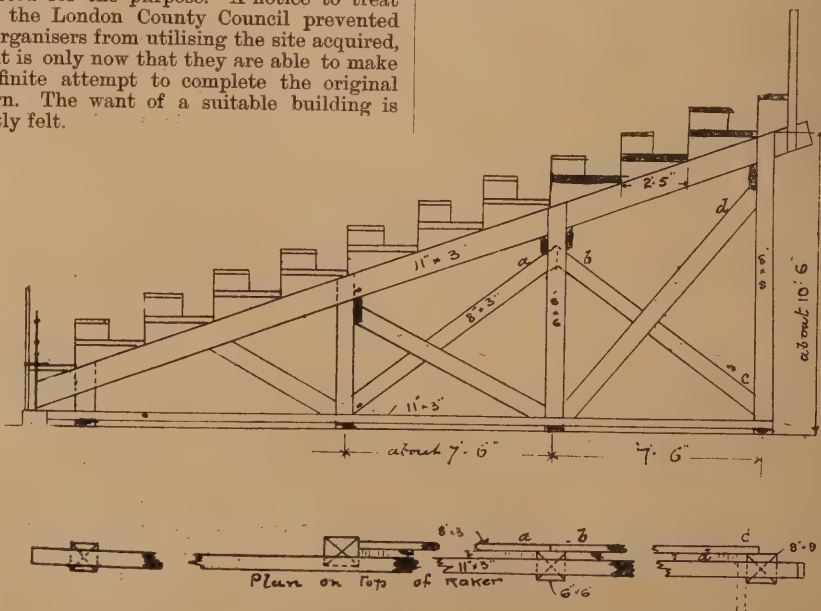
This stand is of considerable depth from back to front, accommodating fifteen rows of seats. Another, somewhat of the same character, is being erected at St. Mary's Church, Strand, but the posts are closer together, and there are no trussed girders. A stand of two tiers, but much narrower, being only of one span in width, is being erected in the front of St. George's Church, and another in the front of St. Martin's Church.

Fig. 5 shows a stand of three tiers, being erected on the south side of the same Church, designed by Mr. F. Verity, Architect. In this, the tiers of seats are carried on sloping beams, supported by a row of posts, front and back. These posts are further tied to each other and back to the wall of the Church by strong cast iron tie rods. Longitudinally, the front of each tier is carried on deep trussed girders, which also form braces between the posts.

Another very large stand of three tiers, in

course of construction, is that opposite the Horse Guards, Whitehall. In principle, it is somewhat similar to that above mentioned, but instead of backing on to a Church it has to stand by itself in the open, a strong buttressing of braced timbers being substituted for the Church. We hope to be able to illustrate this more fully when completed.

Soon after the death of the late Mr. W. H. Smith it was determined to establish in the parish of St. Clement Danes a memorial hall, suitable for a workmen's club, and £2250 was collected for the purpose. A notice to treat from the London County Council prevented the organisers from utilising the site acquired, and it is only now that they are able to make a definite attempt to complete the original design. The want of a suitable building is greatly felt.



AT THE NATIONAL GALLERY.

## SANITARY PLUMBERS' WORK AND SANITATION.\*

By S. S. HELLYER.

(Continued from page 252.)

I KNOW that some authorities still prefer stoneware drains to iron, even for fixing inside a house. I had an argument with one only last year, but "a man convinced against his will is of the same opinion still." I think it would be almost impossible to find anywhere a stoneware drain of any great length inside a house absolutely water-tight from end to end, which has been in use for, say, fifteen years. Even when every precaution has been taken, and a stoneware drain has been very carefully laid, and its joints specially made, one could not be certain how long it would remain perfect. After many years of existence there may only be

### A SLIGHT LEAKAGE IN IT,

but if that occurs inside a house it will be sufficient to create great unrest in the minds of sensitive inhabitants, even if no illness arise from it. And the misfortune in such cases is that such leakage or leakages are generally difficult to repair, and are practically impossible of repair without danger of doing further injury to the drain. I have just had a cast-iron soil drain examined which was fixed inside a house in the City twenty-six or twenty-seven years ago by my firm. The pipe is of water-main strength, and is suspended from the ceiling joists in the basement. Both the pipe and the caulked lead joints were found in excellent condition, nothing having been done to them from the time they were executed, except that in whitewashing the basement the drain had also been whitewashed from time to time. In 1881 I had some manholes built in brick and cement on the first floor of my offices as examples, together with some sanitary fittings, and a specimen length of iron drain. I had a photograph taken of certain parts before their removal last year, and you will see that the iron pipe and the caulked lead joints are quite good, and show no sign of wear, though they were experimented with for fifteen years. Also you will see from the same photograph, that though apparently no action has taken place between the lead and the Portland cement, which connected a piece of lead soil-pipe to the stoneware drain, the cement joint shows that there was no real adhesion of the cement to the glaze of the stoneware socket, and this accounts for the leakage which quickly showed

\* A paper read at the Architectural Association on the 21st May.



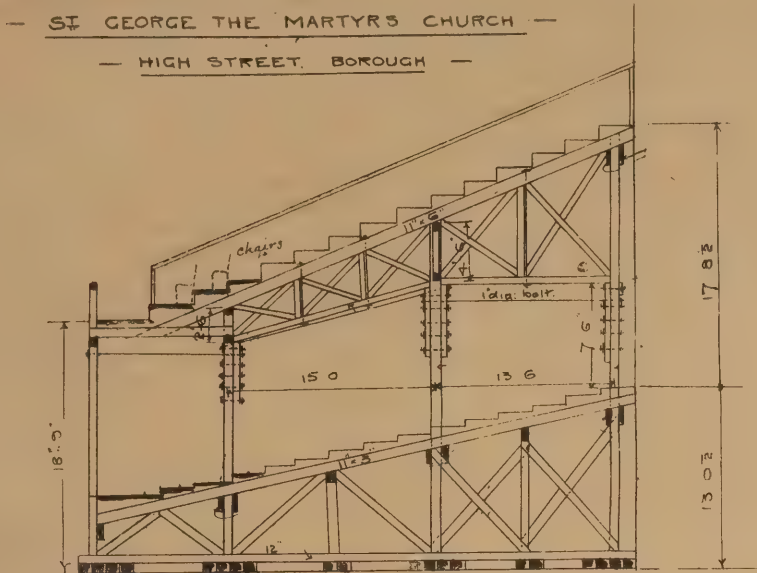


FIG. 4.

itself when tested with water. Notwithstanding that many authorities require that even

#### CAST-IRON DRAINS SHOULD BE EMBEDDED IN CONCRETE,

I consider such treatment a wicked waste of money, for with a pipe of proper strength all the support it needs is from its under-side, except in very exceptional cases, and this is best done by brick piers built on concrete bases, with a stone or concrete resting-slab for the pipe to nicely fit in, or by making a continuous bed for the drain in Portland cement concrete. This arrangement readily admits of the removal of the earth surrounding the drains and the joints, for any future examination of the pipe, and for recaulking of the joints when necessary. When such drains are encased in concrete the cost of cutting away the concrete to find out a leakage or to get at the joints would lead to great expense and do damage to the drain. Where practicable, instead of laying an iron drain in the ground, where it is inside a house, it is better that it should be carried on the face of some wall, or be suspended from a floor, or be carried in a subway, or have a tunnel or creeping trench specially built for it, in brick and cement, with openings into it only from the external air, so that the drain may be readily examined, and in the latter case be completely isolated from the house. The many improvements in sanitary plumbers' work which I have brought before you, or to which I have alluded, as well as many others which I have had no time even to mention, have almost entirely been made during the latter half of the long and magnificent reign of Her Majesty, whose Diamond Jubilee we are going to so gloriously celebrate next month. And when dipping my pen into the ink-bottle to write the finishing words of this paper, it occurred to me that instead of attempting any kind of peroration, the better thing to do would be to drop the pen for the pencil, and portray in a sort of transformation piece the progress of

#### PLUMBERS' WORK BETWEEN 1837 AND 1897.

Before showing this set-piece, which my draughtsman has so well got out, I should like to remind you of the great power you possess for raising and maintaining the standard of plumbers' work. Other authorities may desire it, may even expect it; but Architects, from their privileged position as advisers, and as the designers and directors of building works, can demand it, can to a large extent secure it, by providing for it in their specifications, and by being prepared to properly pay for it. And though plumbers may not everywhere throughout the country be equal to the demand for very high-class work, they will be much stimulated by the desire of Architects for such

work. At any rate, more than any other class, more even than medical men—who have so nobly and so disinterestedly done so much for the Craft, for sanitation—can the Architect aid the plumber in making our homes healthy to live in. When the hand-worker—greatly interested in his work—produces with skill and intelligence what was required of him, what was portrayed to him by the head-worker, he is ever so much helped by some appreciative acknowledgment, however slight: and a word of praise to the deserving—how good it is! Like mercy, it is twice blessed. Gentlemen, in your works may it be your privilege to make the workers happy in their work.

—Mr. F. G. H. Hooper, in proposing a vote of thanks to Mr. Hellyer, remarked that he was sure the paper would have an appreciable influence in promoting that work which the author had so much at heart. In this year of jubilation he thought sanitarians could take some credit for the longevity of the Queen. Had Her Majesty's lot in life been cast under conditions similar to those of a great many of her subjects, she would not now be approaching the eightieth anniversary of her birth. It was rather interesting to recall the fact that through the wisdom and foresight of the late Prince Consort, Her Majesty's palaces were in the early part of her reign examined by sanitary

#### ON, SOUTH SIDE ST. MARTIN'S CHURCH

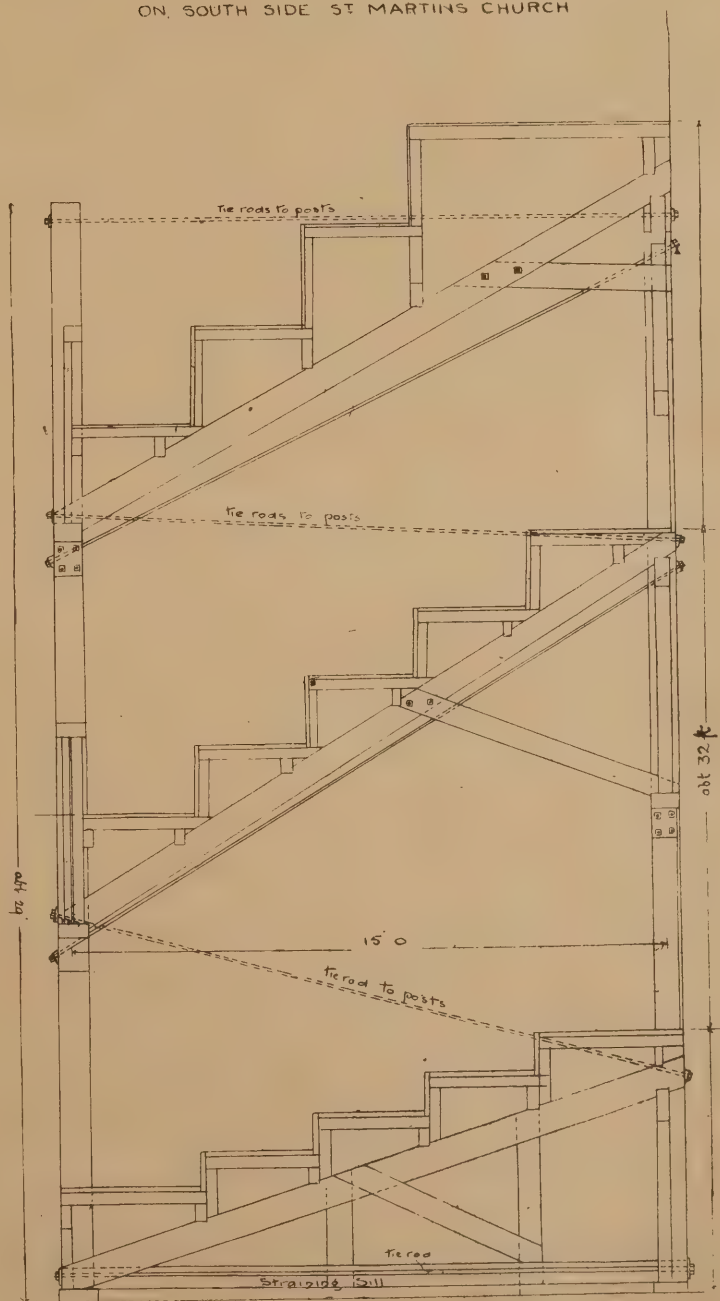


FIG. 5. THE CONSTRUCTION OF JUBILEE STANDS. BY R. J. GIFFORD READ.



experts, and rendered in that degree sanitary and wholesome, with the result they were about to commemorate. Had sanitary improvements been more generally effective, the life of the late Prince Consort might have been spared, and the Prince of Wales might have escaped his serious illness of a few years ago. The speaker proceeded to speak of the shortness of life among the industrial classes, and to express pleasure at Mr. Hellyer having brought forward the question of sanitation so prominently. He thought that the question of ventilation was not half sufficiently thought of in the construction of domestic dwellings, not only those occupied by the lower and middle classes, but also those tenanted by persons of higher rank. And one point he particularly wished to mention, and that was

#### THE VENTILATION OF STAIRCASES.

Many of the troubles so often met with in houses to-day would vanish, he thought, if staircases were properly ventilated. He hoped, therefore, that more attention would be given to this point.—Mr. G. H. Fellowes Prynne

had not previously suggested itself to the speaker, who had great pleasure in supporting the vote of thanks.—Mr. Osborne Smith remarked that he had heard it said in that room that

#### DRAINS WERE NOT ARCHITECTURE.

There was, no doubt, truth in the statement. But then there were a good many matters connected with building, and of importance to the Architect, which were not Architecture, and he thought it was unwise to deprecate a study of drainage matters to Architectural students. Architecture was the designing and the formation and the production of beautiful buildings; but buildings could not be regarded as altogether beautiful and complete and perfect unless they were healthy, and until they had paid attention to that part of the practical work of Architecture which resulted in a building being made healthy, they had not done their duty towards their client, and had not performed what they were paid 5 per cent. for. They had not rightly applied their studies if in their youthful days they had entirely disregarded the subject of sanitary

such as Mr. Hellyer had given then was worth half a dozen of the more ordinary type. Mr. Hellyer was, no doubt, in a state of delight over the Plumbers' Registration Bill, and was hoping that its second reading would be followed by its third reading, and crowned with the Royal sanction as a great national boon. A few years ago they were struck with a sense of finality in connection with sanitary science, and believed that it was coming from complex to simple—in fact, all knowledge passed from complex to simple, and the simple was not arrived at by the first effort of the mind, but by the last. After a variety of complex studies they began to see the simplest truths, and he hoped it would not be long before dense bodies in the country—local boards, with their sanitary inspectors, and also medical officers of health—would see that it was absolutely necessary for them to give some other finality and bring themselves in line—he would not say with the latest, but with the ultimate advance of sanitary science. He thought as an Association they ought to join other bodies in emphasising the necessity for a codification of sanitary bye-laws, and, for instance, bring the

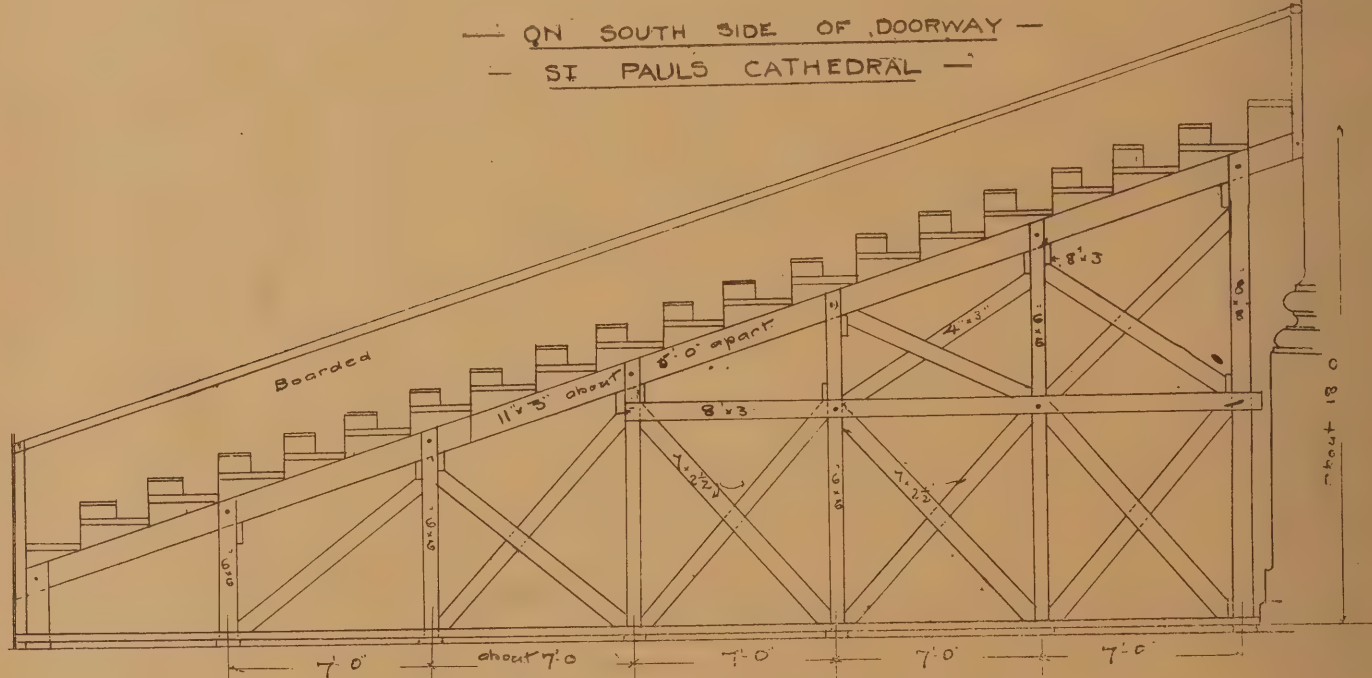


FIG. 6. CONSTRUCTION OF JUBILEE STANDS. BY R. J. GIFFORD READ.

seconded the vote of thanks, remarking that the suburban house was a rich field for defective sanitation and ill-considered ventilation. There was a class springing into existence now known as Sanitary Surveyors, and it had come under his notice that a member of this class, having been intrusted with the carrying out of £1600 worth of repairs, charged his fees at the rate of 15 per cent., explaining to the client that in sanitary work it was usual to pay very much more than in "mere Architecture." Mr. Prynne referred to the sanitation in shipping, and thought some of the ocean liners, especially the smaller ships, were in a very bad state.—Mr. W. E. Bland (Newcastle) said he was sure he was expressing the feelings of sanitarians in the North when he said they thoroughly appreciated the pioneer work which Mr. Hellyer had done in matters connected with plumbing. He had raised a point in his paper which was especially interesting. He had pointed out the advisability of having the water in the basin of a valve-closet separated from the water in the trap, which seemed a very important matter, and yet a matter which

science. He quite agreed that work of this description should not go into the hands of sanitary surveyors. It came well within the province of the Architect, and he regretted that clients often had to complain of the inconvenience occasioned by an Architect's inattention to drainage matters. How often was it that one portion of a building was sacrificed for another portion which came more under the public gaze? They were certainly under a debt of gratitude to Mr. Hellyer for having read so able a paper.—The President (Mr. Beresford Pite) said that if, as had been suggested, genius was the capacity for taking pains—well, they had had a very good lesson that evening in the value of taking pains, and he thought it had come home to them in a very remarkable way that there was a blessedness and beauty in taking pains, and the way in which Mr. Hellyer had managed to inspire a feeling of security and grasp and mastery of detail had been most striking. If they wanted to learn a lesson, they should go to the very best master then could lay their hands upon. One lecture

districts around London into line, and thus find some means of penetrating the ignorance and thick-headedness so often met with with the real facts of sanitary science. Let them remember that a house was a piece of machinery, not a box with ornaments around it. It was a machine in which people had to spend their days and nights, and the Architect had to provide for them in sickness and in health, even to the last moment of life. He congratulated Mr. Hellyer on having got rid of "that abominable landscape basin," and remarked that were they

#### IN THE INTERESTS OF ART

to write their opinion of some of the patterns of closets sent them by the makers, it would possibly have more than a passing influence on the trade.—The vote of thanks was carried, and in returning thanks Mr. Hellyer said he was extremely glad to see that the Architectural Association took so much interest in the question of sanitation. It was the popular privilege of the Architect to see that a house had proper sanitation, but it was more than his privilege



—it was his duty. And they could do a great deal to aid plumbers by studying sanitation up to a certain point. But really he did not know what subjects an Architect ought to include in his training. It took him all his time to get to know a little bit about sanitation, but the Architect—well, he had to know something of *all* the trades.

#### CORPORATIONS AND INSANITARY AREAS.

THE text of the Bradford Sanitary Committee's report dealing with insanitary areas is as follows:—Your sub-committee has visited Birmingham, Liverpool, Manchester, and Salford, and has inspected insanitary areas proposed to be dealt with, and others which have been dealt with by the Corporation of each of those cities. We were informed that in Birmingham, immediately after the passing of the Artisans' and Labourers' Dwellings Act, 1875, an Improvement Committee was appointed by the Corporation, with instructions to receive official representations under the Act from the Medical Officer of Health concerning the unhealthiness of any area, and to prepare for approval draft schemes of improvement. In accordance with this arrangement a large improvement scheme was ultimately adopted. About 45 acres of land in the centre of the town were purchased, and 1200 houses upon it demolished. The report of the Medical Officer shows that the death-rate of this district fell from 26 per thousand in 1885 to 19.3 per thousand in 1893, shortly after the demolition had been effected. Blocks of houses for artisans have been built on the cleared area. Since the completion of this scheme other sanitary improvements, though on a much smaller scale, have been carried out. At the time of our visit we found that the Corporation was engaged in dealing with another insanitary area of considerable magnitude, under the provisions of the Housing of the Working Classes Act, 1890. In Liverpool the Corporation have appointed an Insanitary Property and Artisans' Dwellings Committee to clear insanitary areas. This Corporation has power, under by-laws, to purchase insanitary property, without compensation for forced sale, and to erect dwellings. Presentments are from time to time made by the Medical Officer of Health to this committee under the provisions of the Liverpool Sanitary Amendment Act, 1864, and a Local Improvement Act obtained in 1882. The money required is raised by loan. Insanitary areas of large size have during the past twenty years been dealt with, and further demolition of insanitary property is contemplated. The Housing of the Working Classes Act, 1890, is not used in Liverpool. Clearance of insanitary areas in Manchester is effected under a local Act of Parliament, in accordance with which representations are made to the Sanitary Committee by the Medical Officer of Health. In the event of the committee proclaiming any district an insanitary area, the Corporation have power conferred by their local Act to purchase cottage property for demolition at the rate of £15 per house, the land upon which the houses are situate being still the property of the original owner. The chairman of the committee informed us that this Act worked satisfactorily in regard both to the interests of the Corporation and of property-owners, and that it was not their intention to apply the provisions of the Housing of the Working Classes Act, 1890, to the clearance of insanitary areas in that city.

#### THE PROVISION OF ARTISANS' DWELLINGS.

In consequence of the lack of private enterprise to provide suitable dwellings for the population displaced by their improvement scheme, the Birmingham Corporation sanctioned the erection of twenty-two cottages at an estimated cost of £4000. These dwellings were at once let to respectable tenants at 5s. 6d. per week. Subsequently eighty-two additional artisans' dwellings, at a cost of about £14,000, were erected; these houses were similar to those previously built, their

accommodation consisting of a front living-room, 13ft. by 12ft. 6in.; kitchen, 12ft. by 9ft. 6in.; front bedroom, first floor, 13ft. by 12ft. 6in.; back room, 12ft. by 9ft.; and attic, 13ft. by 13ft.; a separate w.c. being provided for each family. There is an asphalted or concreted yard common to each block, and washhouses in proportion to the number of dwellings. These houses are let at 5s. 6d. per week. Speaking of this property, the Medical Officer of Health for Birmingham says: "The houses are always in great demand, but I think they are too large and too expensive to meet the needs of the very poor." In Liverpool we found that provision for the housing of the working classes had been made by the Corporation directly by the erection of block dwellings, and indirectly by selling land which came into their possession to builders for the erection thereon of

#### SMALL SELF-CONTAINED COTTAGES,

of which 627 had been erected since 1889. We visited two large blocks of dwellings erected by the Corporation, viz., the Victoria Dwellings, which were opened in 1885, and the Juvenal Dwellings, opened in 1890. The whole accommodation thus provided consists of 371 dwellings, of which 66 are single rooms, letting at 2s. to 2s. 9d. per week; 217 are of two rooms, letting at from 3s. 9d. to 5s. 6d. per week; and 88 are of three rooms, letting at 5s. to 5s. 6d. per week. Gas is included in the rents of some of them, but is usually supplied by a penny-in-the-slot meter. The average yearly income obtained during the past ten years from the Victoria Dwellings amounts to £2 11s. 6d. per cent. upon the cost, the average for five years obtained from the Juvenal Buildings is equal to £3 8s. 2d. per cent. upon the cost. The indirect method of providing houses for the working classes, viz., by selling vacant sites to builders upon condition of their being used for the erection of small houses, was not considered by the Corporation to be entirely satisfactory, the houses erected being let at rentals too high for poor persons to pay. The Insanitary Property and Artisans' Dwellings Committee therefore recommend the Corporation to retain some sites in their own hands, when they shall in future become vacant, and erect thereon suitable tenement dwellings or cottages to produce such low rentals as will give a fair return upon the cost of the buildings and value of the land, and provide a sinking fund for the repayment of the moneys borrowed. The Liverpool Corporation now propose to erect labourers' dwellings under the provisions of Part 3 of the Housing of the Working Classes Act, 1890. In Manchester housing for the working classes has been provided by the

#### ERECTION OF BLOCK DWELLINGS,

containing 419 tenements, very similar to those in Liverpool, although not built on quite the same plan. The Oldham Road dwellings consist in the main of two-room tenements, let at 3s. 6d. to 5s. weekly; a few single rooms at 2s. to 2s. 6d. per week. These dwellings have been erected under the powers conferred by the Labouring Classes Lodging Houses Act, 1851, the Labouring Classes Dwelling Houses Acts, 1866 and 1869, and the Housing of the Working Classes Act, 1885, which Acts were adopted by the Manchester Corporation in 1889. In Salford we inspected a block of artisans' dwellings, which had been erected by the Corporation for housing some of the population displaced by an improvement scheme carried out under the Housing of the Working Classes Act, 1890. This block we considered to be an improvement on those we had already seen in that it was only three stories in height, and therefore did not lead to so large an accumulation of population on a limited area as those consisting of five stories. The rent charged was 4s. 9d. per week for a tenement of two rooms. The arrangement of the out-offices met with our especial approval. The total cost of the block amounted to £10,953, or an average of £65 per house, exclusive of land.

#### RECOMMENDATIONS.

Whilst admitting that a large amount of good sanitary work has been accomplished by dealing with insanitary districts in the past,

we think that as Bradford increases in size and population other areas become insanitary and require vigilant attention in order to keep the town in a healthy condition. There are three districts which at the present time we consider are urgently in need of improvement, viz., Longlands Street and Longcroft Place, the district of Wapping, and many of the streets on the south side of Leeds Road. We recommend the Council to deal with the above three districts under the provisions contained in Part 2 of the Housing of the Working Classes Act, 1890.

#### THE PROPER POSITION FOR THE CHOIR AND ORGAN IN CHURCHES.\*

WRITING on the above subject, Mr. F. J. Cestr says:—

As is well known, the dominant fashion is to place organ and choir at the east end, even in small district churches, and to do this as a matter of course with little or no discrimination, forgetting that—to quote Sir John Stainer—"it is most difficult to lay down any general law as to the proper position of organs in churches, because so much must depend upon (a) the shape and ground plan of the church, (b) its size, (c) its acoustical properties, and (d) the character of its services." That both the importance and many-sidedness of the question have been already recognised will be seen if I can be permitted to quote rather copiously from a valuable document, for the use of which I am indebted to Sir Walter Parratt's kindness. Some years ago he served on a committee, jointly nominated by the Royal Institute of British Architects and by the College of Organists, to consider musical requirements and arrangements in churches. Unfortunately, their report did not reach the final stage, and was therefore lost to the public; but I learn that there was substantial agreement upon the principles and recommendations contained in the draft report, from which the following extracts are taken. I cannot but think that, if this draft could be placed at the disposal of the York Committee, their work would be much more than half done, and done under particularly advantageous conditions:

After a careful review of the arrangements which are now usually made for the accommodation of the choir and organ, the committee desire to record the following observations:—

(a) That the arrangements are generally defective.

(b) That there is much misconception as to the best positions for the choir and organ in their relation to each other and the congregation.

(c) That the space allowed for the modern organ is often insufficient.

(d) That on musical grounds the old position at the west end for both organ and choir is, in general, the best.

(e) That although for ritual purposes (following the ancient English Cathedral and Collegiate arrangements) a vested choir is placed in the chancel, yet, that where there is a chancel arch, central lantern, or transepts, the sound becomes intercepted instead of passing into the body of the Church; moreover, where the chancel is narrow, antiphonal singing cannot produce its proper effects.

(f) That when the placing of the choir in the chancel (according to recent custom) has involved the removal of the organ also, it has usually resulted in cramping the organ within some confined space, or "chamber," by which the tone has been damaged, and its beautiful qualities and real efficiency impaired.

(g) That the arrangement alluded to above is not the most advantageous for the support and encouragement of congregational singing.

(h) That these defects are more or less the result of adapting new customs and requirements to old buildings, and are not always to be avoided.

(i) That, as a result of the general improvement in knowledge and taste, the increased facilities for the musical rendering of the

\* Extracts from a letter appearing in the "Times."



services, and the more frequent bringing together of large bodies of singers and instrumentalists, the provision of better accommodation for them is a problem which must be considered.

#### AS TO NEW CHURCHES.

The main object of this committee is to promote the improvement and development of the arrangements of new churches, and they have taken as their basis the musical requirements of a large town church; these requirements would necessarily be modified for small town or country churches. There would appear to be but five positions in which the choir can be conveniently placed in a church:—

1. At the west end of the nave.

It is commonly admitted by musicians that the most effective position for the organ is at the west end; but this position is not always advisable if the choir be retained in the chancel.

2. In galleries facing each other in the nave.

The advantages claimed for seating the choir in galleries (similar to the ancient "minstrel galleries") on the north and south sides of the nave are as follows:—(a) The better support of congregational singing; and (b) the opportunities afforded for antiphonal effects. [All "galleries" are subject to special conditions.]

3. Immediately outside the chancel screens.

4. In the chancel aisles.

5. In the chancel.

With regard to these latter positions, it is advisable, in planning a new building, in order to obtain the openness and space requisite for the sound to reach all parts of the building, that a "chancel arch" should be avoided, and the choir thus placed under the same roof as the congregation. This will enable the clergy as well as the choir to be properly heard.

In churches exceeding 150ft. in internal length, the plan of placing the main choir at the west end, and a "ritual choir" in the chancel may be adopted.

#### AS TO EXISTING MODERN AND ANCIENT CHURCHES.

In dealing with existing churches, whether ancient or modern, the principles set forth in the "Recommendations" should, as far as possible, be observed; but each case should be individually considered. In those places, for example, where there remain a western organ and gallery of interest, at a distance of not more than 50ft. from the choir seats in the chancel, it is desirable that such should be retained *in situ* and used; and where the distance is more than 50ft., a small additional eastern organ to support the choir is recommended.

#### RECOMMENDATIONS.

No. 8.—That the term "organ place" be adopted, because it is more comprehensive (including gallery, &c.), and because the term "organ chamber" is misleading, inasmuch as a chamber (or enclosed place) has been determined to be not suitable for an organ.

No. 13.—That the organ should never be placed between the choir and congregation.

No. 14.—That the sound of the organ should not have to pass over one-half of the choir to reach the other.

No. 15.—That when possible the organ should be equi-distant from both halves of the choir.

No. 16.—That the choir be placed on raised floors, or in low projecting galleries architecturally treated.

That Sir Walter Parratt is still of the same mind is shown in recent letters from which I am allowed to quote. Thus, he writes:—"Personally, I favour the west-end position for the organ, and I should place the choir halfway up the nave on each side. Many churches have narrow chancels, from which neither organ nor voices can be heard, and the congregation finds itself without encouragement to sing, and without support and control if it makes the attempt. I am, of course, well aware that considerations of space and ritual make the removal of the choir difficult, and even distasteful to many people. But I am convinced that in many churches congregational singing is ruined by the present arrangement." It is noteworthy that both Sir John Stainer and Sir Walter

Parratt look forward to a time when Architects will be less conservative, and have the courage to adopt more suitable arrangements for musical purposes. They both think that "the experience of our modern wants shows the superiority of the Greek cross as a ground plan." Sir John remarks that "music is not the only thing which would gain by a fundamental change in our ideas of 'propriety' and 'respectability' in church plans."

I wish I could give extracts from other weighty and independent opinions, all much to the same effect.

#### SAW AND CUTTER SHARPENING MACHINES.

By J. L. CRATHORNE.

IN these days of keen competition anything which tends to reduce the cost of production, or improves the quality of the output, must of necessity be of the highest importance. Although of comparatively modern origin, the use of emery wheels and discs, as applied to the sharpening of saws and cutting irons, is undoubtedly superior to the old-fashioned plan of filing. Not very many years ago there was a strong prejudice against emery when used for these purposes, probably arising from the wheels not being suited to the work. Now, however, they may be obtained in a variety of shapes and sizes, and of varying hardness, according to the use to which they are to be put. The advantages of these wheels when properly used are obvious, the work turned out being much greater and of better quality than when files are employed. Take the case of saw sharpening. Using a hand-file, the angles of the teeth often vary considerably, the depths of gullets are unequal, and sometimes teeth of different length result, thus giving an unequal amount of work to each when cutting. Then there is the total saving in files. In saw-sharpening machines of the most approved type the emery wheels are mounted on steel spindles running in centres, a separate spindle being usually employed for each wheel to save time when changing. The spindle is mounted in a swinging frame counter-balanced by a weight, and pivots on centres. It is pulled down to the work by handles at the end of the frame, and works in a quadrant, being fixed at any required angle by thumb-screws.

#### THE MAIN FRAMING

of the machine should preferably be cast in one piece of box pattern. An arrangement may also be fitted to regulate the depth of gullet and pitch of teeth. When a frame or mill saw is being sharpened, it is clamped in a vice attached to the machine, and can be moved laterally and transversely by means of a rack and pinion or screw. If a circular saw is to be sharpened, it is mounted on a pin attached to a vertical vice or cramp, which is adjustable vertically according to the diameter of the saw. For frame or mill saws a vice with long jaws is provided. Where a great number of saws have to be sharpened, the machine can be arranged to bring the teeth under the operation of the wheel in succession automatically. As the emery wheel has to be driven at a high speed, a counter-shaft is necessary. This is usually placed at the back of the machine. A narrow, endless belt passing over two idler pulleys and a pulley on the counter-shaft drives the wheel spindle. A moderately soft wheel should be used for saw sharpening, being less liable to heat the saw teeth and render them crumbly on the edge than one of a hard composition. Soft wheels also cut more quickly, and do not glaze so rapidly. Care should be taken to use light pressure when bringing the wheel down on the teeth, otherwise they will be rendered blue or even red-hot. A guard should always be fitted over the emery wheel in case of the latter flying to pieces. Many serious accidents have resulted from this precaution being neglected. The causes which lead to a wheel flying may be summarised as follows:—

1. Running wheel too fast.
2. Too tight a fit on spindle, causing cracks at hole when expanded by heat.

3. Being pinched too tightly between side washers.
4. A blow, wheel warped, unsound, or out of balance.
5. Wheel heated owing to work being forced too hard.

The proper speed of the wheels lies between 4500ft. and 5500ft. per minute at the periphery, according to the use to which they are put. A good speed for wheels of the sizes usually employed for saw sharpening lies midway between these two figures—say 4000ft. per minute on the edge of wheel. In mounting the wheel large washers—say one-third the diameter of the disc—should be used, the inside faces being turned very slightly concave, and a thin piece of rubber or leather inserted between each washer and the wheel. Moderate pressure should be used in tightening up the washers, and should be applied evenly. The bore of the wheel should be an easy fit on the spindle to allow for

#### EXPANSION FROM HEAT.

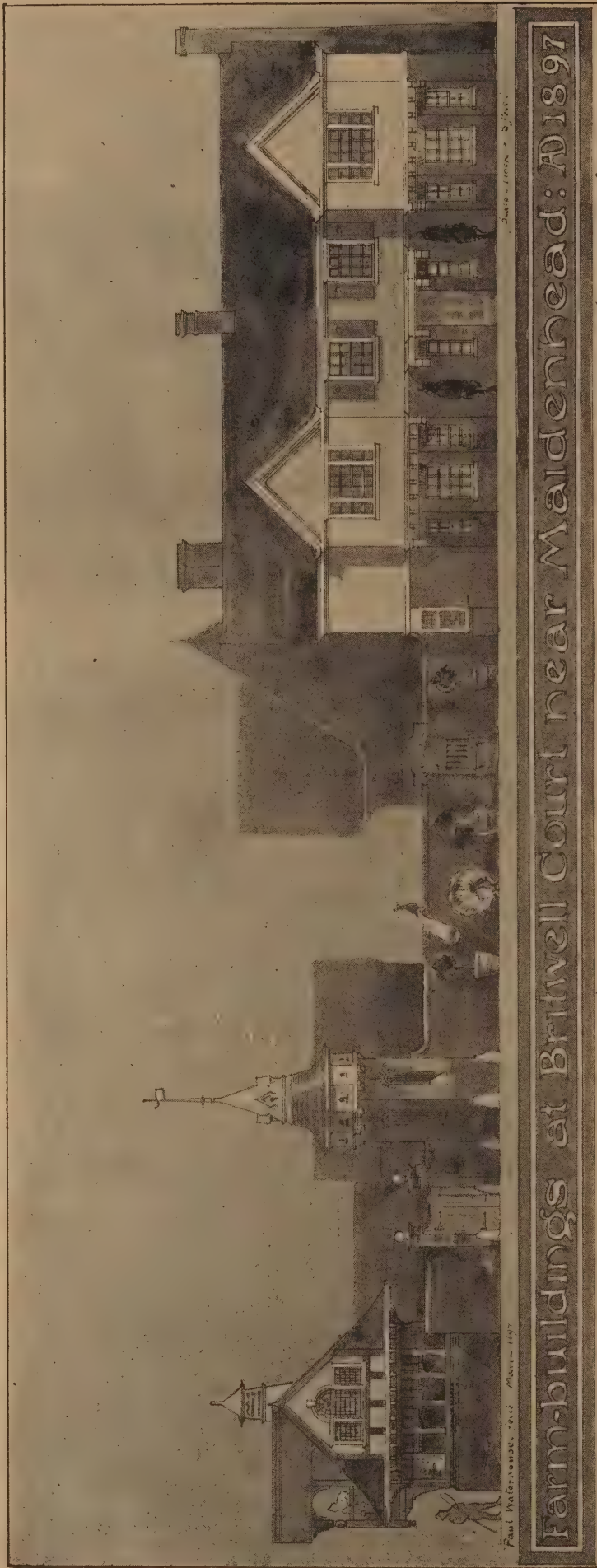
All wheels should be carefully examined, and if any flaws or cracks are discovered, however slight, the wheel should be discarded. Warped discs also must not be used. The spindle should revolve without vibration in its bearings, which latter should be kept well supplied with oil. For saw sharpening, discs of about 12in. diameter by  $\frac{1}{2}$ in. to  $\frac{3}{4}$ in. thick are generally used, and for deep gulleting should be of fairly coarse grit, whilst for topping and finishing the teeth, fine grit wheels are used. If the wheel becomes glazed on the face it must be dressed to present a fresh cutting surface, and for this purpose, especially with the larger wheels, a diamond pointed tool is perhaps the most suitable. A little tool for the same purpose is on the market, consisting of little star-shaped pieces of steel on a small spindle, which is free to revolve in bearings at the end of the holder. These are held in contact with the revolving emery wheel, and, chipping minute pieces out, expose a fresh surface. A simpler form of dresser may be made from a piece of thin sheet iron, which, if held to vibrate against the face of the wheel, will soon remove the glaze. If an emery-wheel has been employed on greasy work it may be cleaned with kerosine. Turning to emery wheels, as applied to plane and moulding iron grinding, two types of machine are used. One, in which wheels of various widths and profiles are mounted on a spindle running in suitable bearings, and having a rest for the tools along one side. This arrangement is used for moulding irons and narrow plane irons. The second machine consists of a hollow emery-drum with one solid end through which a spindle protrudes, the drum being held firmly against a collar on this spindle by means of a nut and washer. The plane iron to be sharpened is held in an angling rest and is moved automatically across the end of the emery-drum by a screw or rack spinion. The fence being adjustable, the irons can be ground to any angle, according to the nature of the wood they have to cut. With this machine it is possible to grind cutters of any length with perfect accuracy, and the action of the machine being automatic, no further attention is required from the time the iron is fixed in the rest to the completion of the grinding. A pair of narrow emery wheels with rests mounted on a continuation of the main emery-drum spindle will be found a very useful adjunct for roughing out moulding irons. For cleaning up castings, polishing, and a variety of other uses, emery wheels will also be found extremely valuable, showing a great saving over hand labour.

ALTHOUGH the imports of timber have been heavier this year, the stocks at many of the large ports have met a demand sufficient to make them less than a year ago. Of some kinds of pitch pine, the stocks at Liverpool are only about one-half of what they were a year ago; and other classes of timber show corresponding reductions. Heavy imports, however, are anticipated of Baltic timbers this month.



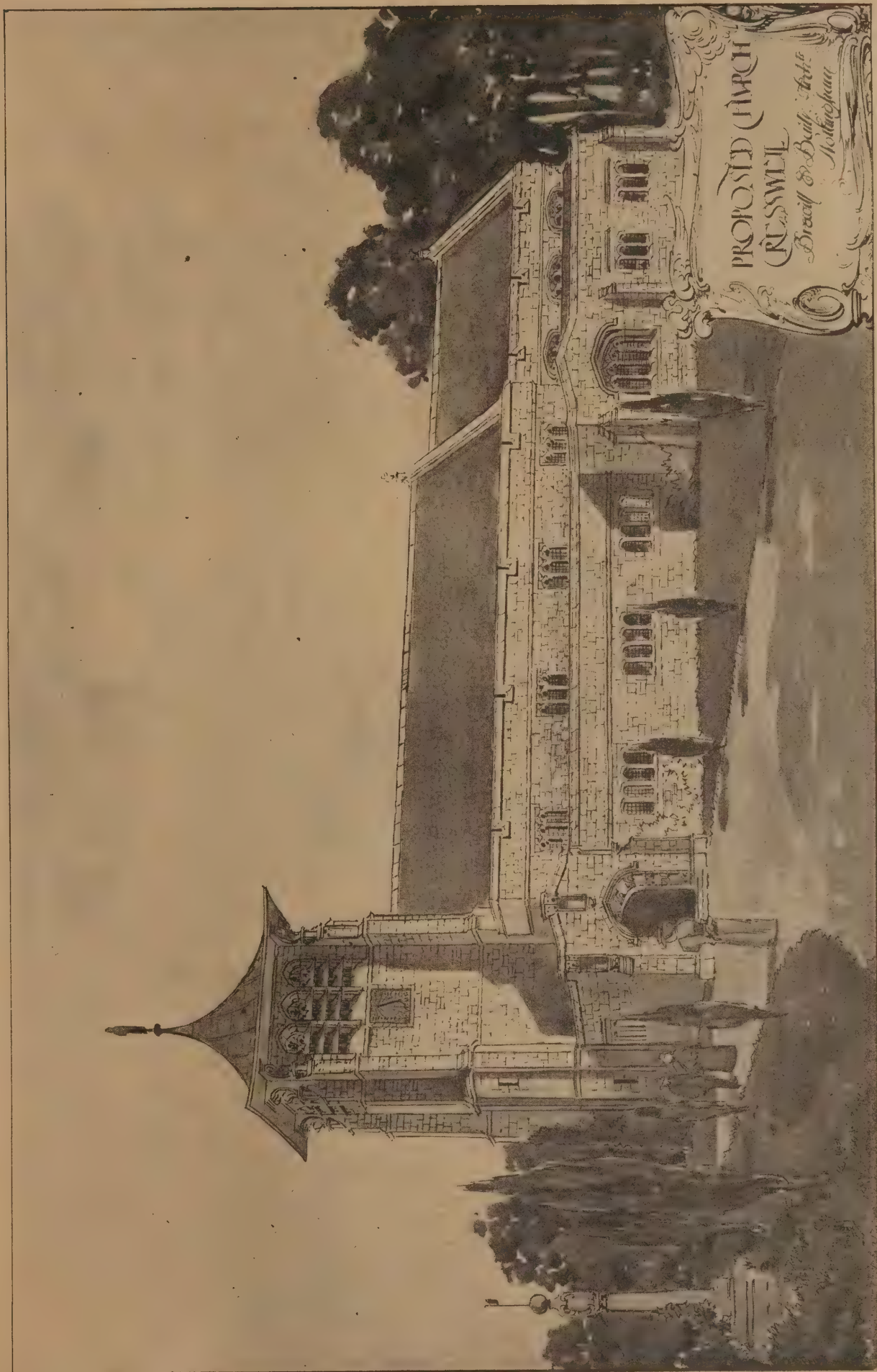
LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





FARM-BUILDINGS, BRITWELL COURT, MAIDENHEAD. PAUL WATERHOUSE, ARCHITECT.





PROPOSED CHURCH, CRESSWELL. MESSRS. BREWELL AND BAILY, ARCHITECTS, NOTTINGHAM.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
June 16th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

"The subject of restoration," writes Mr. Thackeray Turner, secretary of the Society for the Protection of Ancient Buildings, "is, if we may judge by the communications addressed to the Society for the Protection of Ancient Buildings upon the subject of Canterbury Cathedral, now exercising many minds, and my committee, therefore, hopes you will allow it to give a brief description of the work which has been and is being done at that Cathedral. In doing so it has no desire to criticise the professional ability of Sir Arthur Blomfield, and would only remark that however much the public may appreciate work done under his influence, it is questionable whether they are willing to lose original Mediæval work to make way for it. Upon entering the Chapter House, everything which meets the eye gives the impression of newness, with the exception of the existing flooring, which is made up of monumental slabs and plain red tiles, and this we understand is to be entirely replaced by a stone pavement. As one of our informants said: 'It is entirely like entering a brand new building.' All the Mediæval painting upon the ancient oak ceiling has been covered over by new painting in imitation of the old. The smallest fracture or other defect—in other words, the scars of time—have throughout the building been 'made good,' and then the whole has been painted in many colours. No, not quite the whole, for the back of the Prior's seat and the roundels in the canopy over, represents literally the only surface of original work which now remains to be seen. Many new Purbeck shafts, highly polished and glistening, have been introduced, and the ancient shafts have been polished up to match. We believe this to be a brief and accurate account of what has been done, and your readers will judge for themselves whether this is how they desire our ancient buildings to be treated."

ARCHÆOLOGISTS will be glad to hear that some interesting discoveries have just been made at the ancient parish Church of St. Mary the Virgin, Chatham. To facilitate the work of restoration it was found necessary to remove the porch on the south side, and this revealed portions of the original Norman structure. It is found that the present west wall is in reality part of the chancel of the old Norman Church, and in the porch taken down were the remains of an ancient structure, showing that an altar once stood near the spot. Two old Norman windows, one in the porch, and one in the staircase close by, have been laid bare, whilst a Greek slab, adorned with the figure of the goddess Euphrosyne, has been discovered, built in the masonry. It is conjectured that the latter was an importation, and was originally inserted in that position in order to preserve it. Sir Arthur Blomfield, the Architect for the restoration, has reluctantly come to the conclusion that it will not be possible to save the old Norman work found in the porch, owing to the extensive cracks and fissures existing; but the fine doorway, which manifestly belongs to a date anterior to the erection

of the present Church, will be carefully preserved.

LAUDERDALE HOUSE, which in the last century was divided and became numbers 59 and 60, Aldersgate Street, is on the point of being pulled down, to allow for the erection of buildings for a well-known ink manufacturer. After the Lauderdale family migrated from the City, the grand old mansion became the residence of a distiller, then of a draper, who split it up into two houses; but the interior fittings have never been disturbed, and the same windows, staircase, drawing-room, dining-room, and bedrooms still remain in the Diamond Jubilee year of Queen Victoria, exactly as they were in the reign of Charles II. Pepys speaks in his diary of a visit he paid to the Earl of Lauderdale in the year 1666, but Lauderdale is perhaps best remembered by the fact that the initial letter of his name formed the last one of the "Cabal" of the Restoration period.

An interesting paper was read dealing with the Coronation Stone at Westminster at the monthly meeting of the Royal Archaeological Institute of Great Britain and Ireland. Treating it purely from the archaeological point of view, Mr. James Hilton explained that there existed in early times a belief that the stone was originally taken from Palestine to Egypt, and thence to Scotland, and that its removal from that resting-place would be fraught with danger to the succession of the Scottish Kings. Geological investigations, however, showed without doubt that the stone was from Scottish quarries. At Dunstaffnage it was used in connection with ancient coronation ceremonies, but there was no very clear or distinct evidence as to when or how it found its way to Argyllshire. In 834 the stone was removed to Scone for protection, and remained there until 1296, when Edward I. brought it to Westminster, together with the ancient coronation chair and regalia.

THERE are rumours and reports as to a big scheme which would alter the railway map of London. The talk of the Stock Exchange is to the effect that the Midland Railway Company is to pay five millions sterling to buy up the Foundling Hospital and its surrounding estate. The site would provide the Midland with a station just west of Gray's Inn Road, about half-way between Holborn and St. Pancras. Of course, on the face of it, the scheme is too big for the Midland alone, but the idea is to invite the co-operation of the other great railways, so as to provide London with a general junction from which railway facilities would radiate all over its area.

ARCHÆOLOGICAL researches among the ruins of the old Abbey of Villers, in Belgium, have led to an interesting discovery consisting of five slate sheets on which most minute and complete instructions are engraved for the use of the sacristan in regulating the "clepsydra," or water clock, of the Abbey. The sheets bear the date 1270. A Belgian scientist, M. Shéridan, has now translated the instructions, and we learn therefrom that at the above-named date the day began at six o'clock in the evening, and was divided into three major parts of eight "hours" each. These three parts were sub-divided into twenty-four minor parts corresponding with the twenty-four letters of the Mediæval alphabet.

MR. WATTS'S "Time, Death, and Judgment," one of the pictures which he intends to bequeath to the nation, has been hung in St. Paul's Cathedral. It forms a most effective addition to the decoration of the building, and its presence there establishes a precedent which, it is to be hoped, will be followed in the right spirit. No worthier place than the Cathedral could be imagined for the display of such great pictorial allegories as Mr. Watts has spent his life in producing.

MR. M. H. SPIELMANN, in the course of a lengthy letter to the "Times" on the subject of the danger of fire at South Kensington Museum, says: "It is obvious that the Office of Works

is to a great extent responsible for the many wooden and otherwise unsuitable buildings that have been erected, and for the ancient tenements that have been pressed into the service of the Science and Art Department. But the whole system is to blame, and at the root of it is the exemption from the Building Act enjoyed until 1864, and still enjoyed by the Commissioners of 1851, by virtue of which the galleries rented from them to the west of the Exhibition Road are at the present moment, I believe, the only buildings of the kind in London now uncontrolled by the District Surveyor or the County Council. The result is that the Western Gallery—an upper story containing the unequalled Indian collections and leased from the Commissioners for £800 per annum—is constantly in a position of alarming danger. The museum authorities have no knowledge of, and no control over, the contents of the gallery beneath—the great corridor belonging to the Imperial Institute—which may, for all they know, contain the most inflammable materials, handled by the most reckless persons. Immediately to the north of this gallery is the large temporary wooden building of the Royal College of Music, and to the south—in direct and complete contact—the great concert-hall of the Imperial Institute. This dangerous structure is of wood throughout—floor, sides, and roof—and is probably as inflammable as the bazaar of the Rue Jean-Goujon; yet under the very floor of it are the furnaces and boilers that serve the electric light of the surrounding buildings, while through its roof pass the chimney-stacks of those same furnaces and the summer kitchen of the Imperial Institute! Apart from these boilers and furnaces are many others used for lighting, heating, and chemical requirements, not concentrated in any one safe and detached building, but sprinkled about the museum buildings proper."

A RECENT sale of old Chinese enamelled whole coloured and Nankin blue and white porcelain at Messrs. Christie's included a Nankin cylindrical vase, with bands of dragons in white on blue ground, 11in. high, 20gs.; a pair of hexagonal shaped bottles, of famille verte, enamelled, with ladies, &c., in panels, 11in. high, £27; a pair of green and gold French porcelain vases, painted with classical subjects and flowers, 17in. high, £30; and an ancient Damascus oviform pottery jar, with design composed of carnations, tulips, and conventional flowers in brilliant blue, 20in. high, 40gs. The pictures sold on Friday week by the same firm included a view of a lake, with figures and a stream in the foreground, by T. Creswick, 86gs.; and a portrait of the Marquise de Gange, in red and blue dress, by Mignard, 155gs.

THE Summer Exhibition of the Dudley Gallery Art Society at the Egyptian Hall, Piccadilly, is now open. Figure, as might be expected, is the weakest section; insecure draughtsmanship is more apparent in that than in landscape, or even than in Architecture, when would-be impressionism is adopted, and this prevails now among the unequipped. Between real impressionism, or merely rapid sketches, which may be so fresh and expressive, and the sloppiness which does duty as "impression" with those who have never learnt the grammar of Art, there is a great gulf fixed, but of this it seems as though some exhibitors at the Dudley are unaware. Still, as in most affairs, there is a minority to be considered, and of it there is some creditable work, judged, maybe, from a not very exalted standard.

ONE of the most striking street improvements effected in recent years at Bristol is the widening of the greater portion of Wine Street. For several years the necessity of setting back one side of the street was a frequent topic of discussion in the Town Council. Recently it has been acquiring premises on the Council House side of the street for widening purposes, and the result is that a very desirable improvement has already been brought about. The scheme has involved the destruction of the old Pithay, where dwellings of the



Elizabethan period, with their quaint gabled roofs, formerly stood. It was reached by an alley running from the middle of Wine Street, and the reputation of the neighbourhood in years gone by was such that no respectable citizen would venture along its tortuous courts without police protection. Taylor, in his book concerning Bristol and its environs, speaks of the Pithay as a sort of "local Seven Dials." Latterly it became more respectable, and was noted as a lodging-house quarter, the name of the locality ceasing to be a reproach as in olden times. The Corporation bought the property, and lost no time in getting rid of the tenants, some of whom had inhabited houses in the unsavoury spot for upwards of half a century. The Wine Street shops which had the Pithay for an abutment have been pulled down, rebuilt, and set back considerably, and not only has the character of the thoroughfare been immensely improved, but the danger to life and limb arising from the intermingling of pedestrians and vehicles has been greatly lessened. The top end, at the corner of Union Street, remains to be dealt with, but as it is reported that the Corporation Improvement Committee has come to terms with the owners for setting back the premises, the work is not likely to be long delayed.

THE time fixed for the completion of the Memorial Chapel at Whippingham has passed by, and the sarcophagus has now been finished. No inconsiderable part of the delay which has taken place may be ascribed to the fact of a very considerable amount of marble having been cut up in order to secure, if possible, a piece of stone absolutely without a flaw or mark, and which would be of sufficient size for a statue; but though some hundreds of pounds' worth of material was experimented upon, no piece could be found which would comply with the Royal commands upon the matter. Hence, contrary to intentions, no figure of the late Prince Henry of Battenberg will form a portion of the memorial. The chapel, now practically finished, presents a chaste and elegant appearance, the pure white of the marble and the Portland stone dado being extremely effective. The Queen has taken an active interest in the general design of the memorial, and has made several visits of inspection during its progress towards completion.

APPARENTLY the French draw some of their artistic ability from a prehistoric source. Fresh excavations in the Department of the Dordogne at the grotto of La Mouthe have revealed some remarkable drawings on the walls of the cave. They probably imitate the common animals of the period; a kind of ox, a bison, a reindeer, and two undeterminable beasts. Drawings on bones have been observed in this department before, but these mural decorations seem to be still earlier, the earliest found in France.

THE monument of the Defence of St. Quentin was recently inaugurated by President Faure. The monument is the work of M. Theunissen. There is a two-story pedestal. The upper story is narrow and supports two female figures—one, crowned with towers, representing the fortress town of St. Quentin; the other, which waves a sword, is France. On the lower and wider pedestal stand Admiral Coligny and the Mayor, Varlet de Gibercourt, who organised the defence, and round them notables, common people, and soldiers. One of the notables is made to resemble the late M. Anatole de la Forge, who resisted the Prussians behind a barricade at St. Quentin in 1870. This work of Art has been erected at the cost of £4000.

It is only this week that one begins to realise that London will, on the night of June 22nd, present a marvellously brilliant appearance. Railway stations will be illuminated, clubs will be shining centres of attraction, and banks and insurance offices will vie with each other in the splendour of their equipment. St. Paul's Cathedral will not, according to present advices, be illuminated, and the brilliancy of its dome will not outshine that of less pretentious displays alongside; that is, unless the

Home Secretary's opinion be changed by the report of the experts as to the safety of the proposed scheme of illuminations. And other churches will follow suit, being left dark and dismal when all is bright around.

MR. H. W. SETON-KARR showed at the Royal Institution conversazione a large number of very interesting prehistoric stone implements from the lost flint mines of Egypt lately discovered by him. He also, at the same time, showed a number of stone implements from the Palaeolithic City he has newly discovered in East Africa. Mr. Seton-Karr's discoveries in Egypt and in Somaliland lead him to the idea that man's original home must have been in Africa, or at least in a tropical land, where clothes were unnecessary and food plentiful to hand. The palaeoliths which he found during his last five expeditions into Somaliland are identical in form with those from France and England, thus showing the unity of race throughout the world during the Age of Stone. During one of his expeditions in East Africa, Mr. Seton-Karr came on what he regarded as the headquarters or stronghold of primeval man. Here, he thinks, the Garden of Eden may have been, and the very tools which he discovered may have been made and used by Adam and his numerous descendants. With regard to the discovery of the long-lost flint mines of Egypt, Mr. Seton-Karr came across one day on the hidden cliff plateaus of the Wady Sheik what appeared to be ruined cities of vast extent. He felt convinced that he had at last found the lost mines. Each of the mines was characterised by its own special types of implements, which Professor Flinders Petrie declared to be of the greatest possible interest, and hitherto unknown to science. They consisted of axes, wedges, spear-heads, rings, disks, sickle-shaped knives, and stone truncheons, many of which lay as the workmen had last left them, when they went home to dinner one day, perhaps, thousands of years before Thebes or Memphis were ever dreamed of.

"EATEN with Honour" is the grimly humorous title of an article in the Contemporary, by Mr. Flinders Petrie, to prove that the pyramid builders of ancient Egypt were partial cannibals. In the winter Mr. Petrie cleared away a group of early tombs in an Egyptian cemetery. In the arrangement of the bones, not in one but in several tombs, he saw clear indications to him that the bodies had been cut up, the bones picked and cleansed, separately wrapped up and buried with every care and honour. The eating of the body is supposed to have been part of the customs of the burial, just as in the cases of Australian cannibalism of which we have heard in modern times.

MR. E. A. ABBEY, whose large canvas at Burlington House, "Hamlet," has been named by many as "the picture of the year," is an American who is well known on both sides of the Atlantic. The great work of Mr. Abbey's life, up to the present, is the series of large pictures he executed for the decoration of the Boston Library. These he painted in his country studio, one of the finest in England, at Fairford, in Gloucestershire, and exhibited them in London before taking them across to the States. Both Mr. Sargeant and Mr. Whistler have helped to enrich the Boston Library, the former exhibiting a portion of his work a few years ago at the Academy. Mr. Abbey was commissioned to fill one of the spaces in the Royal Exchange last year; and his work is perhaps at its best when dealing with this form of decoration.

THE ceremony of unveiling the memorial to the late Joseph Thomson, the African explorer, a native of the district of Thornhill, in Scotland, was performed at Thornhill by Sir Clements Markham, president of the Royal Geographical Society. Mr. Charles McBride designed the memorial, which is in the form of an obelisk resting on three steps, and surmounted by a bust in bronze of the distinguished explorer. The four sides are panelled and inscribed with the explorer's name and a record of his expeditions and scenes in Africa.

IN the Clifford Gallery, 21, Haymarket, the members of the Surrey Art Circle, of which Mr. Alfred Gilbert, R.A., is the president, have a small Exhibition. Mr. Montague Smith's "Returning Home" agreeably recalls French methods and colouring, and represents, if we mistake not, some scene in the Pas-de-Calais. The broad, vigorous sketch in oils "In the Meadows" gives a higher idea of the abilities of Mr. Claude Hayes than do his finished works, acceptable as these almost invariably are. It indicates a breadth of handling, a loving intimacy with one of Nature's less amiable moods, which further finish would but obscure. Mr. E. Reginald Frampton's "Sancta Cecilia" is a pretty rhythmic design of the hyper-aesthetic type—an amalgamation of the Burne-Jones and Frank Dicksee styles. The "Glimmering Dawn" of Mr. W. Tatton Winter—an apparently simple yet skilful composed study of upright trees in the early morning light—is marked by a certain tenderness and mystery. A decorative and finely wrought tapestry, designed by Mr. Edward Frampton and executed by Mr. W. Sleath, has "The Annunciation" as its subject. The design is woven in the orthodox fashion, some of the lights and adornments being, however, put in with good effect in bright-coloured silks, though by the same legitimate method of execution. The colouring of the whole is both subtle and brilliant. Mr. Gilbert himself shows a powerful bronze statuette, "Comedy and Tragedy," in the style of the Florentine Quattrocento, and of Donatello in particular.

AT Rosdzin, in the coal district of Silesia, a part of the town, comprising about fifty houses, has been undermined, and is about to collapse. Houses above the mines have shown great cracks in their walls, and only a short time ago a druggist had to give up his house and shop because it threatened to collapse, or to sink into the earth. At last what had long been feared really happened, although a technical commission only lately gave the opinion that no more subsidences would take place. In the afternoon one half of the miners' hospital sank eighteen inches. At one in the morning the other wing of the building followed suit. At the same time walls of neighbouring houses cracked, vaults and ceilings of rooms fell in, and the inmates fled in a panic with only a few necessities to the market place. Landslips are spreading in the neighbourhood, and more houses are threatened.

DEPTFORD now boasts a third public recreation ground. Deptford Park, as it is henceforth to be called, consists of a central playground, surrounded by a broad promenade bordered by trees. Seventeen acres in extent, it lies on the delta of the Ravensbourne, to the north of the Grand Surrey Canal, and has its principal entrance in Deptford Lower Road. The land originally belonged to the Evelyn Estate, and was cultivated until recently as a market garden. It was purchased for £36,000, towards which the County Council has contributed £24,000, the Greenwich District Board of Works £8000, Mr. W. J. Evelyn, the lord of the manor, £2000, and the trustees of the London Parochial Charities £800, whilst private subscriptions have been raised in the district to the amount of between £900 and £1000. The laying-out and fencing of the park has cost £7500.

DURING the Parliamentary inquiry concerning the proposed "Westminster Improvement" schemes, an excellent suggestion was made, which it is to be hoped will not be lost sight of. It was to the effect that Dover House, Whitehall, should be secured as the future official residence for the Prime Minister of England. There are many arguments to be advanced in favour of this proposal, says Mr. H. W. Brewer. In the first place the situation of Dover House, between the Treasury buildings to the north, and the Horse Guards to the south, with the Admiralty close at hand, the Foreign Office equally near, and the site for the proposed War Office opposite, renders all these public offices easily accessible. Then, also, as Dover House was erected to serve the purposes of a town mansion, it is far better suited for



such an object than for a public office. Architecturally it is certainly a building which should not be allowed to disappear, because it is decidedly handsome, especially so as to its portico and dome-capped entrance-hall, staircase, &c. The apartments, also, are well-proportioned and excellently calculated for the kind of receptions which are held by a Minister of State. Your readers have no doubt often noticed the well-designed Ionic portico which projects over the pavement, between the Treasury buildings and the Horse Guards. This graceful adjunct to Dover House was added by the Duke of York, who purchased Dover House in 1789, and from whom, for some years, it used to be called "York House." The earlier portions of the building, which are at the back, consist of the reception and dwelling rooms, while the roof is seen rising over the dome which covers the entrance hall (also an addition made by the Duke). The house was designed by an Architect of the name of Payne for Sir Matthew Fetherstonehaugh, who, according to Mr. Walford ("Old and New London"), sold it to the first Lord Melbourne, father of the late Premier. Subsequently it came into the hands of the Hon. George Agar-Ellis, Lord Dover, from whom it receives its present appellation of Dover House. It is almost the last of the eighteenth-century mansions left standing in Whitehall, and is regarded by Architects and architectural writers as an excellent example of a domestic building of that period.

At Bridgwater it has been decided to commemorate the forthcoming Jubilee by erecting a statue or memorial to Admiral Blake, who was born in that place close upon three hundred years ago. The only existing memorials of Blake are a window in St. Margaret's, Westminster, and a bust in the Shire Hall, Taunton, and the committee believes that there are many in Great Britain who would be willing to assist in perpetuating the memory of a man who contributed so largely to the preservation of our national greatness and prosperity by the erection of a statue in his native town.

THE Corporation of London has given a commission to Mr. A. C. Gow, R.A., for a painting of Her Majesty's visit to the City on the 22nd inst., and which, when completed, will be deposited in the Guildhall Art Gallery. The point which has been determined upon for the picture is the Queen's arrival in front of St. Paul's Cathedral, the background being occupied by the edifice itself and by the assembled clergy.

In an appeal for funds to carry out works of restoration, the Rector of Whitechurch, Edgware, Middlesex, states:—"The Church of Little Stanmore, otherwise Whitechurch, was erected in the reign of Henry VIII., and almost entirely rebuilt in 1715 by the munificent Duke of Chandos, who fitted it up after the model of a Royal Chapel, and caused the walls and ceilings to be decorated with paintings by two French Artists—Verrio and Laguerre. The Church also contains paintings by Bellucci, and notably one on the ceiling of the west gallery, being a copy of the Transfiguration by Raphael. It is at this Church also that during the years 1718-1721 the immortal Handel was organist, and William Powell, the "Harmonious Blacksmith," who was parish clerk at the same time, is buried in the churchyard. The Church is now in great need of repair, and, unless a great effort is soon made to stop the dilapidation going on, will soon be in danger of serious injury. Handel's organ stands behind the altar, and is only approached by a dark and almost inaccessible passage, yet is visited by many hundreds of people each year. Therefore it is with confidence that we appeal to all lovers of Handel's music to help us to raise £1000 for the restoration of the Church and the erection of a proper organ-chamber worthy of the memory of that immortal composer as a suitable commemoration of the Diamond Jubilee of our good Queen Victoria."

## DISINFECTION.\*

### PHYSICAL, CHEMICAL, AND MECHANICAL.

By W. NOBLE TWELVETREES.

COUNTLESS ages ago, when this world was in a state of incandescence, it may safely be assumed there was no need of disinfection nor of disinfecting apparatus. If ordinarily accepted theories as to the future be correct, equally sanitary conditions will ultimately prevail. The intermediate period is one in which the once molten and vaporised elements have become transformed into myriad forms of animal and vegetable life. Man, representing the highest type of earthly life, finds in his world some things pleasant and good, others pleasant, but perhaps not good, and many neither one nor the other. In the last category may be placed the products, organic and inorganic, which are appropriately dealt with by disinfection.

#### HISTORY.

The practice of disinfection has been traced back to very remote times. There is ample evidence showing that primitive man endeavoured, not only to hide evil odours by the agency of perfumes, but to destroy direct causes of infection by chemical substances. Public worship in the earliest days was attended by practices based on an intelligent perception of the value of disinfection. So far, indeed, were habits of cleanliness inculcated, that hygiene formed an important part of the various religions of the world. The most remarkable instance of this alliance between "Cleanliness and Godliness" is to be found in the Mosaic laws, framed about the year 1600 B.C., which contain precise hygienic regulations for the person, dwelling, and camp. These laws also direct the avoidance of blood and unclean meat as articles of diet, and the isolation of those suffering from contagious disease. Blood is well known to be the most putrescible constituent of meat, and the flesh of the pig is extremely apt to harbour parasites—a tendency not lessened by the very cosmopolitan palate possessed by this familiar but thoughtless animal. There is no doubt that the Levitical laws have proved a most important factor in maintaining the permanency of the Jewish race. The ancient Greeks were well acquainted with the uses of sulphur as a disinfectant, and the ancient Romans thoroughly appreciated the advantages of good ventilation, water supply, and drainage. Their practical good sense was also evinced by the appointment of State physicians in their towns and cities. It is disappointing to find that after the advent of Christianity the civilised world suffered a relapse with regard to this branch of social science. Owing to monkish superstition, epidemics and diseases came to be regarded as dispensations of Providence, which it would be sinful to combat save by prayer and penance. As a consequence the people became far less cleanly in their modes of life than the Jews and heathen. The state of London in Mediæval times cannot have been particularly agreeable, from a modern point of view, considering the absence of proper drainage, of ventilation, and of pure water. During the eighteenth century some improvements were effected, but these advances in the direction of sanitation were made without precipitate haste, and in such a manner as to cause no violent shock to the feelings of the most conservative. In 1832 an outbreak of cholera in London directed attention to questions of Sanitation and Disinfection, resulting in the first of a series of measures which have done so much to render London one of the healthiest amongst the cities of the world. Up to the middle of the present century disinfection in the proper sense of the word was hardly considered. In fact, the well-known dictionary of Dr. Johnson, published in 1785, neither contains the word "disinfect" nor any of its deriva-

tives. The nearest approach is the word "fumigate," to perfume by smoke or vapour. Prior to the universal acceptance of the germ theory, the word disinfectant was used chiefly to denote substances with the power of absorbing effluvia, or of "masking" noxious odours by other odours of more powerful and sometimes of less unpleasant character. The labours of a devoted band of scientists have during recent years given to the world, not only the germ theory, but the practical science of bacteriology. In the light of their discoveries it will be seen that a true disinfectant should go directly to the root of the evil, and absolutely kill the organisms causing putrefaction or producing disease. It is, however, convenient to retain the use of the word disinfectant as a generic term, including true disinfectants (or sterilisers), deodorants, and antiseptics.

#### MODES OF DISINFECTION.

Disinfection may be effected in any of the following modes:—First, by establishing physical conditions unfavourable to the existence of germs; second, by the employment of agents causing chemical changes in germs and volatile substances contained in the air; third, by the use of mechanical disinfectants which absorb substances of injurious character. Natural and artificial filtration are included in the latter class, although their effect is exclusion rather than destruction of germs. The various modes of disinfectants and their practical application will be referred to later, but first it will be useful to consider briefly the constitution and characteristics of the germs which have to be dealt with, and the conditions unfavourable to their production. Bacteria or microbes, as they are popularly termed, are minute unicellular organisms, the cells being transparent and colourless, with an enveloping membrane. The contents are protoplasmic, and there is no nucleus. Microbes occupy so low a position in the system of evolution that it is difficult to locate them with certainty in either the animal or vegetable kingdom. Some authorities boldly describe them as plants, others speak of them as "living creatures," but cautious writers more generally use the safe and non-committal term "micro-organism." Micro-organisms are variously classified as follows: Sapro-phytes—growing on dead substances; Parasites—on living bodies. Parasites are divided into Obligate Parasites—incapable of existence apart from the body; Facultative Parasites—capable of life both on and apart from the body. Further, micro-organisms are spoken of as Ectogenous—only occurring outside the body; Endogenous—only existing inside; Ambigenous—existing either outside or inside. Another classification divides these organisms into (1) Aerobes—unable to live without oxygen. (2) Obligate Anaerobes—unable to live with oxygen. (3) Facultative Anaerobes—able to live with or without. The latter are naturally the most troublesome to extirpate. The multiplication of bacteria takes place either by fission or by formation of spores. In the case of fission, the individual cell, when of full size, splits in the centre, and, if the "daughter cells" do not break away, a group is formed. In spore formation, the greater part of the contents collects at one point, forming the spore. The remaining portion of the cell perishes, and the mature spore remains. Spores have remarkable powers of resisting chemical agents, heat, cold, hunger, and thirst. The process of multiplication is extremely rapid; generation succeeds generation within periods of time measured by minutes. The number of bacteria theoretically developed in forty-eight hours from a single specimen is no less than 280 billions. It is fortunate various circumstances tend to limit so reckless a tendency to over-population. As a class, micro-organisms are distinctly unpopular. In fact, it is probably not exaggerating matters to say that the self-respecting citizen has no better opinion of a microbe than an ordinary police magistrate has of a cyclist. Microbes suffer in public estimation owing to mischievous results on the part of a small proportion of their number, known as disease-producing varieties.

(To be continued.)

\* A paper read before the members of the Civil and Mechanical Engineers Society.



## ENGINEERING SCHEME AT SCARBOROUGH.

**D**URING the past few weeks active preparations have been made at Scarborough for commencing the construction of a road and marine drive round the foot of Castle Hill. It is proverbially useless to argue on matters of æsthetic taste, and as little heed has been paid to the growls of the antiquaries, and of the Artists who have delighted to sketch the old Castle Hill and red-roofed houses which nestle at its base, as to the protests made a year or two ago regarding the railway to the summit of Snowdon. But the Scarborough Corporation has one important point to urge in favour of this road, over and above mere utilitarian views. The base of the Castle Cliff is mainly

COMPOSED OF CLAY SHALE,

with occasional sandstone, and erosion by tidal action has been considerable, especially on the north and east sides. Serious slips of the upper cliff have taken place within the present century, and the date when the Castle Yard itself may be jeopardised is not so remote as some persons who talk of the "everlasting hills" imagine. The new sea wall, it is anticipated, will effectually check this invasion of the sea, and though in the process of construction the Castle Hill will have to be scarfed down in places, it is confidently believed that the end of the damage will then have been reached. The Corporation is negotiating with the Woods and Forests Commissioners to remove the firing and other military operations from the Castle Hill to a site outside the town, and it is hoped, by laying out the hill slopes as a pleasure ground, that there will be no offence to the eye, even of the Artist, when once the wall has lost its "new" aspect. The extent of the present operations may be judged from the fact that the contract with Messrs. Cooke and Co. is for £69,270, and this does not include the asphalted of the road, the erection of toll-houses, or the provision of an approach from the South Foreshore Road. It is estimated that in all £100,000 will be required for this scheme—which is the third and final act for providing Scarborough with a fine long drive by the sea-front. As far back as 1882 the Corporation took the matter up, and the late Sir John Coode, one of the first experts on marine work, was consulted. He visited Scarborough in the following year, and surveyed the ground, and presented a long report, in which he declared that the scheme presented no

## INSUPERABLE ENGINEERING DIFFICULTIES.

He held that, provided the wall was constructed thick enough in the exposed portions, it would be perfectly safe. Nor did he share the view that the road would increase the danger to craft entering the harbour in a gale by creating what is called a "backwash." Sir John Coode suggested that if the whole scheme was regarded as too huge to embark upon at one time, it might be divided into two parts, and the less dangerous and costly half—the Marine Drive, on the North Side—taken in hand first. This suggestion was acted on, and what is called the Royal Albert Drive—stretching from the north end of the Castle Hill, along the North Bay—was constructed at a cost of over £50,000, and opened in June, 1890, by the late Duke of Clarence. It was soon realised, however, that the work could not end here, for Scarborough had now a fine promenade on the south side, and an even finer drive on the north side; but the Castle Hill isolated the one from the other, and greatly reduced their value, especially to visitors. In 1889 the Scarborough Corporation obtained in a Local Improvement Act power to spend £70,000 on the construction of a road round the Castle Hill; but many delays occurred, and it was not until last year that definite steps were taken to obtain estimates for the work, and to appoint a resident engineer, Mr. J. E. Everett, of Totton, Southampton, to superintend the construction. Then a further hindrance arose, the town having to be again polled to get sanction to the spending of more than the £70,000 authorised by the Improvement Act,

and there were also negotiations with the Harbour Commissioners, and their engineer, Mr. Philip Messent, as to the best form for the wall, and its junction near the outer pier, so as to send the waves which run along the wall outwards from instead of on to the pier. All these difficulties have, however, been now adjusted, and in the hands of Messrs. Cooke and Co., who have had great experience in Brighton, Eastbourne, and other towns, of marine work, the speedy construction of the wall is expected. The

## LENGTH OF THE NEW WALL,

from its junction with the East Pier to its junction with the Royal Albert Drive, is 4,100ft., and in form it will be a flat hollow curve. The face of the wall will be of concrete blocks throughout, and the height will vary from 13ft. to 19ft. above high water at ordinary spring tides. The foundations of the wall will be carried into the shale bottom, and the wall will vary in thickness according to the degree of exposure to the action of the tide, from 17ft. at the base, and 6ft. at the top, to 30ft. at the base and 10ft. at the top, while the concrete blocks to be used range from 1½ tons to 10 tons in weight. The space between the wall and the mainland will be filled in with rubble and cement, a promenade being provided 20ft. wide, and a carriage-way 40ft. in width. As already indicated, it will be necessary to scarf down the cliff in places, where the overhanging rocks appear dangerous, but this work will be done with a sparing hand, and possible accidents guarded against by the construction of a catch-pit on the mainland side, to receive any falling earth or rock, while effective drainage will also be provided to secure the return of any water or spray which may come over the most exposed parts of the drive during an exceptionally high tide.

## METROPOLITAN STREET IMPROVEMENTS.

**A** LIST of the street improvements in the metropolis, contemplated by the Improvement Committee during the present year, has been presented to the London County Council. The localities of the suggested improvements are Rosemary Branch Bridge, Hackney and Shoreditch, Roehampton Street, Westminster, Albert Embankment, Lambeth, and York Road, Battersea and Wandsworth. In the first case it is proposed to rebuild the Rosemary Branch Bridge over the Regent's canal. The total cost of the work is estimated at £6800, towards which the vestries of Shoreditch and Hackney are each to be asked to contribute. The estimated net cost to the Council, after deducting contributions, will, if the scheme is carried out as suggested, be £4100. The proposed improvement in Roehampton Street, Westminster, is in the nature of a continuation of the thoroughfare, in order to afford additional communication to the new streets proposed to be laid out by the Council on the Millbank prison site. The estimated net cost of the work, including the acquisition of property, is £5700. The Vestry of St. Margaret and St. John, Westminster, has offered to contribute £500, but the Committee thinks this an insufficient amount, and recommends the Council only to carry out the work on the local authority agreeing to contribute one-fourth the net cost. An improvement of considerable magnitude is suggested

## AT THE ALBERT EMBANKMENT,

Vauxhall. The proposal is that the Council should undertake, as a county improvement, the widening of part of the Albert Embankment formerly called High Street, Vauxhall, between Vauxhall Walk and Kennington Lane. The matter has several times been before the Council, and repeated attempts have been made to secure a contribution from the local authority. This has been persistently refused, but it has been pointed out that the construction of the Albert Embankment was carried out as a county improvement, that the present proposal is a continuation of that improvement, and that the cost should therefore be paid out of the county fund. The Committee

feels that there is much force in that argument, and has decided to recommend the Council to carry out the work without a contribution from the local authority. The present width of the road, which runs north and south, varies from about 40ft. to 60ft., and it is proposed to increase this to 60ft. throughout by setting back the eastern side. The estimated net cost of the paving and other works is £3700, and of the property, after deducting recoupment, £30,300, making together £34,000. The fourth suggested improvement is the widening of York Road, Battersea, between Falcon Road and Wandsworth Station. In July, 1891, the Committee brought up a report recommending the Council to undertake the widening of this road, subject to contributions being made towards the cost. The report

## INCLUDED NINE LARGE IMPROVEMENTS,

estimated to cost in all £2,097,625 net, and the Council referred it to the Committee to bring up those of the nine improvements, which it considered to be of the greatest urgency, with the result that the York Road widening had to stand aside for other improvements which, at the time, were even more urgent. Recently, however, it has become more and more apparent that the widening of York Road is a work which cannot be longer postponed without grave inconvenience, and the Committee has, therefore, had plans prepared with a view to recommending the Council to carry out some portion of the improvement. The proposed scheme embraces the widening of the portion of York Road, within the parish of Battersea, commencing near Falcon Road and terminating at John Street, and the widening of the portion of York Road, within the parish of Wandsworth, commencing at John Street and terminating at Wandsworth Station. The total net cost of the complete scheme is estimated at £80,150, and of that amount the local authorities are to contribute one-fourth. Nearly the whole of the property to be acquired for the improvement consists of fore-courts, and the estimates of the cost have been prepared on the assumption that Parliament will grant the Council power to acquire, where necessary, the fore-courts only, instead of being compelled to purchase the houses as well. In fact, the Committee considers the granting of this power should be a condition of the carrying out of the improvement, as otherwise the

## COST OF THE PROPERTY

would be prohibitive. It will accordingly be necessary for the Council to ask Parliament to exempt it from section 92 of the Lands Clauses Consolidation Act, 1845, which provides that where the promoters of a public undertaking, acting under statute, require to take part of a house, the owner shall have the right of calling upon them to take the whole. The estimated net cost of the four suggested improvements, without deducting contributions, is £126,650; and after deducting contributions £102,487; the annual charge on the rates for interest on and the repayment of debt, calculated on the net cost, is £4,270, equal to '028d. in the pound and the annual charge decreases each year by £42.

A LARGE reading room is to be added to the Kensington Library, which will be closed for a month during the progress of the structural alterations.

MR. ROBERT SNODGRASS, Architect, has just died at his residence, Prospect Hill, Beith, at the age of 58 years. Mr. Snodgrass was well known throughout North Ayrshire, and had an extensive business as an Architect.

The following return has been compiled by Messrs. C. Isler and Co., of Southwark, who have just sunk an artesian bored tube well to the depth of 450ft. at Islington Baths for the Hornsey Vestry:—Made ground, 1ft. 6in.; brown clay, 23ft. 6in.; London clay, 81ft. 6in.; mottled clay, 25ft.; conglomerate pebble beds, 3ft. 3in.; green sands, 35ft. 9in.; running sands, 5ft.; green sands, 17ft.; chalk, 258ft.; total, 450ft. The water level stands at 165ft. from the surface.



## Professional Items.

**ABERDEEN.**—The Plans Committee of the Town Council has had before it a plan of a warehouse proposed to be built by Mr. John Edwards upon the west side of Bridge Street, adjoining the steps leading to Crown Terrace. The buildings will extend back to Crown Terrace, and it will be necessary to erect a retaining wall on the side next the terrace. The burgh surveyor is of opinion that this wall will require to be 10ft. 6in. broad at the base, and as this will curtail the size of some of the rooms in the proposed buildings, the sub-committee suggest that, as part of the arrangement after-mentioned, Mr. Edwards should, in so far as the Town Council is concerned, be allowed to erect a portion of the retaining wall under Crown Terrace, representing an area of twenty-five square yards. The retaining wall would be 10ft. below the surface of Crown Terrace, and therefore would not interfere with the laying of drains and sewers, or gas, water, or electric mains. Mr. Edwards's property projects slightly beyond the building line of Bridge Street, from the Crown Terrace steps southwards, and by the removal of the old building at the south boundary of the property, an opportunity would be afforded of adding part of the site to the street. The Committee resolved to recommend that the Council should (1) approve of the plan; (2) allow Mr. Edwards, in so far as the Town Council is concerned, to erect the portion of the retaining wall under Crown Terrace as suggested; (3) acquire from Mr. Edwards, for the purpose of being added to the street, (a) the ground in Bridge Street tinted yellow on the plan; (b) the verge in Bridge Street which projects beyond the present building line of the street; and (c) a verge 1ft. wide along the front of the property to Crown Terrace, for the purpose of preserving the present building line of the terrace—in all fifty-seven square yards—upon the understanding that the question of the amount of compensation to be paid by the Council to Mr. Edwards is to be referred to Mr. R. G. Wilson, Architect, as sole arbitrator.

**ACTON.**—The foundation-stone of a cottage hospital at Acton, to be erected in commemoration of the Queen's reign, was laid on the 9th inst. by Lady Rothschild. The cost of the building will be £2500, which has been provided by Mr. Passmore Edwards, while the site in Gunnersbury Lane has been given by Lord and Mr. Leopold de Rothschild. The building, which has been designed by Mr. C. Bell, will consist chiefly of a ground-floor story. The main wards are at each side, one for males and one for females, each containing four beds and a cot, and there will be a room for convalescents, an operating room, hospital dispensary, accommodation for matron and nurses, and administrative offices. Above will be seven rooms, available as bedrooms or as special rooms for patients.

**BALLATER.**—The Commissioners of Ballater have recently been taking steps in various ways for the improvement of the burgh. Formerly the water supply of Ballater was drawn from the Gairn, at a point near the Mill of Gairn, fully a mile and a half from the Square of the burgh, and was conveyed in 4in. cast-iron pipes. The new scheme consists of the laying of an additional cast-iron pipe, 9in. in diameter, from a point about three-quarters of a mile further up the Gairn than the old intake, alongside the existing pipe to near the Square of Ballater. The intake of the new pipe, as already stated, is about three-quarters of a mile above the old one, at a place known as Ballachrosk; and whereas the intake of the old pipe is in the mill-lade at Mill of Gairn, the new intake is by a sub-soil branch along the bank of the stream. The water, certified otherwise as of excellent quality, is thereby filtered to a certain extent before entering the pipe. After passing into the pipe the water is conveyed through the existing reservoir near the Gairn, and thence again, in the new pipe, the supply is conveyed to the burgh. The total cost of the new works

has been about £1600. Messrs. Jenkins and Marr, Aberdeen, who were engineers for the original system, are the engineers; the contractor being Mr. Thomas Mitchell, plumber, Ballater.

**BRIGHTON.**—The whole of the wrought-iron entrance gates, forecourt railings, stair railings, &c., in connection with the New Municipal Technical School, Brighton, have been supplied and fixed by Messrs. Thos. Brawn and Co., Birmingham, who also have lately fixed the wrought-iron entrance gates, and those now in course of erection at Kingston Hall, Notts—a residence of Lord Belper.

**CAMBRIDGE.**—The Mill Road branch of the Cambridge Free Library has been opened. The design is carried out in red brickwork, red terra cotta, and red Mansfield stone, with a slate roof. The elevations are relieved by pilasters with terra cotta caps, sunk and moulded panels and string courses, embellished with carving. The building consists of one large room, 107ft. long by 24ft. wide, divided into a lending department and a reading room. On the north side there are eight large windows, which have stone mullions, transoms and heads, in which clear glass is fixed, the top portion being arranged to open; and, in addition, there is a lantern with glazed sides and end light running the whole length of the building. The roof, which is of semi-circular construction, is carried on eight semi-circular steel principals, which spring from the stone caps of the piers. Over the entrance there is a gable, in the centre of which is carved "1897," with the Crown above, and the rose, shamrock, and thistle beneath. On each side of the gable a lion on a pedestal in red Mansfield stone, supporting a shield with the Borough Arms, is fixed as a terminal. In the centre of the lantern in the roof is worked an octagon cupola, which is glazed with amber glass, and has a cheerful appearance; permanent ventilation has been arranged for in the cupola. The end facing Mill Road is designed to mask the roof, and has panels of moulded brickwork, and three fluted pilasters finishing with a carved pediment, in which the words "Free Library" are worked. The hot water and gas fittings were supplied by Messrs. Macintosh and Sons, the centre lights being from designs supplied by the Coalbrookdale Company. Mr. Frank Waters, of Sidney Street, Cambridge, was the Architect, and Messrs. Coulson and Lofts, of East Road, were the builders. Mr. Wren acted as clerk of the works.

**CARDIFF.**—The laying out of Cathays Park was recently considered by the Town Hall Committee of the Cardiff Corporation, and a resolution moved that the new Town Hall and law courts should be placed at the southern end of the western side of the park. It was stated that the Corporation should first of all select its own site, and after that it would be open to other authorities to apply for sites.—Mr. David Jones did not think that the Town Hall and the law courts should be under the same roof, but, at any rate, they should be close together. He would like to see the whole of the municipal buildings in a cluster.—The resolution was put to the meeting, and carried by seven votes to two.—It was then resolved that advertisements should be inserted inviting designs for the new Town Hall and law courts, and that prizes of £500, £300, and £200 be offered for the three best designs, the prize of the competitor whose design was adopted being merged in his commission as Architect.—A proposal was made that an expert should be engaged to report and advise the committee as to the best way of laying out Cathays Park as a public park, reserving room for the new Town Hall, law courts, a museum, a national museum, offices of the university, and other public buildings; but Mr. Jones pointed out that this was premature, because they did not know how much land would be required.

**CHELMSFORD.**—The foundation-stones of the new Wesleyan Chapel in High Street were laid recently. Messrs. Gordon, Lowther, & Gunton, Finsbury House, London, prepared plans

showing a building with the main entrance in High Street, and under a finely proportioned archway with a six-light mullioned window and flanked by an octagonal tower. The interior of the chapel will consist of nave, two transepts, chancel, and an organ-chamber, and accommodation will be provided for about 600 or 700. Over the nave there will be a gallery. In addition to the chapel, there will be Sunday schools, vestries, &c., these being erected at the rear of the chapel. The schools will be approached by corridors from the chapel. The style of the building is Late Decorated throughout. The walls are to be faced with red bricks, with stone dressings, and the roofs will be covered with Broseley tiles.

**CLAPHAM, S.W.**—At a recent meeting of the Building Committee of the Schools of St. John the Divine, it was decided to build new boys' and girls' schools in place of the existing ones, and Mr. Philip A. Robson, A.R.I.B.A., of Bridge Street, Westminster, was authorised to prepare plans at the earliest possible date. The building is intended as a commemoration of the Jubilee, and the new site, which is next the present infant school, is at the corner of Union Road and Gaskell Street.

**CROSBY RAVENSWORTH.**—A new reredos has just been erected in the Parish Church. The centre panel of the reredos is a copy in oak of the well-known picture by Leonardo da Vinci, representing the Last Supper. It was carved by Mr. Kirkbride, Barbon. This part of the carving is covered by a canopy, which gives great dignity to the appearance of the reredos, and the whole is surmounted by a finely carved cross.

**DUNDEE.**—Plans and sections of proposed new buildings, &c., in Dundee, have been lodged with Mr. William Mackison, F.R.I.B.A., &c., Burgh Engineer, as follows:—Cleghorn Street and Benzie Road, shops and dwelling-houses for John Wilson; Coupar Street and Gordon Street, shop and dwelling-houses for David Lowe; Edward Street, batching-house and jute warehouse for John N. Kyd and Co.; High Street, Lochee, organ chamber for the Committee of St. Luke's Parish Church; Hilltown; addition to property for James McCormack; Lochee Road and Gardner's Lane, alterations on property for Mrs. J. A. Bruce; Mains Road, alteration on warehouse for J. and A. D. Grimond, Limited; Melville Terrace, double villa for William Scott; Perth Road, addition to building for Alexander Henderson; Rankine Street, double villa for George A. Harris; Scott Street, tenement for James Cook; Urquhart Street, dwelling-houses for Very Rev. Joseph, Canon Holder; Westfield Lane, stable, &c., for Agnes Wilkie; 6, Windsor Street, wash-house, &c., for Mrs. Young; Tay Foundry, evaporative condenser for Whyte and Mair.

**GAINSBOROUGH.**—The John Robinson Memorial Church at Gainsborough, the stone of which was laid last year by Mr. Bayard, then Ambassador of the United States, was opened on the 9th inst. The cost has been £7000, £4000 of which has been raised. The Church accommodates 600, and has a school, hall, church parlour, and vestry. It is designed as a memorial to John Robinson, of Gainsborough, pastor of Leyden Church, originally founded in Gainsborough; and the source of American Congregationalism, through John Robinson, the father of the Independents.

**HUDDERSFIELD.**—A new infant school in connection with St. Thomas's Church, Manchester Road, Huddersfield, was recently opened. The school has been built at a cost of £850. Accommodation will be afforded for 125 children.

**HULL.**—A scheme for providing an Art Gallery for the town in commemoration of Her Majesty's Jubilee has been prepared. It is proposed to construct an Art Gallery, 73ft. by 25ft. 6in., immediately over the present Museum, having a vestibule 29ft. by 11ft. 6in., with cloak-room and other offices adjacent. The site is valued at £2000.



**LLANBRADACH, CARDIFF.**—A new Church at Llanbradach has just been opened. The Church is situate close to the Rhymney line, and has been erected from designs by Mr. Bruce Vaughan, the Architect of St. James's, Cardiff. The style of the building is English Gothic of the 13th century. It is built of the native stone. The nave inside measures 61ft. long and 26ft. wide, flanked on either side by aisles 13ft. wide. The chancel is to be built at a future time. The Church accommodates about 500 persons, and will cost about £3000. Messrs. Williams and Thomas, of Cardiff, are the contractors.

**LYNN.**—The opening of St. Mary's Church recently took place. The former Church, which stood on practically the same site—in London Road, at the corner of North Everard Street—and which was erected in or about 1844, was considered to be so unsafe that last year it was pulled down. The style of the new Church is curvilinear Decorated Gothic, treated somewhat severely. The walls are faced with Carr stone, with Bath stone dressings. The roof is of open timber work covered with slates. A stone turret flanks the great gable next London Road, surmounted by an oak open-framed top, covered with red tiles, and with a lofty lead-coloured spire with cross. The plan comprises nave, chancel, altar, and the special shrine of our Lady of Walsingham, which will be an exact copy of the Holy House of Nazareth now at Loretto, Walsingham being within the limits of the King's Lynn Mission. The area of the Lady Chapel is 18ft. by 7ft., and in extension of the length of it will be an ante-chapel 10ft. long; while there is space upon which another aisle can be erected hereafter. The Architect is Mr. W. Lunn, of Great Malvern, and Mr. W. Hubbard, jun., of Dereham, is the builder. The estimated cost is £2000.

**MANCHESTER.**—The Manchester Corporation having applied to the Local Government Board for sanction to borrow £130,000 for the purpose of extending the electric lighting works and system, Colonel J. T. Marsh, R.E., recently held an inquiry for the purpose of taking evidence. One of the witnesses examined was Alderman Higginbottom, who explained the electric lighting scheme in detail, mentioning that Manchester was the first city in the United Kingdom to adopt the five-wire system. The area of supply had gradually increased, and in order to cope with the increased demand for electricity for lighting and motive power, it was absolutely necessary that the plant should be enlarged at once. Dealing with the varying capacity of the plant, he said that in 1893 it was 40,000 eight-candle lamps, that in 1894 it was increased by 16,000 lamps, and that in 1895 and 1896, up to March, 1897, it was increased by 72,000 lamps, making a total of 128,000 lamps. Another side of the progress was shown as follows: In 1893 there were 289 consumers, and 32,716 lamps; in December, 1894, the consumers were 624 and the lamps 60,298; in December, 1895, the consumers were 1018, and the lamps connected 93,290; in December, 1896, the consumers were 1466, and the lamps 133,504; and in May of this year the consumers were 1620, and the lamps connected 147,068. There were also awaiting connection 52 consumers and 14,526 lamps, making the total number of consumers connected and awaiting connection 1876, and the number of lamps connected and awaiting connection was 161,594.

**MIDDLESBROUGH.**—Estimates prepared by Mr. Baker, Borough Engineer, for three schemes of street improvement in connection with the tramways extension have been submitted to the Corporation. The streets named are Ferry Road, Durham Street, Cleveland Street, Queen's Square, Albert Bridge, Exchange Place, Albert Road, Grange Road, Linthorpe Road, Linthorpe Avenue, Linthorpe Crescent, Bridge Street East, Dock Street, Zetland Road, Marton Road, Corporation Road, Newport Road (including re-laying sett paving), Parliament Road, Calvert Street, Oxford Road, and North Ormesby Road. The first estimate is for paving across the whole width scoria

bricks on concrete, with new channels, re-laying kerbs, new kerbs and gullies where required—dedicated streets, £23,933; undedicated streets, £3071—total, £27,004. Estimate No. 2: For macadam, with new channels, re-laying kerbs, new kerbs and gullies where required—dedicated streets, £9729; undedicated streets, £1233—total, £10,963. Estimate No. 3: Ordinary macadam, with new channels, re-laying kerbs, and gullies where required—dedicated streets, £7146; undedicated streets, £899—total, £8,046.

**NOTTINGHAM.**—The parish buildings recently erected at the corner of Station Street and London Road, Nottingham, have been opened. The site upon which it stands was the only available one, but distinctly appropriate for the particular character of the premises, which are of red brick, and have practically reached completion. In the basement are two spacious class-rooms, with partitions, capable of being thrown into one, and adding to the accommodation of a large hall which directly adjoins them, and can seat between five and six hundred persons. On the same floor a kitchen, lavatories, and storage rooms are included, and extensive cellarage has also been built. On the second floor are two more large class-rooms. The building is heated upon most approved principles, and the whole structure has entailed an expense of over £4000.

**RHOSLLANERCHRUGOG.**—The new Welsh Congregational Chapel was opened a few days ago in Bank-street, Ponkey. The chapel is built of red Ruabon facing bricks and terra cotta, part of the façade being of Cefn freestone. The size of the chapel is about 48ft. by 36ft., and the vestry is 20ft. by 15ft. There is also a boiler room measuring 12ft. by 10ft., and the chapel has seating accommodation for about 230. The cost is about £1100; the Architect is Mr. Gummow, Wrexham, and the builder Mr. J. Davies, Ruabon.

**ROSEHEARTY.**—The design prepared by Mr. Victor Mitchell, Architect, Aberdeen, has been adopted for the fountain which is to be erected at Roseheart in commemoration of the Diamond Jubilee. The structure is to be entirely of granite, and will stand over 10ft. in height. The lower base will be square, and the die will be circular and of polished Rubislaw stone, with turned base and pedimented cap of the same material, and having the following inscription cut in sunk and gilded letters:—"Victoria Regina, 1837, sixty years, 1897." The pillar and capital will be of Peterhead granite, polished, and the whole will be surmounted by an imperial crown, also of Peterhead granite, finely finished. Two of the pediments are to be enriched with coats-of-arms cut in relief. The burgh arms are to be cut on the front pediment, and on the opposite pediment will be the arms of Mr. Dingwall-Fordyce of Brucklay. There will be two drinking basins of Peterhead stone, and also a trough for horses and a couple of dog drinking basins. Messrs. Smith and Taylor, Ashvale Place, Aberdeen, are the contractors for the work.

**SMETHWICK.**—A new Wesleyan Church, which has been erected in Waterloo Road, Smethwick, was opened a few days ago. The Church is built upon a site fronting Waterloo and Sycamore Roads, and is in the Early English Gothic style of Architecture. It is constructed of brickwork, with stone dressings, the interior walls being finished with plaster (coloured a neutral tint) and stone, the window reveals being finished with parian cement and the roofs covered with red tiles. The main entrance-porch faces Waterloo Road, and consists of a moulded stone archway with stone columns having moulded caps and bases, and a stone carved pediment. A similar and separate entrance situated in the tower, and immediately adjoining, gives access to the gallery by a conveniently-arranged staircase. The plan of the Church consists of nave, with lean-to aisles and chancel, in which seats are arranged for the choir. The organ-chamber is placed on one side of the chancel, and the ministers' vestry upon the opposite side; also

the choir vestry. The Church is about 90ft. in length, 45ft. in width (inclusive of aisles), and 31ft. high. The seating accommodation is for about 650 persons. The building is well lighted by side aisle windows, and on each side of the nave above the arcading are arranged clerestory windows, while over the gallery are arranged two three-light windows, with moulded stone mullions and tracery, with wheel-tracery window above the same. The oak pulpit is octagonal on plan, and has rich tracery panels. A leading feature of the exterior is a graceful stone spire springing from a tower situated next the main entrance, and rising to about 80ft. in height. The interior woodwork is of pitchpine and red deal, stained and varnished; the roofs of nave, aisles, and chancel, all of which are open-framed, being oil-stained. The ventilation is efficient, and the heating, upon the low-pressure system, is by Messrs. Hoden and Son. The wrought-iron fencing and gasfittings have been carried out by Mr. Edwin Glover, of Dudley Road. The stained glass throughout has been supplied by Mr. T. H. Yates, of High Street, Smethwick. The builders were Messrs. J. Harley and Son, of Rolfe Street, Smethwick; and the Architects are Messrs. Ewen and J. Alfred Harper, of Colmore Row, Birmingham. The cost of the structure is about £3500.

**YEOVIL.**—The foundation stone of the Catholic Church of the Holy Ghost, which is now in course of erection, was recently laid. The edifice is being built within the walls which enclose the Presbytery, the Avenue, Higher Kingston, and is estimated, when completed, to seat between 250 and 300 people. The Rev. Canon Scoles, the rector of the Church, is also Founder and Architect.

When the Liverpool Stock Exchange was built, the Architect, Mr. Henry Sumner, and members of the organisation, endeavoured unsuccessfully to secure the strip of property running along the east side of Exchange Street East. They have at length acquired this valuable frontage, and the existing property is already in course of demolition.

The premiated drawings of the Royal Institute of British Architects selected for exhibition in the provinces have just been on view at the School of Art, Princess Square, Plymouth, under the auspices of the Three Towns branch of the Devon and Exeter Architectural Society. The collection has been further augmented by twenty-five sheets of studies submitted by candidates for admission to the Institute examinations 1896. These include seven sheets by Mr. H. L. Anderson for the intermediate examination, and five sheets respectively by Messrs. A. G. Bond and G. W. Fraser, and eight sheets by Mr. C. S. F. Palmer for the final examination.

The New Brighton Tower Company opened its grounds to the public on Whit-Monday. The general scheme is by no means completed. The leading feature is the colossal Eiffel Tower, which will be 600 feet in height. The basement will be occupied by a vast circus ring, around which 3000 seats for spectators will be placed. Upon the next floor will be the large ballroom, with a floor to accommodate 4000 people. Above this, the next floor will be devoted to gardens and ferneries, and here the main lifts will start for the top of the tower, being served from the basement by nine other lifts for the conveyance of passengers to the ballroom and roof gardens.

The idea of connecting the Great Northern station at Finsbury Park with the City by means of an underground electric railway to Moorgate Street was brought forward with the strong approval of the Great Northern Company in 1894, but owing to the death of the contractor, Mr. Williams, the scheme fell through. Now, however, Sir W. Pearson, Bart., M.P.; the constructor of the Blackwall Tunnel, has agreed to take the contract, and to accept in part payment the whole of the deferred shares amounting to £750,000. A Select Committee of the House of Commons has passed the preamble of the amended Bill granting the company an extension of time to June, 1902, for the acquisition of land and the completion of the works.



## Enquiry Department.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—An Architect gave me five days to make a perspective in pen and ink of three small villas of fanciful design and plan, stating he wanted to submit to the Royal Academy. My information comprised a ground plan and front elevation of villa No. 1, and the same for villa No. 2, and plans and elevations of villa No. 3, which was to be slightly altered and reversed on plan as shown by a photo also provided of it. I had no site plan, no roof plan of any of them, and no side elevations of Nos. 1 and 2. He declines to pay my account, stating the perspective is incorrect and inaccurate. He also states he gave me instructions to show a view directly opposite to what I have given him, which is not true. I enclose correspondence for reference, also a preliminary sketch of the drawing referred to on a smaller scale, also the specimen of my design and draughtsmanship submitted to him in my letter of terms, testimonials, &c. His first communication referred to competitions at Folkestone and at Dudley, which came to nothing as far as I am concerned.—I am, yours faithfully, F. O. F.

We have carefully examined the correspondence submitted to us. It is always a pity to be obliged to take such matters into Court, and we think arbitration by the Editor of a professional paper preferable. Before doing this, it would be necessary to have the facts of the case agreed to by both parties, in order to present to him a definite issue. The issue in this case would seem to rest, first, on certain facts which should be capable of proof, viz.: (1) Does your perspective agree with the drawings supplied to you as far as they go? (2) Were sufficient drawings supplied to you to make a complete perspective? (3) Were definite instructions given to you as to the point of view required? Secondly, this issue would seem to rest on a matter of professional custom, viz.: What licence is usually allowed to a draughtsman in such cases and under such circumstances? There would seem to be no dispute as to the artistic value of your work, or as to the amount you charge, but simply as to whether your perspective is an accurate representation of the buildings. On the first point, no one could arrive at a decision without seeing the perspective and the drawings supplied to you. On the second point we consider that a ground plan and front elevation alone are not sufficient information from which to make a perspective of a building of this class, and we see no contradiction in the correspondence of your statement that this was all you had to work from. On the third point we see no instructions in the letter as to the point of view. But the letter of instructions dated March 19th is incomplete, and such instruction may have been in the missing half. However we see no contradiction of your statement that you received no such instructions, so the presumption is that you did not. With regard to the matter of professional custom, we are of opinion that, considering the purpose for which the drawing was intended, and the short time in which it had to be done, that you were justified in interpreting the drawings to the best of your ability. But had there been plenty of time, you should have written for further particulars and more definite instructions. As a general rule, what is wanted in drawings for this purpose is more a pleasing picture than an exact representation of every feature as it is. As you had so little information, the presumption is that such was required in this case; had more been required, more information should have been given. This is a matter, however, on which the arbitrator would have to use his own judgment, taking all the circumstances into consideration, and judging the case on its merits. If you have both agreed, as seems to be the case, to submit the matter to arbitration, the important thing would be to also agree as to the exact number of drawings you received to work from, so that they could be submitted to the arbitrator with the perspective as a fact about which there is no dispute. He would then have some-

thing definite to work on. If you are prepared to substantiate your statements, and are also confident that your perspective is reasonably correct, we should advise you to proceed to arbitration at once, for so far as we are able to judge from the correspondence you have a clear case; as it must not be forgotten that in engaging the services of a professional man his charges have to be paid, though his work prove unsatisfactory—of course, within reasonable limits. In this case your correspondent himself would expect to be paid his charges on these houses, even though his client complained that they were absurd and not according to his instructions. We think that the fact of your drawing not being acknowledged, or your letters answered for three weeks, weakens your opponent's case, particularly as the date of this acknowledgement is after the rejections from the Academy Exhibition are announced.—ED.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly inform me, through your Enquiry Department, the best method of preserving pencil sketches.—I remain, yours, &c., A. M.

The best method of preserving pencil sketches is to use "Fixative," which is a colourless medium sold by all artists' colourmen. A spray is provided as a rule with the "Fixative," and full instructions given. By using this medium the pencil or crayon will not rub, and the drawing is in no way injured.—ED.

J. ARMITAGE.—The reply to your enquiry has been sent you by post.

CLERICUS.—This enquiry is held over until next issue.

## SOCIETY MEETINGS.

### British Archaeological Association.

An interesting ceremony took place at the last Council Meeting of this Association for the session 1896-97, the occasion being the presentation to Dr. W. de Gray Birch of an address and testimonial from some of the members and friends on his retirement from the post of hon. secretary and Editor of the Journal of the Association. The Marquis of Bute, vice-president, occupied the chair, and in a few well-chosen and appropriate words, expressive of his interest in the science of archaeology and his long friendship with and appreciation of Dr. Birch, handed him the gift, which took the form of a handsome gold demi-hunter watch. Dr. Birch suitably replied. It may be interesting to mention that Dr. Birch has laboured with the British Archaeological Association for upwards of twenty-two years, being a most indefatigable hon. secretary and untiring editor of the Journal, which may be said to comprise, in twenty-two volumes, which mark his period of service, notice of all that has in a prominent form transpired in archaeology. At the evening meeting, Mr. Thos. Blashill, hon. treasurer, in the chair, a large collection of rare and beautiful miniatures was exhibited by Mr. B. Nathan, many of which were of historical interest. A paper was read by Mr. Patrick, hon. secretary, in the absence of the author, Mr. T. Cann Hughes, on notes from North Lancashire, in which the ancient charters of Lancaster and the borough seals were described, and the fairs which were formerly held there and other local customs, some of which are now obsolete, were related. The earliest existent document is that of John Earl of Morton, dated 1193. The Mayor's seal of the borough is believed to be of the reign of Henry IV. or V., and bears in its centre three towers, each triple turreted, with a lion passant and gaudant crowned with a fleur-de-lis. The ancient stocks of the town are preserved at the Town Clerk's office, together with an interesting series of ale and spirit measures, which are said to have been made from guns captured from the Spanish Armada. There are very many ancient door-heads in and about Lancaster, some of them having various de-

signs of fish and other emblems. The Rev. H. J. Dukinfield Astley, M.A., the newly-appointed hon. secretary and editor, was introduced to the meeting.

### Glasgow Architectural Association.

The annual business meeting of this association was held in the rooms, 187, Pitt Street, Mr. Wm. Tait Conner, president, in the chair. The secretary's and treasurer's reports were read and unanimously approved. The following were elected office-bearers for the ensuing session: Mr. Jas. A. Morris, hon. president; Mr. Wm. Tait Conner, hon. president; Mr. John Fairweather and Mr. Geo. S. Hill, vice-presidents; Mr. Chas. E. Whitelaw and Mr. Jas. Salmon, hon. joint secretaries; Mr. Robert J. Walker, hon. treasurer; Mr. Hugh Dale, hon. librarian; general committee, Mr. John Arthur, Mr. Walter Tucker, Mr. Alex. Wingate, and Mr. Alex. McGibbon. The travelling studentship prize for 1896-97 was awarded to Mr. George Edward Walker.

### Northern Architectural Association.

The directors of the Leeds Steel Works, Limited, having invited the members and practising associates of the Northern Architectural Association to visit their works in order to view the manufacture of steel in its various processes from the ore to the finished girder, a large number of Architects accepted the invitation. The Leeds Steel Works received its present title and was registered as a limited company in 1888, but previously was known as "The Airedale Iron and Steel Works." Mr. Walter Scott, of Newcastle-on-Tyne, has purchased from time to time the property of the other partners, and he may now be practically termed owner of the works. The company has agents in all the principal cities of the kingdom, and forwards goods throughout Great Britain, to the British colonies, South America, India, Egypt, &c. The works cover an area of twenty-five acres; the yearly output is 70,000 tons of steel, and the wage roll amounts to £70,000 per annum. The stocking ground is commanded by a 10-ton travelling crane, which has a span of nearly 100ft. The sheds and yards are intersected by railway lines, on which six locomotive engines and eight steam travelling cranes are continuously at work. The electric light is in full use throughout the night. Among those present were:—Messrs. H. G. Badenoch, E. Bowman, P. L. Browne, J. Bruce, J. T. Cackett, C. S. Errington, E. J. Hansom, W. E. Fenwick, W. S. Hicks, W. H. Knowles, E. F. W. Liddle, C. T. Marshall, J. Oswald, S. Piper, F. W. Rich (president), J. W. Rounthwaite, and A. B. Plummer (hon. sec.).

### Association of Municipal and County Engineers.

The annual North Wales district meeting of this Association was held on Saturday, June 12th, at Llandudno, the President (Mr. Francis J. C. May, Brighton) presiding. The proceedings were commenced at eleven a.m. in the Masonic Hall, where an official reception was given the Association by the Chairman of the Urban District Council and acknowledged by Mr. May. A paper on "Llandudno Municipal Works" was then read by Mr. E. Paley Stephenson, engineer to the Council. The past, present, and contemplated works of water supply, sewerage, roads, scavenging, lighting, &c., were dealt with in the paper in an interesting and useful form, and at its close a discussion followed, in which the President and Messrs. Boulnois, Liverpool, and Platt, Rochdale, took part. The members afterwards proceeded in brakes, *via* Conway, to Penmaenmawr, on a visit of inspection to the famous granite quarries of Messrs. Darbishire's, Limited. Under the lead of the principal of the firm, Mr. Charles H. Darbishire, the visitors were shown over these very extensive works, commencing at the lower end—the point of delivery by rail and sea—*via* the stone breaking mills, and finishing at the summit where a large blast displacing some 1500 tons was witnessed. A sumptuous luncheon, provided by Mr. Darbishire, at Plas Mawr, was afterwards partaken of.

We hear that Mr. F. C. Penrose has resigned his position as Surveyor of St. Paul's Cathedral.



## Trade and Craft.

### TUNNELLING ST. GEORGE'S CHANNEL.

Belfast Chamber of Commerce is asking for a Parliamentary inquiry as to the practicability and usefulness of a tunnel between Great Britain and Ireland. It is contended that the methods of boring have been so cheapened of late years as to bring this old project within the bounds of financial possibility, if the Government will assist it with a guarantee of, say, 2 per cent. per annum. The cost has been estimated by a number of engineers at from six to eight millions sterling, and if this be doubled, by way of providing against emergencies, the Treasury, on the basis suggested, would have to provide £240,000 a year if the undertaking did not yield any profit. It seems to have been advised that the tunnel should run between Larne, in county Antrim, and Portpatrick, in Wigtownshire, a distance of 22½ miles. Whether any engineer has examined the strata of the sea bottom here we do not know; but the levels at all events are easy. Another 10 miles of approach tunnels would need, however, to be constructed; and if the boring were done at the rate achieved in the Arlberg Tunnel, it must occupy, at the very shortest, more than 13 years. This duration, great as it is, might be extended to a generation if adverse conditions were encountered.

### THE LONGEST TUNNEL IN THE WORLD.

Two gangs of workmen recently started digging in Colorado the longest tunnel which it has ever been attempted to construct. The main bore will be twenty miles long, and connecting with this are subsidiary tunnels with a total length of thirty miles. The starting point of the main tunnel is at the foot of the mountain leading up to Pike's Peak, near the old town of Colorado City. This point is but a short distance from the railroads which span the country between Colorado Springs and Manitou. From here it runs almost due south-west. The further end of the tunnel is at the edge of the mountains at Four Mile Creek, over in Freemont County, Col., six miles south of Cripple Creek, and near the little town of Sunol. The main tunnel will pass directly under the cone of Pike's Peak at a depth of nearly 7000ft., and 2700ft. beneath the town of Victor. Its average depth from the surface will be 2800ft., and it is designed to test the mineral deposits of the territory at these great depths. Thirty miles of laterals are contemplated, and these will pass underneath all the Cripple Creek district at an average depth of 2800ft. A thousand mines are to be made tributary to this vast system. Under present circumstances the distance, the shortest way, from Colorado Springs to Cripple Creek is fifty-four miles. By way of the tunnel the two cities will only be sixteen miles apart. The total probable expense of digging the tunnel and its subsidiary branches is 20,520,000 dols.

### A NEW SYSTEM OF ROCK-BLASTING.

A successful experiment in blasting has been made with a new system of rock drilling. Mr. Alexander, the road surveyor to the County Council of the Lower District of Renfrewshire, was present, accompanied by a number of surveyors interested in the test. The quarries are situated at Craigenfeoch, at the base of Gleniffer Braes, and the new patent boring machinery had drilled about a dozen holes in the rock to the depth of 14ft., all of which were electrically connected. At a distance of 300ft. Mr. Alexander made the electrical connection, and an instantaneous explosion was the result. On examination the operation was pronounced a decided success, and it was estimated that about 2000 tons of rock had been dislodged.

### THE ELECTRIC LIGHT AT CROYDON.

To meet the large and constantly increasing demands for electric light at Croydon, the Corporation has decided to extend the present plant and stations. The number of

lamps connected at present is equivalent to about 6600 of eight-candle power, and there are about 4000 further applications, making a total of 10,600. It is estimated that by December next the number of lamps will be increased to 12,000, and that at the end of 1898 there will be 10,000 more lamps to supply than at the end of the present year. Meanwhile, the Council has decided to apply to the Local Government Board for sanction to borrow a further loan of £5500, in order to cope with the public demand for the light.

### A NOVELTY IN ELECTRIC LIGHTING.

A feature of the Royal Palace Hotel extension, to the opening of which we referred in a recent issue, is a novelty in electric lighting in the banquet hall. This very pleasing innovation has been carried out by Messrs. Donison, Berlyn, Sillem and Co., of 116, Great Portland Street, W., to the specification of Mr. Adrian Collins. Some hundreds of 16-candle power lamps are completely hidden under the cornice, and the light is reflected on to the ceiling, and from thence thrown off into the room, the result being very beautiful, as a daylight effect is obtained without its being seen from whence it comes. We understand that the same firm has already received instructions to carry out a similar treatment in a mansion in the West End of London.

The Croydon Corporation is about to apply to the Local Government Board for sanction to borrow the sum of £32,000 for the construction of new waterworks at Waddon, where boring operations have recently been carried on with great success.

A new bridge connecting Norfolk and Lincolnshire has been erected over the River Nene, at Sutton Bridge, near Spalding, by the Midland and Great Northern Joint Railways. It is an iron swing bridge for both road and railway traffic, and, with contingent alterations at Sutton Bridge, will cost the railway companies a sum approaching £100,000.

While a landowner of Sens, in France, was superintending the digging of a trench, a large number of vases, sarcophagi, and very fine mosaics were discovered. Half a dozen urns filled with gold and silver coins, all bearing the effigy of the Emperor Constantine, were also brought to light. Just fifty-four years ago a similar discovery was made in this district.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BRIDGNORTH.**—For erecting new schools, Highley, for the Highley School Board. Messrs. R. Scrivener and Sons, Architects. — £2,500 0 T. Morris £2,250 0 W. Swain 2,450 0 J. Sheppard & Son, 2,287 0 H. Farmer 2,447 0 Stourport\* 2,287 0 R. Thompson 2,462 10 Bradney and Lloyd 2,198 0 H. Smith 2,370 0  
\* Accepted subject to the approval of the Education Department.

**BRENTWOOD.**—For alterations and additions to "The Essex Arms Hotel," Brentwood, for Mr. Mersham. Mr. J. E. Pinder, Architect, Bridge House, South Tottenham, N. — £1,590 Green and Smith £1,539 G. E. Todd 1,543 H. Knight and Son 1,543

**BRIGHTON.**—For wood paving, &c., New-road and part of North-street, for the Town Council. Mr. F. J. C. May, C.E., Town Hall, Brighton:—

	Providing and laying 9in. by 3in. Jarrah wood blocks on 7in. Portland cement concrete foundation, including excavation, running-in joints, covering, &c., the whole complete.	Providing and laying 9in. by 3in. Karri wood blocks on 7in. Portland cement concrete foundation, including excavation, running-in joints, covering, &c., the whole complete.	Providing and laying 9in. by 3in. Swedish deal wood blocks on 7in. Portland cement concrete foundation, including excavation, running-in joints, covering, &c., the whole complete.	Providing and laying 9in. by 3in. Swedish deal creosoted wood blocks, on 7in. Portland cement concrete foundation, including excavation, running-in joints, covering, &c., the whole complete.	Supplying and laying extra concrete, composed of one Port and cement to six clean shingle, including excavation for same.	For any other kind of wood.
	Per super. yd. s. d.	Per super. yd. s. d.	Per super. yd. s. d.	Per super. yd. s. d.	Per cubic yd. s. d.	Per super. yd. s. d.
G. J. Anderson	15 6				13 0	Jarrahdale Jarrah 16 0
A. & F. Manuelle*	14 11½	14 11½	10 11½	11 10	13 0	
Mowlem and Co.	16 0	16 0	12 9	13 4	16 6	
W. Griffiths	16 9	16 9			13 6	
W. H. Holman and Co.	19 0	19 0	14 3	15 4	18 0	

\* Accepted. One half of New-road to be laid with "Jarrah" wood blocks, and one half with Swedish deal creosoted wood blocks, and the part of North-street to be paved, to be laid one half with "Karri" wood blocks, and the other half with Swedish deal creosoted wood blocks.

**BURTON LATIMER (Northants).**—For the erection of a coffee-house and club, for the Burton Latimer Coffee-house Company, Limited. Messrs. Coales and Johnson, Architects, Corn Exchange, Market Harborough. Quantities by the Architects:—  
G. Henson £1,430 0 A. Lewis £1,249 0  
A. J. Ball 1,385 0 A. Lewin and Son, 1,155 0  
P. J. Dunham 1,321 13 Kettering\*  
\* Accepted.

**CHESHUNT.**—For the erection of three villa residences at Cheshunt, for Mr. Gocher. Mr. James Bunce, Surveyor, Cheshunt:—  
Pavey £2,699 J. Haydon £2,330  
Critches 2,500 Robinson, jun. 2,300  
General Builders 2,390

**CHENT.**—For erecting a gardener's cottage at Chent. Messrs. Forsyth and Maule, Architects:—  
Andrew Chuter, Frensham £429

**CROMER (Norfolk).**—For the erection of a boiler and exhaust-house, &c., for the Gas and Coke Company, Limited. Mr. Percy Griffiths, C.E., 55, Parliament-street, Westminster, S.W.:—  
James Riches, junr. £910 James Gillings £2793  
Girling and Smith 890 James White, Cromer\* 790  
W. Batesea 842  
\* Accepted.

**DONEGAL (Ireland).**—For the construction of reservoirs and water-supply works, for the Union Guardians. Mr. J. L. Davenish-Meares, C.E., Town Hall, Newry:—  
Thos. J. Dixon £3,276 2 0 T. McNally £2,700 0 0  
Hodges and Son 2,996 10 0 W. McLarnan 2,557 14 6  
D. McCaffrey 2,871 1 0 T. McKee & Sons 2,531 19 8  
Hegarty & Gault 2,853 8 2 Thos. Mochan 2,280 2 8  
T. MacClay 2,713 8 6 H. R. Blackburn 2,276 12 2

**FARNHAM.**—For erecting a house at Lower Bourne, Farnham, for Mr. F. C. Johnstone. Mr. James H. Hendrey, Architect:—  
Andrew Chuter, Frensham £1,240

**EALING, S.W.**—For erection of St. Saviour's Mission Church, Ealing. Mr. Geo. H. Fellows Prynn, F.R.I.B.A., 6, Queen Anne's-gate, Westminster, S.W., Architect. Quantities by R. Henry Hale, F.S.I., Surveyor, 33, Old Queen-street, Westminster, S.W.:—  
A. Porter, Tot-tenham £10,972 12 11 H. L. & R. Roberts, Islington £10,030 0 0  
Holloway Bros, Dove Bros, Is-lington 9,705 0 0  
Lawrence and Sons, Wharf-road, N. 10,555 0 0 Goddard & Sons, Farnham\* 9,490 0 0  
Holliday & Green-wood, Brixton 10,300 0 0 Adamson & Sons, Ealing† 8,651 0 0  
Rider and Sons, Southwark 10,220 0 0 Dorey and Co., Brentford 8,367 0 0  
10,108 0 0 T. Nye and Sons, Ealing 8,235 0 0  
\* Accepted. † Withdrawn.

**FARNHAM.**—For additions to a house at Lower Bourne, Farnham, for Mr. F. C. Johnstone. Mr. James H. Hendrey, Architect:—  
At a schedule of Prices.—Andrew Chuter, Frensham.  
**HASTINGS.**—For the erection of school buildings, Priory, West Hill, for the U.D. School Board. Mr. F. H. Humphreys, Architect, 6, Trinity-street, Hastings:—  
C. Hughes £2,271 0 0 J. Geary £2,794 0 0  
Barter & Gasson 2,268 12 10 Padgham & Hut-cheson 6,719 5 0  
E. Midmer 7,060 0 0 chinson 6,461 1 0  
Wallis and Sons 7,062 0 0 W. Small 6,433 10 0  
J. Lester 6,957 0 0 Ellis Bros. 6,383 0 0  
A. H. White 6,818 0 0 D. H. Snow 6,383 0 0

**LONDON.**—For new premises at Vine-street, for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, Architect. Quantities by Mr. W. H. Thurgood:—  
Holland and Hannen & Patmore & Fothering-ham £28,841  
Kilby and Gayford 9,641 Scrivener and Co. 8,838  
Lawrence and Son 9,480 Hart Bros. 8,770  
Holloway Bros. 9,364 Perry and Co. 8,750  
Lascelles and Co. 8,887 Grover and Sons 8,720  
Higgs and Hill 8,874 Lathey Bros. 8,590

**LONDON.**—For renovations, decorations, and repairs, &c., at the Stratford Congregational Church, The Grove, Stratford, E. Messrs. Andrew Gray and H. Norman Gray, Surveyors, 131, Earlham-grove, Forest Gate, E.:—  
E. J. Hosking £825 0 0 W. Wilson and Co. £601 0 0  
B. Berry 718 10 0 Fowler Bros. 585 7 6  
J. W. Howlett and Son 641 10 0 Hawkey and Old-man\* 492 0 0  
\* Accepted.

**LONDON.**—For the erection of a house at Roslyn Hill, Hampstead, N.W. Mr. J. Gibbons Sankey, M.A., Architect:—  
F. T. Chinchin £2,300 G. Davenall £2,100  
W. Tout 2,250 W. Pearce 2,045  
T. R. Lamble 2,217  
**LONDON.**—For the proposed erection of new casual wards at Paddington, for the Parish of Paddington. Mr. F. J. Smith, Architect, Westminster:—  
F. and T. Higgs £13,918 G. Neal £12,726  
Martin Wells and Co. 13,875 Chessum and Sons 12,900  
T. Bendon 13,839 D. Charteris 12,150  
Stimpson and Co. 13,200 F. T. Chinchin 11,980  
C. Wall 12,950 J. Stead 11,800

**LONDON.**—For addition and alteration to "The Devon Arms," Mare-street, Hackney. Mr. Harvey Roberts, Architect, Lewisham:—  
J. and W. Taylor £1,497 Green and Smith £1,396  
Eames 1,440 Simpson and Cove\* 1,360  
\* Accepted.

**LONDON.**—For alterations to "The Jolly Sailors," Rotherhithe. Mr. H. Roberts, Architect:—  
Todd £1,119 Taylor Bros. £850  
White 1,047 Simpson and Cove 940  
Grover 993



LONDON.—For building warehouse, Cross Key's-court, London-wall, E.C., for Mr. Gerard J. Mathieson. Messrs. Barnes-Williams, Ford, and Griffin, Architects:—  
Holloway Bros. ... £7,340  
Colls and Son ... 7,140  
John Greenwood ... 7,120  
Howell J. Williams ... 6,985  
Higgs and Hill ... 6,940  
Laseelles ... 6,925

LONDON.—For the erection of club premises, Old Charlton, S.E., for the Charlton Conservative Club. Mr. John Rowland, Architect, 24, The Village, Old Charlton:—  
H. J. Stevens ... £3,276 18 6  
W. Mills ... 8,186 0 0  
H. L. Holloway ... 8,147 0 0  
Balaam Bros. ... 3,681 0 0  
Proctor ... 3,030 0 0

LONDON.—For new shop front, marble work, &c., at 8, Charlton-street, S.W., for Mr. A. J. Palmer. Mr. Alfred Howard, surveyor, 53, The Outer Temple, Strand:—  
L. L. Leader and Co. ... £315  
R. Wadsworth ... £278  
\* Accepted.

LONDON.—For building new skittle saloon at "The Grove Tavern," Lordship-lane, Dulwich, for Mr. Fruin. Watson, 10, St. ... £285  
Edwards and Medway ... £450  
Lomb ... 632  
Simpson and Cove ... 490  
Frampton and Co. ... 460

LONDON.—For various decorative and sanitary repairs at 54, Nevill-square, Earl's Court, S.W. Messrs. Jno. W. Morley and Letts, surveyors, 185, Earl's Court-road, S.W.:—  
Hy Smith and Son ... £215  
J. Whittaker ... 197  
Rugg and Son ... 192  
\* Accepted.

LONDON.—Accepted for providing and fixing twenty-nine new solid deal window frames at the Wesleyan Chapel, William-street, Woolwich. Mr. W. Whincop, Architect:—  
Thomas and Edge ... £145

LONDON.—Accepted for erecting new coachbuilder's shop at Messrs. Dottridge Brothers, East-road, E.C.:—  
John Weibking and Sons ... £350

LONDON.—For new drainage and entire renewal of internal sanitary arrangements, hot-water services, &c., at 166, Earl's Court-road. Messrs. Jno. W. Morley and Letts, surveyors, 185, Earl's Court-road, S.W.:—  
J. Mears ... £247  
J. Whitaker ... 235  
J. Fleming ... 212  
Rugg and Son, Earl's Court\* ... £210

LONDON.—For alterations to the "Vale of Health" Hotel, Hampstead, N.W., for Mr. Chas. Peters. Mr. Albert E. Pridmore, Architect, 2, Broad-street Buildings, E.C.:—  
Warburton & Goldring ... £1,174  
Beer and Gash ... 987  
Spencer and Co. ... 993  
W. J. Davenport ... 839

LONDON.—For rebuilding the "White Hart," Rivington-street, Shoreditch. Mr. G. G. Page, Architect, St. Olave's House, Ironmonger-lane, E.C.:—  
Weibking and Sons ... £754 10  
Snawen Bros. ... 688 0  
Lomb ... 632  
Simpson and Cove ... 490

LONDON.—For alterations to Messrs. Furlong and Son's furniture depository, Woolwich. Mr. J. O. Cook, Architect:—  
Covill ... £225  
Hodgin ... 210  
Mills ... 201  
C. Kitley ... 193

LONDON.—For building new warehouses, Nos. 30 and 32, Farringdon-road, for Messrs. John Greenwood and Son. Messrs. Bacon and Cobb, Architects, 4, Copthall-chambers, E.C.:—  
Perry and Co. ... £6,317  
Godson and Son ... 6,313  
W. Downs ... 5,850  
Harris and Wardrop ... 5,947  
\* Amended and accepted.

LONDON.—Accepted for constructing a new power-lift at Abbey Buildings, Westminster, for Mr. W. P. Metchin:—  
F. C. Hoskins, Tufton-street, Westminster ... £246

LONDON.—Accepted for alterations, additions, and new sanitary work, &c., at No. 194, Marylebone-road. Mr. C. Stanley Peach, Architect:—

F. C. Hoskins, Tufton-street, Westminster £1,283 11 11  
LONDON.—Accepted for alterations, &c., to the "Victoria," Kensal Rise. Mr. H. W. Budd, Architect:—

F. C. Hoskins, Tufton-street, Westminster £224  
LONDON.—For alterations and additions to the "Crown and Shears" public-house, Minorities, E.C., for Messrs. Hoare and Company, Limited. Messrs. Perry and Reed, Architects, 9, John-street, Adelphi, W.C.:—  
Clarke & Bracey ... £3,337 0 0

Edwards & Medway ... £2,799 0 0  
Hall, Beddall, & Co. ... 3,060 0 0  
Perry and Co. ... 2,880 0 0  
Welsh and Son ... 2,800 5 8  
ham (accepted) 2,695 0 0

LONDON.—Accepted for erecting house and stables, Steele-road, Tottenham, for Mr. A. Woodward. Mr. J. E. Pinder, Architect, Bridge House, South Tottenham, N.:—  
H. Knight and Son, Tottenham ... £1,125  
[No competition.]

MANORHAMILTON (Ireland).—For the construction of waterworks, &c., for the Union Guardians. Mr. R. H. Dorman, County Surveyor, Armagh:—  
M. Green, Donegal-street, Belfast ... £1,630

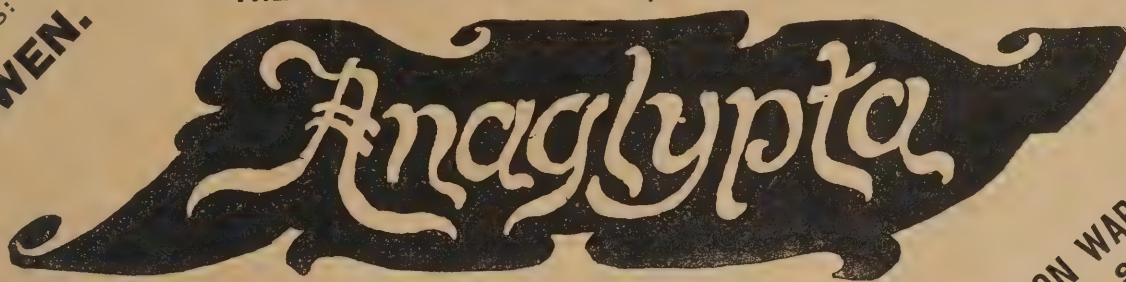
MARNHULL (Dorset).—For the erection of a bridge, Little King's Mill, for the Dorset County Council. Mr. W. J. Fletcher, C.E., County Surveyor, Wimborne:—  
Masonry and General Work.

R. Curtis ... £758 0 0  
S. Curtis ... 735 0 0  
H. Bartlett, Shipton Gorge, Bridport\* ... 560 10 0

Dorman, Long, and Co., Middlesbrough\* ... 342 0 0  
Fixing Ironwork.  
N. Harris, Bridport\* ... 36 0 0  
\* Accepted.

WORKS:  
**DARWEN.**

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF

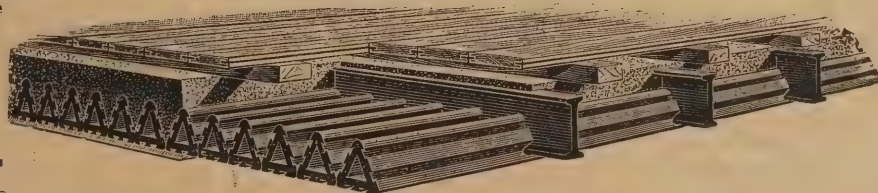


THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
92  
Great Russell St.,  
W.C.

## HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders

CONSTRUCTIONAL STEEL AND IRONWORK.  
GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS.**

LONDON {Offices: 17, GRACECHURCH STREET, E.C.  
{Works: RATCLIFF, E.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

MANCHESTER {Offices: 10, MARSDEN STREET.  
{Works: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.

## WALTER MACFARLANE & COMPANY, GLASGOW.

MACFARLANE'S JUBILEE MEMORIALS.

Clock Towers, Drinking Fountains,  
Spray Fountains, Bandstands, Belfries,  
Lamp Pillars, Seat Shelters, Drinking  
Troughs, &c.

CONSTRUCTIVE WORK OF EVERY DESCRIPTION.

ELECTRIC LIGHT PILLARS AND BRACKETS.

TWO GOLD MEDALS CALCUTTA EXHIBITION.



ILLUSTRATED CATALOGUES AND PRICE LISTS ON APPLICATION



**MIDDLESBROUGH.**—For the erection of a large block of business premises (exclusive of all fixtures and fittings), Linthorpe-road, for the Co-operative Society, Limited. Mr. W. G. Roberts, Architect, 61, Albert-road, Middlesbrough.—  
W. and H. Pounder .. £7,134 0 [All of Middlesbrough.]  
Wm. Thompson, Crescent-road (accepted) 7,078 15

**NORTHAMPTON.**—For rebuilding "The Ross and Punch Bowl Hotel," Marefair, Northampton. Mr. Herbert Norman, Architect, Swan-yard Chambers, Northampton.—  
E. Archer .. £2,649 Hawkin .. £2,560  
H. Martin .. 2,635 R. Cosford .. 2,520  
Messrs. Green Bros. .. 2,570 W. Heap (accepted) 2,430  
[All of Northampton.]

**PENGE.**—Accepted for making-up Phoenix-road and laying sewer and drains for Mr. W. R. Queded. Mr. Albert E. Pridmore, Surveyor, 2, Broad-street-buildings, E.C.—  
D. Brewer, Plumstead .. £410 15

**PETERSFIELD (Hants).**—For the construction of a reservoir, for the Urban District Council. Mr. H. T. Keates, Surveyor, Petersfield.—  
Pedrette and Co. .. £1,456 0 T. Wood and Son .. £938 11  
B. Cooke and Co. .. 1,358 0 J. Ford .. 680 11

**PONTYPOOL.**—For the erection of house and shop, Crane-street, for Messrs. Woodley and Co. Mr. N. M. Brown, Architect, Somerton-road, Newport, Mon.—  
A. E. Parfitt .. £240 0 John Jenkins .. £725 0  
T. Monks .. 825 0 Morgan and Evans, ..  
T. Westacott .. 763 19 Pontypool\* 727 17  
\* Accepted.

**ROEHAMPTON, S.W.**—For electric lighting of Ho'y Trinity New Church, Roehampton, S.W. Mr. Geo. H. Fellows Prynn, F.R.I.B.A., Architect, 6, Queen Anne's-gate, Westminster, S.W. T. Ekin, Engineer, 21, Old Queen-street, Westminster, S.W.—  
Messrs. Tickner & Partington, Ken-sal Rise .. £201 11 6  
The Brush Elec-trical Engineer-ing Co., London, W. .. 186 16 6  
Belshaw and Co., London, W. .. 179 11 0  
Walter P. Adams, London, E.C. .. £164 14 0  
Electrical and Gen-eral Engineering Co., London .. 151 8 6  
Laing, Wharton, and Down, Ltd., London\* .. 151 0 0  
\* Accepted.

**ST. ALBAN'S.**—For erecting a house in Hill Side-road, for Mr. T. H. Johnson. Mr. Griffith, Architect, London.—  
Longmire and Co. .. £1,619 J. T. Bushell .. £1,465  
Wibley and Jervis .. 1,475 J. and W. Savage .. 1,300

**ST. ALBAN'S.**—For a pair of semi-detached villa residences, Upper Worley-road. Mr. S. D. Edmunds, Architect, 50, Hill-street, St. Alban's.—  
C. Miskin and Sons .. £1,100 G. Wiggs .. £880  
G. Veale .. 980 J. and W. Savage .. 850

**SOUTHEAST-ON-SEA.**—Accepted for the erection of a pair of houses. Mr. Arthur T. A. Bowyer, Architect, 90, Leadenhall-street, E.C.—  
J. Bayliss, Forest Gate .. £375

**STOKE-ON-TRENT.**—For making new streets for the North Staffordshire Cricket and Athletic Sports Company, Limited, at Stoke-on-Trent.—  
T. Godwin .. £1,521 0 F. Barke .. £1,316 8  
H. P. Embrey .. 1,440 0 A. Bullock, Stoke\* 1,330 0  
Smith and Taylor .. 1,415 0  
\* Accepted.

**SURBITON.**—For decorative and sanitary works to Nor-bury House, Beaufort-road, Surbiton, Surrey, for Miss E. Forster. Mr. Walter J. Ebbetts, Architect, Savoy House, 115, Strand, W.C.—  
J. M. Macey and Sons .. £926 0 Adkins Bros. .. £965 15  
T. Messum .. 695 0 R. Scase and Sons, ..  
Ford and Sons .. 670 10 Surbiton (accepted) 649 0

**SUTTON.**—For additions and alterations to Stanley House, Mulgrave-road, Sutton, Surrey, for Mr. Wm. Berrell, C.E. Mr. Walter J. Ebbetts, Architect, Savoy House, 115, Strand, W.C.—  
G. H. Lewis .. £231 J. B. Potter .. £265  
H. Adams .. 820 F. J. Shopland, Sutton\* 787  
\* Accepted.

**TIDEHURST (Sussex).**—Accepted for the erection of a Wesleyan Chapel. Quantities by Mr. A. Willmer Pocock, Architect and Surveyor, 66, St. Anne's-hill, Wandsworth, S.W.—  
L. Edwards, Hawkhurst .. £246

**WALTHAMSTOW.**—For erecting lavatories and additions to Grosvenor House, Hoe-street, for the Urban District Council of Walthamstow. Mr. Geo. W. Holmes, Engineer.—  
Add for tilium.

Barratt and Power .. £1,785 63  
W. Lawrence, Waltham Abbey\* 1,675 78  
Stuart and Dayman .. 1,638 36  
\* Accepted.

## THE SMOKELESS FIRE Co. Ltd.,

Sole Proprietors of Marsh's Patents

### COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.

## THE BATH STONE FIRMS LTD.

BATH,

FOR ALL THE PROVED KINDS OF BATH STONE.  
FLUATE, for Hardening, Waterproofing, and Pre-serving Building Materials.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,  
49, HAMMERSMITH ROAD, W.

**WEALDSTONE (Middlesex).**—For the erection of a factory at Wealdstone, Harrow, for Messrs. Hamilton and Co. Messrs. G. R. Tasker and Sons, Surveyors, 38, John-street, Bedford-row, W.C.—  
Turner .. £8,647 Beer and Gash .. £8,423  
Young .. 8,647 Lawrence and Sons .. 8,250  
Faulkner .. 8,583 Killby and Gayford .. 7,930

**WORKINGTON.**—Accepted for additions to Victoria Schools, for the Workington School Board. Messrs. W. J. Scott and Co., Architects, Victoria-buildings, Workington.—  
Masonry.—Geo. Mann, John-street .. £420 0  
Joinery.—John Steel, Bolton-street .. 250 0  
Slating.—Jas. Lythgoe, Gray-street .. 104 5  
Plumbing and Gasfitting.—D. M. Walker, Washington-street .. 79 0  
Plastering.—John Lawson, Gordon-street .. 54 0  
Painting and Glazing.—Geo. Davies, John-street .. 20 0  
[All of Workington.]

## CONTRACTS OPEN.

### HACKNEY UNION.

#### ALTERATIONS AND EXTENSIONS TO THE MASTER'S OFFICE.

The Guardians of this Union invite TENDERS for making certain ALTERATIONS AND EXTENSIONS to the MASTER'S OFFICE at the Hackney Union Work-house, situate at Homerton, in the County of London.

Persons desirous of Tendering may inspect the Premises, and obtain specification, conditions of contract, and form of Tender, by applying to me between the hours of TEN in the forenoon and TWELVE noon. No Quantities. The Contractor will be required to give approved security for the due performance of the contract.

Sealed Tenders, endorsed "Extension of Master's Office," must be delivered at my office not later than TEN a.m. on WEDNESDAY, JUNE 23rd, 1897.

The Guardians do not bind themselves to accept the lowest or any Tender.

By order,

FRANK R. COLES,

Clerk to the Guardians.

Clerk's Offices, Hackney Union,  
Homerton, N.E., June 9th, 1897.

### TO BUILDERS and CONTRACTORS.

Persons desirous of TENDERING for the various works required in the ERECTION of new KITCHEN WING, CLASS-ROOMS, DRAINAGE, &c., at the Grammar School, Pocklington, are requested to send in their names to the Architects, Messrs. DEMAIN and BRIERLEY, 13, Lendal, York, on or before JUNE 22nd, when bills of quantities will be ready.

THOMAS ROBSON,

Pocklington, Clerk to the Governors,  
June 8th, 1897.

# LIFTS

Hydraulic, Steam, Gas,  
Electric, or Hand-Power.

## M. T. MEDWAY AND CO.

ALBERT WORKS,  
ROLT ST., DEPTFORD, S.E.

SAFETY . .  
. . ECONOMY . .  
. . SPEED.



THE THORNTON-PICKARD  
SIMPLEST AND BEST.

CAMERAS AND  
SHUTTERS.

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.

## TWEEKSBURY RURAL DISTRICT COUNCIL.

### PARISH OF BREDON.

#### TO CONTRACTORS AND OTHERS.

The above Council invite TENDERS for the following WORKS and MATERIALS:—

1. For Excavating, Laying, and Jointing about 3881 yards of 12in., 9in., and 6in. Pipe Sewers. For Constructing the necessary Manhole and Inspection Chambers.
2. For Providing and Delivering the Glazed Stone-ware Pipes to be used in the above works.
3. For Laying and Jointing about 4,384 yards of 3in. Water Main, and Fixing the requisite Fire-cocks, Sluice Valves, &c.
4. For Providing the Cast-Iron Water Mains for the above work.
5. For Providing the Firecocks, Sluice Valves, and Fittings.
6. For Constructing the two Covered Reservoirs.

Plans, specifications, and conditions may be seen on application to the Engineer, Mr. JAMES VILLAR, 1A, Cambray, Cheltenham, and copies of quantities obtained on deposit of £2 2s. for each copy, to be returned on receipt of a bona-fide Tender.

The Council do not bind themselves to accept the lowest or any Tender.

Each contractor will have to enter into a bond with two approved sureties, or an approved guarantee society, in such a sum as the Council shall decide, for the due performance of his contract.

Tenders must be sent to me, the undersigned, on or before JUNE 28th, and to be endorsed "Bredon Tender."

H. A. BADHAM,

Tewkesbury, Clerk to the Council.

June 2nd, 1897.

## FLOORING BLOCKS.



Per 100 Blocks out of sizes.	YELLOW.		PITCH PINE
	At Wharf.	ex Ship within one month.	At Wharf.
17 1/2 x 3 x 8	12 3	11 2	16
17 1/2 x 3 x 2	8 9	7 11	11 8
17 1/2 x 3 x 1 1/2	6 9	6 0	9 1



## PRIME DRY OAK & PITCH PINE FLOORING

With Special Joint to conceal Nails—

1 1/2 x 4 Oak, 50/- Pitch Pine, 24/6 per square.

1 x 4 " 42/6 " 21/- " "

Above prices include desiccating.

## VIGERS BROTHERS, TIMBER MERCHANTS.

Head Office—67, KING WILLIAM STREET, E.C.  
Mills—LOTS ROAD, CHELSEA.

Telephone No. 601 Avenue.

## SLATES. BRICKS.

VELINHELI, BANGOR, PORTMADOC, GREEN, &c.

GOOD STOCKS ON HAND.

COMMON WIRE CUTS.

Large Quantities. Prompt Delivery.

GIBBS BROTHERS,  
LOUGHBOROUGH.

Illustrated Catalogue Free.



# Surveying and Sanitary SUPPLEMENT.

JUNE 16TH, 1897.

## WORKHOUSE PLANNING.

(Continued from page liv.)

By GEORGE H. BIBBY, F.R.I.B.A.

### No. V.—WARDS FOR IMBECILES.

THE building requirements of the Local Government Board as regards accommodation for lunatics and imbeciles in workhouses are far less exacting than those of the Commissioners in Lunacy for patients in county asylums: the result is that patients, being maintained at a less cost in workhouse lunatic wards, are not infrequently permanently kept there, whereas they would be better provided for in a county asylum. This appears to be particularly evident in Ireland, as may be seen from the reports of the Irish Inspectors of Lunatics.

The buildings for pauper lunatics, until fifty

made for the simultaneous accommodation of persons of both sexes, with their attendants. In large workhouses provision for the reception of short-period lunatics may in some cases be suitably provided in connection with the wards already set apart for lunatics; but in the smaller workhouses it may usually suffice to so arrange two wards and an attendant's-room with padded-room, that one of the wards may, if necessary, be entirely shut off from the other portion for the joint use of a patient and attendant.

The wards should be large enough for at least two beds, to enable a person in charge to be in constant attendance, and the amount of space allowed should not be less than 100ft. superficial and 1200 cubic feet for each bed; all sharp projecting angles should be avoided, the floors should be of wood; ledges, architraves of doors, internal window sills and the like should be avoided; no brackets, pegs, or nails, &c., should be fixed to the walls; door handles

tion and all arrangements for the comfort of the occupants, they should be regarded and treated as sick wards.

The requisite minimum space per head for this class of inmate, is, in the dormitories, 5ft. of wall space (irrespective of doors and fireplaces); 50ft. of floor area, 10ft. in height, and 500 cubic feet are required. In these arrangements generally the requirements of the Local Government Board are below the standards of the Commissioners in Lunacy, and of the corresponding authorities in Scotland and Ireland; but for this difference there does not appear to be a satisfactory justification, the inmates of county asylums and of workhouse lunatic wards being alike dependent upon the ratepayers. Due provision must be made for securing cleanliness of person, and for the supply of hot and cold water; but in many cases a portable bath used in the ward would be a suitable provision.

In some workhouse establishments the

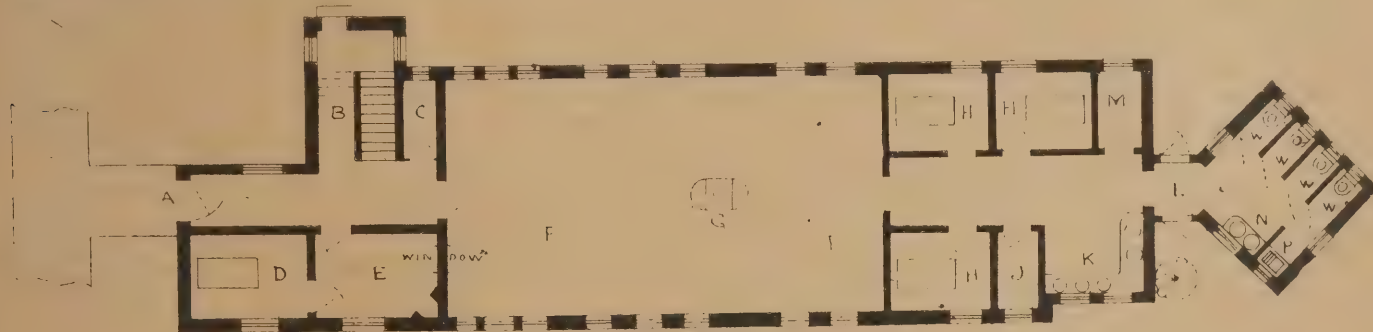


Fig. 6.

years ago, were usually inadequate for the purpose, both as regards construction and number, and vastly different in every way (and particularly as to management) to those now provided in the British Isles.

There can be no doubt that the local authorities had a great objection to all such institutions, as only causes of expense to the ratepayers, and frequently permitted the insane to dwell where they could.

In the planning of wards for harmless lunatics, and imbeciles under workhouse control, there are various points to which the Local Government Board have directed attention. In the first place, it must be borne in mind that in a large workhouse there must be some accommodation for "short-period" lunatics, and provision should be made in workhouses for the accommodation of persons who are alleged to be, or who are, lunatics, and who are removed to the workhouse under the provisions of section 20 or 21 of the Lunacy Act, 1890. The extent of this accommodation will depend upon the requirements of the particular union; but arrangements should be

should be sunk flush, and doors arranged so as to open outwards. For wards of this kind strong window frames with vertical swing sashes 6in. wide, extending for nearly the whole height of the window, glazed with small panes of stout plate-glass, and working on pivots at top and bottom, are suitable. Artificial light should be furnished from the adjoining attendant's room through a fanlight glazed with  $\frac{1}{2}$ in. plate, and under the control of the attendant, whose room should command a view of the whole ward by a small window of similar strength. Ventilation and warmth should be provided in wards of this kind by an air-chambered grate in the attendant's room, passing fresh-warmed air into the wards. Air-bricks should be fixed also in suitable positions in addition to the opposite external windows, which are indispensable in each ward. The wards for imbeciles should provide for the ready sub-division of the patients, according to their habits and condition, and should be so arranged as to afford the utmost facility for the constant supervision of the patients. And as respects ventila-

changes of nurses and attendants are not unfrequently caused by insufficient, unsuitable, or uncomfortable arrangements made for their residence, it is therefore desirable that every reasonable provision should be made by the workhouse Architect for the comfort and accommodation of the nurses and attendants, whether these be housed in the main asylum, near the wards, or in detached cottages.

Many of the workhouse lunatics and imbeciles are frequently very noisy at night, and unless the buildings be well planned, the attendants and nurses off duty are apt to suffer from loss of sleep; there is obviously less reason in a large workhouse, with spacious apartments for lunatics and imbeciles, than in a moderate or small-sized one, why the attendants should suffer in this respect, as special wards in the former instance are frequently provided for violent and noisy patients, whereas in smaller institutions all classes of officers, attendants, and patients are frequently brought into close contact.

It is desirable in all buildings set apart for the use of officials, attendants, and nurses that



the staircases should be constructed in a similar manner to those intended for the use of pauper inmates—that is, the flights should not exceed ten steps, there should be no “winders,” there should be a central newel-wall or other protection to prevent inmates from falling over, and there should be handrails on both sides, the possibility being borne in mind that a patient might wander from his ward and attempt suicide by throwing himself from the upper levels of the staircase, therefore there should be no open well-holes to the staircases, or otherwise railings should be carried up to the ceilings, even in the buildings for officials.

In many workhouses the accommodation for both officials and patients is still very defective and insufficient, yet matters in the “short period lunatic” wards, and in the imbeciles’ wards in workhouses, appear to compare very unfavourably with asylum accommodation generally, particularly as regards the floor spaces, heights, and cubic space permitted by the instructions of the Local Government Board, which allow in the day rooms a floor space of 20ft., a height of 10ft., and a cubic space of 200ft. for each inmate; whereas the Commissioners in Lunacy demand that the day rooms, of which there should be at least one to each ward, should afford not less than 40ft. superficial for each patient, not reckoning corridors of less width than 10ft. In ordinary asylums, where corridors of that or any greater width exist, the day rooms may afford only 20ft. superficial for each patient, it being understood that a space equal to 40ft. superficial be provided for each patient in the day rooms and such corridors combined. Mere passages of communication are not to be considered as corridors. In other respects, the constructional arrangements for imbeciles and short period lunatics are similar in most respects to those required for county asylums.

The requirements and suggestions of the Local Government Board state that the padded room may be most suitably fixed inside the attendant’s room, against an external wall, and in any case should be entered directly from that room. The padded room should have an area of about 63ft., exclusive of the space occupied by the padding. The padding (which may be of cocoa-fibre or other suitable material, and at least 4in. in thickness, covered with india-rubber or painted canvas) should extend to a height of at least 7ft. 6in. from the floor, and be capped with a strong slope fixed with screws, and sloping at an angle of about 30deg. from the wall, in order to afford no hold to a destructive occupant. The floor should be padded with cork chips, covered with india-rubber or painted canvas, so laid as to be thoroughly water-tight and washable, being commonly used. It is desirable to bed the floor on concrete or similar material to prevent damage either by vermin or dry-rot. Light may be provided by a small window of  $\frac{1}{2}$ in. plate-glass, fixed high up in the external wall. It should be furnished with a shutter either on the inside or outer side, so arranged as to lock into a recess when not in use. For artificial light a fanlight should be provided. The gas jet should be on a jointed bracket to turn away, and so as to be wholly out of sight of the occupant of the padded room when necessary. Ventilation may be provided for by air-bricks near to the wall plate, and by a strong grating in the lower 3in. of the door below the padding. When the padded room is wholly within the attendant’s room, the partition may stop about 2in. below the ceiling. Warmth in a padded room is a specially important matter, as inmates of this class are frequently inclined to strip themselves. When the padded room is not so situated as to share the warmth of the attendant’s apartment, means should be provided for passing into it warmed air either from a coil of hot pipes or from a chamber behind the grate in the attendant’s room, and through air bricks in the wall at a suitable height above the padding. A roomy approach, free from awkward angles and projections, is a most important desideratum for a padded room; the door, which should usually be about 3ft. wide, should open outwards to its fullest extent, so that the padding on it may not

diminish the clearway; the door should be so hung as to prevent any danger of crushing a hand or foot in the hinges when the door is being closed, and the fastening of the door should be by means of a snap-lock, with bolts near to the top and bottom respectively, and commanded by a single handle, and it may be desirable to arrange a supplemental drop-bolt in such a manner as to allow of a partial opening of the door for ventilation and inspection; two inspection slits, the upper one vertical and the lower horizontal (being for a lantern to light the floor where the gas jet may fail to illuminate it), should be provided in the door; these should be protected by strong plate glass, sunk so as to be beyond reach of a blow from the occupant.

In Fig. 6 is given the ground plan of a ward-block for imbeciles, &c. A is the entrance from the covered corridors leading to the main buildings, B passage leading to the imbeciles’ airing court, C a store closet, D a padded room which is approached through the attendant’s room at E; the day room is shown at F, and has a central fireplace at G; three wards or single rooms for noisy cases are provided at H H H, at J is another storeroom, K lavatory, L exits to yard and ventilating space, M panic stairs from dormitory on floor above, and w.c.’s.

Of all the improvements in the planning of workhouse wards for imbeciles and lunatics, none are so desirable as those which provide for buildings in which it is practicable for the officials to give such inmates a maximum of individual attention; large wards, whether in large or small asylums, are necessarily the most economical, but, at the same time, the least efficient means for the housing of the insane. By reducing the number of inmates of the wards, the troubles, occasioned by the noisy or violent, necessarily discomfort a reduced number of persons; if an imbecile patient be of filthy or objectionable habits, it is obviously desirable that he should be seen as little as possible by others than the officials. This question as to whether the workhouse wards for imbeciles and lunatics should be large must continue to be purely a financial matter, as regards institutions for paupers, and it is to be greatly regretted that in spite of the enormous sums expended upon modern workhouses in certain districts, it should remain quite impossible for the inmates in all cases to receive that careful attention which could only be given advantageously in rooms of moderate area, and by an adequate number of officials. The question as to how far it may be desirable for public authorities to take charge of all insane persons, both rich and poor, is one that is not unlikely to attract further attention, and there would appear to be no reason why, in such an event, the accommodation for imbeciles and lunatics in workhouses should be reduced to the lowest limits, and for the most temporary arrangement, and that all such persons should be kept and cared for in asylums where they would receive attention from specialists.

The disadvantages of large asylums or workhouses with large wards include difficulties of the officials connected with obtaining a complete knowledge of the peculiarities, dangers, wishes, and constantly changing conditions of the patients, both as regards their bodily and mental health; for even if the number of attendants and nurses be correspondingly increased with the number of inmates kept in large wards, yet the circumstance of mixing many imbeciles in different conditions of health and temper cannot but tend to militate against the prospects of good management, and to the detriment of those persons who only require quiet and careful observation and treatment in apartments of moderate area to perfect their restoration to mental health.

For those inmates whose mental condition does not prevent them from undertaking employment, one-story workrooms should be provided; but, wherever for sufficient reasons it is necessary that two-story buildings should be used for this purpose, the staircases and exits should be arranged as for other portions occupied by imbeciles and harmless lunatics; that is, every precaution must be adopted to

prevent the inmates from falling or throwing themselves down. Well-holes in such staircases would not be permitted.

(To be continued.)

## SANITATION AT BRISTOL.

IN the course of an exhaustive report on the health of Bristol, Dr. D. S. Davies, Medical Officer of Health, supplies the following information:—Bristol is completely sewered, cesspools are not countenanced, and no dry systems of disposal are in use. The aggregate length of the main sewers is about 150 miles, and the cost of construction, commenced in 1851, amounted to about £161,000. The sewers take all storm-water, which reaches them by way of trapped street gullies; they are without any external openings or special ventilating outlets, and the manholes are all closed down. In the low-level sewers provision has been made for flushing from the Floating Harbour, and double tidal valves are fixed at their outlet. These valves are of cast-iron, oval or circular, and self-acting, hung on chains, and bedded on indiarubber. The sewers are so designed and constructed with regard to capacity, fall, and position, that they may be ultimately

### CONVERGED TO ONE POINT,

from which an outfall sewer may be continued to a suitable point lower down the river, or into the Bristol Channel. The sewage is discharged without treatment into the tidal Avon, and the rapid scour of the tide, which in this channel is of exceptional force, generally results in the removal of the sewage without offence, although in remarkably dry summers, when fresh water is deficient in the river, some nuisance is complained of. These complaints were especially frequent during the exceptionally dry summer of 1896; and on July 23rd the question was referred for exhaustive consideration to a sub-committee. The nuisance is not only felt acutely at those points where the ferries cross, but is complained of in the houses by the residents on the river bank, and in three specific instances the occurrence of disease (one case of enteric fever, and two of septic mischief following parturition, but not notified in either case as puerperal fever) has been attributed to the effluvia from the river. Although there is no general excess of disease in the districts bordering on the New Cut, and although the water of the river is muddy and brackish, and therefore not used for drinking or domestic supply by any town or village within the tidal range, the very definite, persistent, and increasing complaints of nuisance from this cause must be allowed considerable weight. It is an elementary axiom that excremental matter should be removed as completely and as rapidly as possible from centres of population, and it would undoubtedly be more satisfactory to carry the sewage right away at once to the Bristol Channel (unless it can be efficiently and economically purified at some intermediate point before discharge into the river), than to allow it to discharge directly, as at present, into the river as it passes through the city. This must, however, be carried out as a complete scheme, dealing with the entire

### AREA OF LARGER BRISTOL,

and with the sewage of up-river towns; and it must not be forgotten that, when completed, there will possibly occur under certain conditions of temperature some considerable smell from the mud-banks, though freed of sewage, and that in very hot summers some occasional forms of illness may then, as now, be attributed to the condition of the river.—The erection of the permanent hospitals at Nover’s Hill and at Ham Green has made considerable progress. Hospital accommodation for the present city of Bristol will be adequately provided by the erection of 230 beds in permanent buildings, being in the proportion of one bed per 1000 population. Small-pox Hospital: Of these, eighty beds will be provided on the Nover’s Hill site for small-pox cases, together with adequate administration and laundry



buildings for the proper accommodation of a sufficient staff of nurses, and the efficient dealing with the clothes. Sixty beds are already provided, and the administration and laundry buildings are approaching completion; fifty-two of the beds are as yet provided only

IN TEMPORARY WOODEN BUILDINGS  
erected under pressure of the 1893-94 small-pox epidemic, and an isolation block of permanent construction provides for the isolation and observation of eight patients. The administration block and the laundry provide fully for the requirements of the full-bedded site. As these are now all but completed, the difficulties to all concerned in dealing with infectious disease in temporary wards, with imperfect bathing and laundry conveniences, and inadequate accommodation for a sufficient staff, will very shortly disappear. Fever Hospital: The 150 remaining beds for cases other than small-pox are to be provided upon the Ham Green site; together with the administration laundry, stabling and storage accommodation necessary for the efficient working of the hospitals. The administration building, the laundry, and stabling accommodation, and 76 of the 150 beds are already in hand, and when completed will provide, together with those on the Nover's Hill site, good instalments of that sufficient hospital provision in which the city has so long been lacking.

In his annual report on the sanitary condition of the borough, Dr. Wm. Iliffe (medical officer of health for Derby) states that further progress has been made with the condemnation of houses unfit for human habitation. "There are," he says, "hundreds of houses in Derby which are unfit to live in, but, by their simultaneous condemnation, greater difficulties would be created and much more suffering induced than exists under present circumstances." Under these difficulties the medical officer has considered it the wisest and most prudent course to condemn the worst of these wretched dwellings in a gradual, but sure way, so as to cause a minimum of inconvenience and loss to owners and tenants. The only other course that could be adopted, to be successful, would be Mr. Russell's idea of the municipality stepping in, and providing houses for the people who are displaced; and even this course would take time. Houses are required at rentals of from 1s. 6d. to 3s. per week, and such houses can only be erected without loss by "public bodies," who can borrow money at a very low rate of interest. Though no pecuniary profit could be expected, the gain to the general public would nevertheless be great by removing plague-spots, and so improving the health of the people and preventing epidemics of disease.

Surveying and Sanitary Notes.

THE ability of women as sanitary inspectors has been practically demonstrated in St. Pancras, Islington, Kensington, and other metropolitan parishes, where the vestries have deemed it wise and necessary to thus employ females. In a report just issued by the Health Committee of St. Pancras, it is stated that during the twelve months since a local female sanitary inspector was appointed, she has made 3071 inspections and 246 re-inspections. The committee, however, are of opinion that this cannot represent the total number of workshops where female labour is employed in St. Pancras, and believe that as time passes the number of these premises coming under inspection will continue to increase. The sanitary arrangements of shops where women are employed, the Committee advises, should be inspected annually by the female inspector. It further suggests that infants' and girls' schools (especially those conducted privately) should be inspected from time to time, and that this duty should also be undertaken by the female sanitary inspector.

OFFICIAL particulars have just been obtained respecting the discovery of defective drainage at Hounslow Barracks. It appears that the Hounslow District Council has been in communication with the War Office on the subject, with the result that the War Office has issued orders for the construction of an entirely new drainage system at the barracks, at a cost approaching £10,000. A preliminary investigation has disclosed so many defects that it has been found positively dangerous to go on with the works. By the direction of the War Office a board of officers has been convened, and it has reported that the circumstances are of the most serious character. The whole of the patients in the military hospital, numbering over 100, have been removed to huts erected on the west side of the barracks.

In an article on "London Street Scavenging," a contemporary declares that there is no capital in Europe in which the streets are in such a disgraceful condition as in London. The article continues:—"In the City proper, where street cleansing is properly the business of the Corporation, things are in so satisfactory a state that but little remains to be desired. But as soon as we leave the City boundaries and come into residential London we are plunged into anarchy. The worthy citizens, on their way to their business in the morning, have their nostrils offended by all kinds of noxious smells. Quaint-looking men with curious instruments, exaggerated copies of the implements the debt croupiers use at Monte Carlo, are seen hobbling about the roads

raking the mud and street refuse into heaps, which heaps are allowed to rot and fester by the hour under the benevolent germinating influences of the morning sun, until it suits the convenience of the huge open carts, for which our vestries have so great a partiality, to come along and leisurely take them away. In other capitals all this is done at night."

THE Select Committee of the House of Commons, of which Mr. Rankin is chairman, recently resumed consideration of the Bill which the Southwark and Vauxhall Water Company is promoting for power to take some 20,000,000 gallons of water daily in excess of the quantity—viz., 24,500,000 gallons—which they are now entitled to take from the Thames. This additional quantity, it alleges, is absolutely necessary to supply the present needs of their district, and the Company is already abstracting it. An injunction was, however, obtained by the Thames Conservancy Board in January last restricting them to the lesser quantity. In view of the great emergency of the case the Board consented to the suspension of the injunction to enable the Company to obtain the present Act, which was intended merely to carry the Company over till next session, and to leave it quite open for all matters of contention to be discussed. After hearing evidence, the Chairman said: The Committee is of opinion that the Water Company could not possibly carry out the demands of the petitioners in one year, which is the time this Bill would have to run, even if they were able to substantiate their claims, upon which point the Committee gives no opinion. Therefore, the Committee deems it inexpedient to further consider these petitions; and, as the matter is of great emergency, it finds the preamble of the Bill proved, with the condition that both the mode of taking the water from the river Thames and the quantity to be taken are to be treated in next year's Bill. It would suggest that it would be more convenient for the petitioners to raise their various issues upon next year's Bill.

At a recent meeting of the Aldeburgh Town Council another step was made in connection with the proposed sewerage scheme, Alderman Anderson moving that application be made to the Local Government Board for sanction to borrow £11,000 for sewerage works and sewage disposal. Mr. Anderson said it was doubtless in the remembrance of councillors that strong opposition was made to a sewage scheme when it was first introduced, the general impression being that the cesspool system was most suitable; but it had become increasingly obvious that a change was desirable, and that they would have to adopt a system of sewerage on modern principles. With a view of carrying out that idea they consulted Mr. James Mansergh, and he and his partner presented a report condemning the cesspool system.—It was agreed to apply for the loan mentioned.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
June 18	Chartham, near Canterbury—Chimney Shaft, &c.	...	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
18	Leeds—Removal of Roof, Post Office	H.M. Office of Works	Surveyor, H.M. Office of Works, Leeds.
18	Mullion Cove, Cornwall—Hotel	Hotel Company	Office, J. Roberts, Mullion.
18	Newport, Mon.—Hospital	Directors of Newport Hospital	R. J. Lovell, 46, Queen Victoria-street, London, E.C.
18	Quainton, near Aylesbury—Schools and Offices	Managers	W. F. Taylor, Architect, Aylesbury.
18	Otley, Yorks.—Church	...	T. H. and F. Healey, 42, Tyrrel-street, Bradford.
18	St. Stythians, Cornwall—Repairing, &c., School	...	H. W. Collins, Architect, Penryn-street, Redruth.
18	Otley—Congregational Church	...	Offices, T. H. and F. Healey, 42, Tyrrel-street, Bradford.
19	Chopwell and High Spen—Houses	Consett Iron Company	Architect, Consett Iron Co., General Offices, Blackhill.
19	Dalmally, Scotland—House	...	J. Macdonald, Fern-bank, Dalmally.
19	Great Yarmouth—School, &c.	School Board	Bottle and Olley, Queen-street, Great Yarmouth.
19	Kilmallock, Ireland—Schoolhouse, Residence, &c.	...	R. Fogarty, Architect, Henry-street, Limerick.
19	Paignton, Devon—Brick Lining a Water Tower	...	165, Manor-street, Clapham, London, S.W.
19	Tintagel, Cornwall—House, Trebarwith Farm	...	Wise and Wise, Architects, Launceston.
19	Whitehaven—Rebuilding Inn	R. Shepherd	E. Jackson, Tangier-buildings, Whitehaven.
19	Whittington, Salop—Chapel	...	Offices, W. K. Minshall, Oswestry.
19	Denny, Scotland—Dwelling-houses (Thirty-six)	Co-operative Society	R. M'Lelland, Architect, Motherwell-road, Bellshill.
19	Oswestry—Alterations, &c., Club	...	Shayler and Madoc-Jones, 19, Church-street, Oswestry.
19	Gateshead-on-Tyne—Church and Vicarage	...	E. E. Clephan, St. Nicholas' Chambers, Newcastle-on-Tyne.
19	Chopwell—Houses	Consett Iron Company	Company's Office, Blackhill, co. Durham.
21	Carlisle—Laboratories, &c.	...	G. D. Oliver, 5, Lowther-street, Carlisle.
21	Croydon—Wall	Urban District Council	Office, Surveyor, Town Hall, Croydon.
21	Derby—Additions, &c., Board School	School Board	A. Macpherson, Architect, Tenant-street, Derby.
21	Sandgate—Brick Public Convenience	Urban District Council	A. E. Bowles, Surveyor's Office, Sandgate.
21	London, S.E.—Fittings, &c., New Dulwich Library	Vestry of Camberwell	C. W. Tagg, Vestry Hall, Camberwell, S.E.
21	Maldon, Essex—Altering, &c., Chapel	Trustees	Rev. R. P. Grant's, High-street, Maldon.
22	Pocklington—Kitchen Wing, &c., Grammar School	Governors	Demaine and Brierly, 13, Lendal, York.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—Continued.</b>			
June 23	Colne, Lancs.—Chimney (70 yards high)	Health Committee	Office, T. H. Hartley, Town Hall, Colne.
" 23	Leven, Scotland—Hotel	Roads, &c., Committee	Swanton and Legge, 196, High-street, Kirkcaldy.
" 24	Canterbury—Repair of Fences	Corporation	City Surveyor, 28, St. Margaret-street, Canterbury.
" 24	Hull—Electric Lighting Extension	R. Smith	A. E. White, Town Hall, Hull.
" 24	Kingswear, Devon—Additions, the Redoubt	Royal Insurance Company	W. F. Tollit, Architect, Gate House, Totnes.
" 24	Liverpool—Offices	Lambeth Vestry	J. F. Doyle, 4, Harrington-street, Liverpool.
" 24	London, S.W.—Repairs	Corporation	Surveyor's Office, Vestry Hall, Kennington Green, S.E.
" 24	Sowerby Bridge, Yorks.—Chapel Works	Corporation	A. G. Dalzell, 15, Commercial-street, Halifax.
" 24	Salford—Artisans' Dwellings (Sixty-six)	Corporation	Borough Engineer's Office, Town Hall, Salford.
" 24	Croydon—Cottages, Stable, &c.	County Asylum	T. Walker, Town Hall, Croydon.
" 24	Hull—Foundations, Buildings, &c.	County Asylum	A. E. White, Town Hall, Hull.
" 25	Micklover, Derby—Cottages (Two)	Urban District Council	J. S. Story, County Surveyor, St. Margaret's Gate, Derby.
" 25	Micklover, Derby—Teak Flooring, Wards	County School Managers	J. S. Story, County Surveyor, St. Margaret's Gate, Derby.
" 25	Augher, Co. Tyrone—Repairs, &c.	Gas Company	Rev. F. Doherty, Tully House, Augher, Co. Tyrone.
" 25	Hampton, Middlesex—Engine-house, &c.	Corporation	T. Shone, 47, Victoria-street, Westminster, S.W.
" 26	Bala—Class Rooms, &c.	Corporation	Office, R. L. Jones, Architect, Mount-place, Bala.
" 26	Bridlington—Brick Gasholder Tank	Corporation	T. Newbigging and Son, 5, Norfolk-street, Manchester.
" 26	Glasgow—Masonry Dam	Corporation	J. M. Gale, City-chambers, 45, John-street, Glasgow.
" 28	Corsham, Wilts.—Additions, &c., Mansion House	Trustees of the Long Bridge	Office, T. Holloway, Chippenham, Wilts.
" 28	Wigan—Hall and School	Town Council	J. B. Thornley, Powell's Chambers, Standisgate, Wigan.
" 29	Bideford—Repairs, 16, Bridgeland-street	Lancashire and Yorkshire Railway Co.	R. T. Hookway, Warden, Bideford.
" 29	Dover—Car Shed, Buckland	Committee	Office, H. E. Stilgoe, Town Hall, Dover.
" 30	Burnley—Works	County Council	Engineer's Office, Hunt's Bank, Manchester.
July 1	Leeds—Gate Piers, Walls, &c., Horsforth Church	School Board	F. B. Fraser, 8, Park-square, Leeds.
" 5	Bucks.—Brick and Steel Girder Bridge, &c.	Grammar School	R. J. Thomas, County Hall, Aylesbury.
No date.	Luton—School Buildings	T. Williamson	J. R. Brown and Son, Market Hill, Luton.
"	Pocklington—New Wing, Class Rooms, Drainage, &c.	G. Arnott and Sons	Demaine and Brierley, 13, Lendal, York.
"	Carlisle—Villa, Dalston-road		Johnston Bros., Architects, Lowther-street, Carlisle.
"	Huntly, N.B.—Factory		J. Jamieson, Architect, 2, Commerce-street, Elgin.
"	Denaby Main, Yorks.—Church and Presbytery		Empsall and Clarkson, Architects, 7, Exchange, Bradford.
"	Blackfrie, Co. Durham—Four Cottages		P. Stokoe, 71, Durham-road, Blackfrie.
"	Ramsey, Isle of Man—Hotel, Mooragh		W. Telford Gunson and Son, C.E., Marsden-st., Manchester.
<b>ENGINEERING—</b>			
June 18	Ashford, Kent—Reservoir, &c.	Urban District Council	W. Terrill, Surveyor, North-street, Ashford.
" 18	Carmarthen—Heating Apparatus, Shire Hall		Shire Hall, Carmarthen.
" 21	Portdinorwic, Wales—Extending Ferry Piers	Harbour Commissioners	Bowen and Jones, Engineers, Carnarvon.
" 21	Belfast—Engine and Boiler	Proprietors	G. F. L. Giles, Harbour Office, Belfast.
" 21	London, E.—Graving Dock, &c.	Town Commissioners	W. Jaffory, 3, Victoria-street, Westminster.
" 21	Queenstown—Waterworks	Great Western Railway	Town Commissioners' Office, Town Hall, Queenstown.
" 22	Wootton Bassett—Railway (3½ miles in length)	Urban District Council	Office, Engineer, Paddington Station, London.
" 23	Belper—Waterworks	Metropolitan Asylums Board	G. and F. W. Hodson, Engineers, Loughborough.
" 23	London, S.W.—Cooking Apparatus	Municipal Commission	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
" 23	Madras—Pumps, Drainage Works	Town Council	King and Co., 65, Cornhill, London, E.C.
" 24	Croydon—Gas Engine	Rural District Council	T. Walker, Town Hall, Croydon.
" 25	Wistaston, Cheshire—Widening Bridge	Guardians	J. Bebbington, Surveyor, Willaston, Nantwich.
" 29	Plymouth—Boiler, Workhouse (Local Contract)		W. Adams, 13, Princess-square, Plymouth.
<b>IRON AND STEEL—</b>			
June 18	London, E.C.—Steel and Iron Work, Chittagong	Assam-Bengal Railway Company	Offices of Company, Bishopsgate House, 55 and 56, Bishopsgate Within, London, E.C.
" 24	Haworth, Yorks.—Pipes, Water Mains	Urban District Council	W. Robertshaw, Clerk, North-street, Keighley.
" 24	Haworth, Yorks.—Pipes, Gas Mains	Urban District Council	W. Robertshaw, Clerk, North-street, Keighley.
" 26	Kettering—Sewage Disposal Ironwork	Urban District Council	T. R. Smith, Engineer, Market-hill, Kettering.
July 1	Uitenhage, Cape Colony—Pipes	Corporation	Library of the Institution of Civil Engineers, Great George-street, London.
<b>PAINTING—</b>			
June 23	Canterbury—Repainting Railings, &c.	Markets Committee	Office, City Surveyor, 28, St. Margaret's-street, Canterbury.
" 23	Maenclochog, Wales—Painting, &c.	School Board	Schoolmaster, School Board, Maenclochog.
" 24	London, S.W.—Painting, Whitewashing, &c., Infirmary	Guardians	A. S. Snell, 22, Southampton-buildings, Chancery-lane, W.C.
" 24	Crumpsall, Manchester—Painting, Whitewashing, &c.	Guardians	H. R. Chambers, Workhouse, Crumpsall.
" 24	Leeds—Painting, Cleaning, &c., Schools	School Board	W. Packer, Clerk, School Board Offices, Leeds.
<b>ROADS—</b>			
June 21	Stockton-on-Tees.—Kerbing, &c.	Rural District Council	W. Barton, Surveyor, Billingham, near Stockton-on-Tees.
" 23	Ilkeston—Making New Street	General Works Committee	H. J. Kilford, Town Hall, Ilkeston.
" 23	North Walsham, Norfolk—Granite (200 tons)	Urban District Council	J. S. Empson, Clerk, North Walsham.
" 23	Plumstead—Widening Lane, &c.	Vestry	W. C. Gow, Surveyor, Vestry Hall, Maxey-road, Plumstead.
" 23	Friern Barnet—Kerbing, Channelling, &c.	Urban District Council	E. J. Reynolds, Beaconsfield-road, Friern Barnet.
" 23	Oldham—Paving, Flagging, &c.	Corporation	Office, Borough Surveyor, Town Hall, Oldham.
" 24	Canterbury—Materials	Corporation	Office, City Surveyor, 28, St. Margaret's-street, Canterbury.
" 24	Lewes—Granite, &c.	Town Council	Office, Borough Surveyor, Town Hall, Lewes.
" 24	Eccles, Lancs.—Materials, Flag Rock Kerbing, &c.	Highway Committee	Office, Borough Engineer, Town Hall, Eccles.
" 25	Walthamstow—Making-up and Laying Concrete Flags	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
July 1	Cardiff—Gravel and Sand (6000 tons)	Corporation	C. H. Priestley, Town Hall, Cardiff.
" 2	East Molesey—Making-up	Urban District Council	J. Stevenson, Council Offices, East Molesey.
<b>SANITARY—</b>			
" 18	Chatburn, Clitheroe—Removal of Refuse	Rural District Council	Office, J. Eastham, Clerk, Clitheroe.
" 19	Goole—Drainage Works	Rural District Council	E. C. B. Tudor, Surveyor, Goole.
" 19	Holyhead—Sewerage Works	Urban District Council	Office, J. L. Griffith, Stanley House, Holyhead.
" 21	London, N.W.—Sewerage Works	Hendon Urban District Council	S. S. Grimley, Public Offices, The Burroughs, Hendon, N.W.
" 21	Sandgate—Public Convenience	Urban District Council	A. R. Bowles, Surveyor's Office, Sandgate.
" 22	Boston—Outfall Works	Commissioners of Sewers	Office, H. Clarke, Boston.
" 23	Watford—Sewerage Works	Urban District Council	Council Offices, 14, High-street, Watford.
" 23	Croydon—New Surface-water Drain	Rural District Council	J. Wilson, 49, London-road, Croydon.
" 23	Enfield—Pipes, Sewers, Manholes, &c.	Urban District Council	R. Collins, Court House, Enfield.
" 24	Eccles, Lancs.—Sewers	Highways Committee	Office, Borough Engineer, Town Hall, Eccles.
" 28	Tewkesbury—Sewerage Works	Rural District Council	J. Villar, 1A, Cambray, Cheltenham.
" 29	Brownhills, Staffs.—Sewerage Works	Urban District Council	H. B. Nicholls, 59, Corporation-street, Birmingham.
" 30	Buckfastleigh—Sewerage Works	Urban District Council	J. Willcocks, Surveyor, Buckfastleigh.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 24	Gloucester—Plans for proposed Infectious Diseases Hospital	£100, £50, £30	Corporation.
" 29	West Hartlepool—Designs, &c., for Laying out Pleasure Grounds		Corporation.
July 1	Hereford—Designs for Bridge	£10	T. W. Meats, Hereford.
" 20	Elne, France—Water Supply Scheme		La Mario, Elne, Pyrénées Orientales.
" 21	Howth—Presbyterian Church	£20 (merged £10)	Rev. J. Wilson, 4, Rhoda-villas, Howth, Co. Dublin.
" 21	Rugby—Plans for Municipal Buildings	£75, £50, £25	Urban District Council.
" 31	Bootle—Designs for Technical School	50, 30, 20 guineas	Corporation.
Jan. 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.



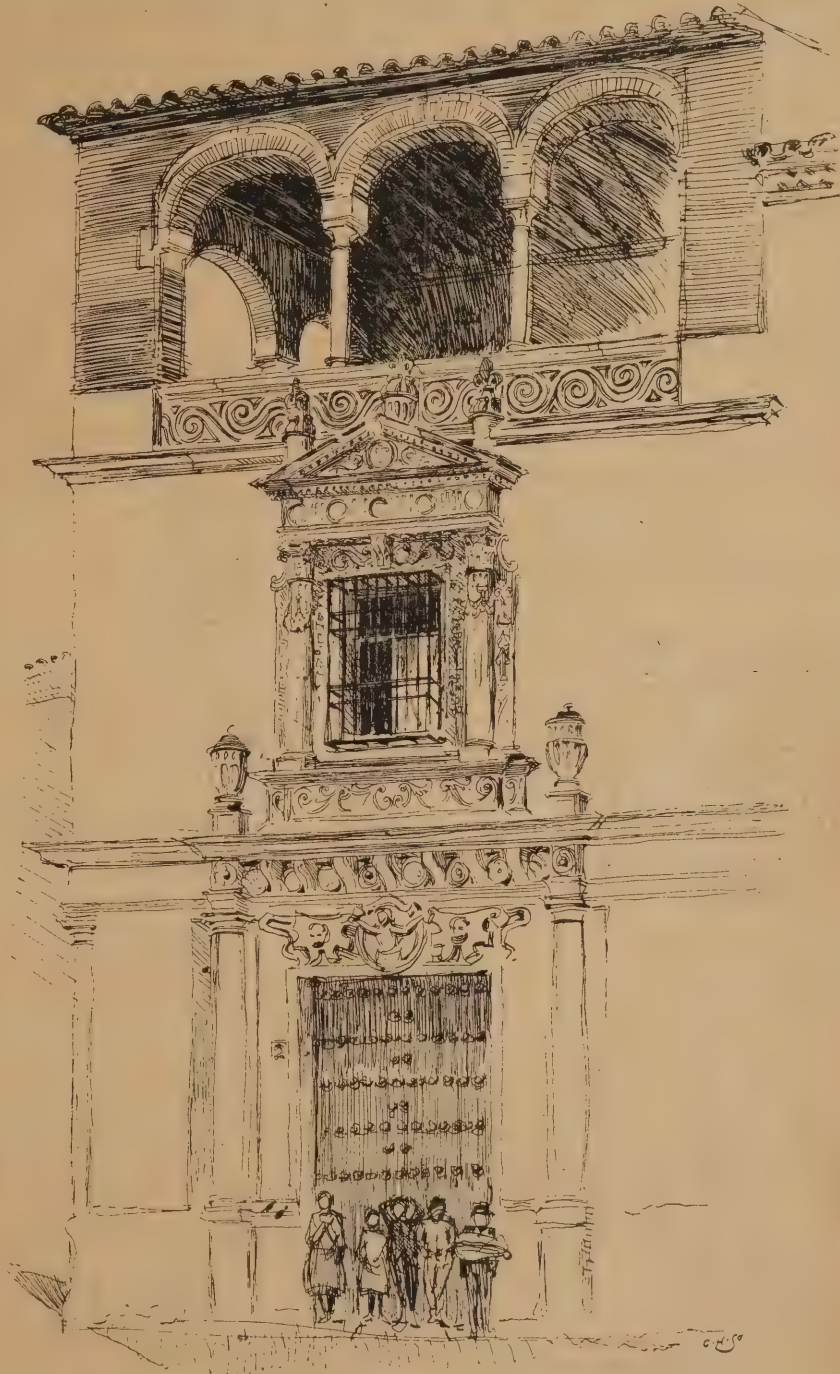


### Design at the Architectural Association.

THERE has lately been on exhibition at the premises of the Architectural Association in Great Marlborough Street, a collection of drawings which comprehend the work done during the past session in that "School of Design" which the Association has made one of the features of the educational course it inaugurated some five years back. The School in question also concerns itself intimately with the material used in the designs of its classes, the object of the School being to train students of Architecture in the nature and capabilities of the materials with which they have to deal, and their methods of manipulation. To this end classes are held in various workshops, and lectures and actual demonstrations given of the uses and limitations of stone, wood, lead, and plaster, and other materials of the builder's craft. The knowledge thus gained it is intended should be applied in the designs made in the studio. The lines upon which the students are directed are eminently practical. Finished drawings are not required or expected, but there must be plan, section, and elevation, and, however roughly indicated the various parts of the design must be thoroughly worked out, or, to use a phrase of the drawing-office, the designs must "work." The texts or maxims which are accentuated in the School yet further explain and emphasise its scope and intention. They are: *Simplicity of treatment*; *Accuracy of construction*; and *Economy of labour and material*. In viewing the drawings, we were much struck by the subordination, both in amount of work and, indeed, in quality also, of the advanced class to the elementary. Only five students exhibited their designs, and of these not one had attempted all the subjects set during the session. The oak choir screen, the subject set by Mr. Reginald Blomfield, was particularly disappointing. Although all the students who exhibited designs had elected the forms of the Renaissance rather than those of the fourteenth or fifteenth century, there was no inspiration from the City Churches, as might have been expected, nor, it would seem, from anywhere else. Mr. P. B. Chatwin's branch bank, however, shows promise, and we should be glad to see it in actual brick and stone in the High Street of some county town; and Mr. W. A. Waddington, under the criticism of Mr. Ashbee, has produced a bronze font in lines of considerable grace, and he has, moreover, designed in and eulogised the metal, and not adapted from a form conceived in stone, as is so frequent an error; the poise, and the curves, and the details and mouldings proclaim it metal in every part. Mr. G. C. Carter has yet to learn that a man cannot fitly express himself till he has learned a language in which to do it. We hope Mr. Carter will learn to express his ideas some day, because he seems to have ideas. The method in the elementary class of Design has been somewhat different. One subject was set, that of a small Church to seat about one hundred persons, situated upon the rocky slopes of a Westmoreland hill, and the various parts of the building were the subject for separate classes and workshop demonstrations by different visitors. Thus the drawings in this class

consist in but one design, fully detailed in all particulars, and, indeed, in some cases enough working drawings seem to have been made to fully explain the design and direct the various trades. This strikes us as a very happy and ingenious way of utilising the educational possibilities of a School of Design to the full. Among designs executed by very young students, some of them but boys of eighteen or nineteen, and none of more experience than can be acquired with the twenty-third or twenty-fourth year, it is only to be expected that a great deal of the work would be tentative and inept; but what we

remember that the work is done under the intimate criticism and advice of Architects of reputation; but when we notice the latitude—nay, almost *luxury*—of style allowed in the school, we see at once that the instruction tends to inspire rather than mould and restrain, and so it should be. The fault of the designs—and the fault was in degree common to all—was an incomplete mastery of the requirements and environment of such a Church, and a latent intention in the designer to express himself, his pet fads, fancies, and forms, in a Westmoreland mountain Church, rather than to express a Westmoreland



IN CORDOVA. FROM A SKETCH BY A. N. PRENTICE.

remarked was not the preponderance of these tokens of youth and inexperience, but the striking force and conviction of the designs, albeit the drawing was in many cases feeble, and in many more instances the ideas were inadequately expressed. On the whole, however, the work was very promising, and, what is perhaps more inspiring, there were lots of it; the sheets of details were in many cases lavish. Of course we must

remember that the work is done under the intimate criticism and advice of Architects of reputation; but when we notice the latitude—nay, almost *luxury*—of style allowed in the school, we see at once that the instruction tends to inspire rather than mould and restrain, and so it should be. The fault of the designs—and the fault was in degree common to all—was an incomplete mastery of the requirements and environment of such a Church, and a latent intention in the designer to express himself, his pet fads, fancies, and forms, in a Westmoreland mountain Church, rather than to express a Westmoreland



English. Nor is Mr. J. C. Hawes of the soil, though there is a great fitness in his external elevations and his plan for a mountain Church in the abstract. What we object to in this design is Mr. Hawes' interior wood-work. It is inspired, it would seem, from the modern ingle-nook as purchased wholesale, although it is true to say that his proportions and dispositions are good. We saw at the late Arts and Crafts Exhibition a green oak chest with blue panels, and an orange tree (?) with three oranges (?) in each. We think Mr. Hawes saw it too; also a famous piano with garden gates to it. Mr. T. E. Abbott seems a clever young man, but still sowing his Artistic wild oats. His design is inappropriate, but shows a pretty feeling. Mr. C. L. Brierley shows a meretricious design, of considerable restraint and some power. His metal work detail of a hanging lamp also is a good design, and shows a right feeling for design in metal. The emu egg pendant does not strike us as quite appropriate to a Church, nor in particular to a Westmoreland mountain Church. It is somewhat, to borrow from Emerson, "A dragging together of the poles of the universe." We notice that Mr. Brierley has succeeded in placing his perspective of this Church in the Architectural Room at the present Royal Academy Exhibition. Mr. F. N. Reckitt, in our opinion, shows the best design. He has kept consistently to English forms, and shows restraint and a fitness with the sentiments of the environments. Mr. T. F. Green shows careful though unfinished drawings. His design is the most strictly true to tradition—that of the fourteenth century—than any of the other exhibits, and he has held consistently to it. He has worked hard, too, and we hope he will get one of the medals, of which two, a silver and a bronze, are to be awarded.

#### WINCHESTER COLLEGE.

THE memorial buildings at Winchester College were opened last week. The building, of which Mr. Basil Champneys is the much-praised Architect, is a long, low building standing in what used to be called Sickhouse Meads, and so admirably placed that it leaves the beautiful old structure of Sickhouse in clear view. In style it may be described as of the English Renaissance—a fairly comprehensive expression; and the appearance, supported as the main building is by a colonnade, is distinctly pleasing. The main peculiarity is to be found in the outside pillars, rounded, but with numerous square projections, which are so constructed that any active boy can readily climb up to the balconies without going through the formality of entering by the door. At the Sickhouse end is a niche with a statue of William of Wykeham. Then come four medallions showing busts of Grocyen, Ken, Seaton, and the late Earl of Selborne in a full-bottomed wig, and then a niche which holds a statue of the Queen. Part of the object of the authorities appears to have been to promote a taste for archaeological matters and for Classical and Medieval Art. Special attention also has been paid to Architecture, and there is a fine collection of bromide photographs, presented by Mr. Samuel Rawson Gardiner, of pre-Norman and Norman, Early English, and Decorated and Perpendicular buildings. There are also portfolios of photographs of pictures, Venetian and Florentine for the most part, though the English, French, Spanish, German, Dutch, and Flemish schools are not neglected. To Mr. Hardy, one of the masters, has been intrusted the section concerned with Wykehamical antiquities and pictures, which, already interesting, is sure to grow in strength. Below are all sorts of working-rooms. If a word of criticism be called for it is upon the question whether sufficient space has been devoted to the natural history section, having regard to the fact that Winchester and the neighbourhood offer a rich and varied field to the naturalist and the botanist.

#### THE ARCHITECT AS AGENT.

##### IMPORTANT LITIGATION.

AT Sheffield County Court, Judge Waddy recently tried the case of Moorwood, Sons, and Company, Harleston Works, Sheffield, ironfounders, v. George Longden and Son, of Neepsend, builders. It was an action of contract which had been commenced in the High Court of Justice, and had been remitted to be tried in the County Court. The amount sought to be recovered was £54 18s. 3d., a sum made up of various items charged for stoves sold on dates between August 5th and Nov. 12th last year.—Mr. Waugh, for the plaintiffs, said on Sept. 9th, 1895, Messrs. Longden and Son entered into a contract with the chairman and weekly board of the Sheffield Royal Hospital for the erection of certain buildings in the extension of the hospital. The Architects were Messrs. Hadfield, Son, and Garland, and Mr. Hadfield gave the plaintiffs orders to supply stoves, the cost of which was now sued for. It was well known that whenever an Architect ordered goods to be sent to works, he was ordering as agent and not as principal. Before the whole of the goods had been supplied the plaintiffs asked Mr. Hadfield whom they must charge for the stoves, and he replied "Messrs. Longden and Son." Before giving his certificate the Architect saw the defendants, who told him they would pay for the stoves, and on Dec. 23rd, 1896, he made out his certificate for £50 on account. The defendants had not paid.—Mr. Ellison, for the defendants, explained that his first contention was that the defendants were not directly liable for the goods. The order was given by Mr. Hadfield, on behalf of his principals, the weekly board of the hospital, and Mr. Hadfield was liable. It was a very important matter of precedent if a contractor was likely to be sued for things that were ordered by an Architect.—Evidence was taken, and his Honour, in giving judgment, said he had frequently expressed his amazement that contractors and builders could be found nowadays who were so stupid and helpless as to give themselves up with their throats wide open, to be comfortably and happily cut by the Architect. But they did. They made contracts which were the most astonishing it was possible to conceive, and by which they put themselves into the greatest possible difficulty, and his sympathies in those cases were largely indeed with the builders, and very largely indeed—he could not help saying it—against the tyrannical propositions of the Architects. But the Architect's answer to that was that it was the only way in which business could be carried on. They must have some one man invested with unfettered discretion. He (his Honour) was not there to express any opinion of a judicial character with regard to the matter. He did not know what had made the parties quarrel. They had not quite got at it. There was no grit in the machine when Mr. Longden agreed to pay on receipt of the certificate. Mr. Longden knew that if he paid the money he would simply take it from one pocket and get it back into the other from the hospital. His Honour suspected that the history of this action was to be found somewhere in the neighbourhood of the contra account which had been mentioned. The parties had been to law before, there was friction between them, and he thought one side was to blame as much as the other. He was of opinion that the defendants did undertake to pay for the goods, and he should give judgment for the plaintiffs for the full amount.

THE house of Balgriffin Park, between Raheny and Malahide, has been destroyed by fire. It was one of the oldest residences in the northern part of County Dublin, and the woodwork was of exceptionally heavy construction. Balgriffin is historically interesting as the estate conferred by Henry VIII. on Conn Bacach McNeill in 1542, when the King was engaged in an attempt to convert the Irish chiefs into noblemen. The mansion house dated from the time of Queen Elizabeth.

#### ARCHITECTURE AT LIVERPOOL.

THE annual Exhibition of selected works by the students of the City of Liverpool School of Architecture and Applied Arts during the past session was held last week. The exhibits include Architectural drawings and designs by the more advanced students, modelling from the life, designs for fabrics, wall-papers, book-plates, stained glass, posters, &c., and many charming and fanciful sketches submitted for the Sketch Club competitions. There are some specimens of wood-carving, and a few, but excellent, examples of wrought iron work. An example is afforded by what may be called the premier department—that of Architecture, which is under the direction of Professor Simpson, the principal of the schools. The collection of Architectural drawings not only shows good draughtsmanship, but a thorough grip of the practical as well as of the artistic side of Architecture, as evidenced by the treatment of working details. It is interesting to note the several groups of drawings illustrating the treatment of the same subject by different students. The subjects in this instance are a two-story façade in the classical style; a doorway in the same style with arched pediment; and a complete set of drawings and plans for a small country mansion. In regard to the department of modelling and sculpture, the main feature is the prominence given to direct study from the life. There is a modelled bust by Mr. L. Crosfield, showing insight into plastic effect, the work having a strongly marked character. The series of models of a figure adopted for a Telemones, and the half-dozen reliefs of a half-length female figure, a classical study for "Pandora," are instances of healthy emulation upon right lines. The reliefs and modellings of a more purely Architectural character are also interesting. The same practical view is uppermost in the exhibits of the students of decorative design and painting—that is to say, the object of the school as one of applied Art is obviously kept steadily in view by Mr. Anning Bell, since the designs are for friezes, wall-papers, posters, book-covers, cushions, hangings, and illustrations for periodicals and books, and are of a strictly applicable character, whether in black and white or colours. The black and white work predominates, and much of it is of distinctly fine quality. The following is the list of prize winners:—Modelling from the Life (Telemones): 1, A. H. Griffiths; 2, J. H. Morcom. Head from Life: 1, G. Crosfield. Panel Design: 1, A. H. Griffith; 2, W. Webb. Panel Design (special prizes): 1, R. Murray; 2, F. Wescott; extra prize, G. Shaw. Cast: 1, T. Rowan; 2, H. B. Bare. Drawing from the Life (day): 1, L. Crosfield. (Evening): 1, A. Jenks. Drapery: 1, R. Warrington. Set of Designs: 1, C. A. Walker, who also shows some plates, &c., designed and made by her for the Della Robbia Company; 2, E. Jackson. Design (evening): C. E. Prescott. Design of Ornament: 1, M. E. Carine; 2, G. Williams; extra prize, R. Roberts. Wrought Iron: 1, E. Barstow and J. Lowe (equal); 2, H. Vogt. Junior: 1, W. Hawthorne. The prizes in the Architectural department have not been awarded, the session in that subject being still in progress. Some important additions will be made to the classes of the school next session, which commences on Oct. 4. Amongst others, Mr. E. Ll. Rathbone will hold a class in copper and brass work.

THE Jubilee number of the "Newsagents' Chronicle" (William Dawson and Sons, 2d.) makes a useful contribution inside its pretty decorated cover to what may be called the journalistic retrospect of the Victorian era. In a series of special articles it reviews the Newspaper Press of the period, tracing a glorious progression, which, however, would never be interpreted by the magnificence—or lack of magnificence—of the buildings in which the newspapers of to-day are produced. There are, of course, one or two buildings which might be considered exceptions, but on the whole the "glories" of newspaper advancement are strikingly disassociated with Architecture.



## Architectural Epidemics.\*

Illustrated.

By HARRY BARNES, A.R.I.B.A.

QUEEN ANNE is dead, so are the great styles; the former died in 1710, the latter at an earlier date; they all did their duty in the station in which it pleased Providence to place them, and entered into their rest. Here, alack, the resemblance ends. Queen Anne, God rest her soul, sleeps placid and ignored, in death as in life, while the great styles, after the tender oblivion of an age, have been unearthed from their mouldering obscurity with results calamitous and grotesque.

There are few cases in which resurrection seems natural, and fewer still desirable. When that which is young, undeveloped, immature is destroyed, sometimes the wish goes round for the power to recall it from that undefined region into which it has passed; but when youth has become age, and age senility, when promise has become fulfilment, and fulfilment decay, there is no desire to perpetuate an existence which has, by the "unconscionable length of its dying," impaired most of the virtue of its life. To grant another life to a Chatterton, for example, one might feel to be a grateful thing, but to start a Methuselah on a second millennium seems in the face of it rather unnecessary.

And the great styles had their day. No malevolence of society or nature threw a spell across their paths from which they might, like the sleeping princess, wake to life and beauty at the touch of some coming age.

The ideas which bore them, and of which they were the most beautiful expression, passed through that strange inevitable experience of all their kind, in which they appear in turn as the hope and scourge of the world, and by some inexplicable sympathy, subtle as it was sure, the styles revealed the march of these ideas from their acceptance to their rejection, as a face will record the experiences of a soul from the cradle to the grave.

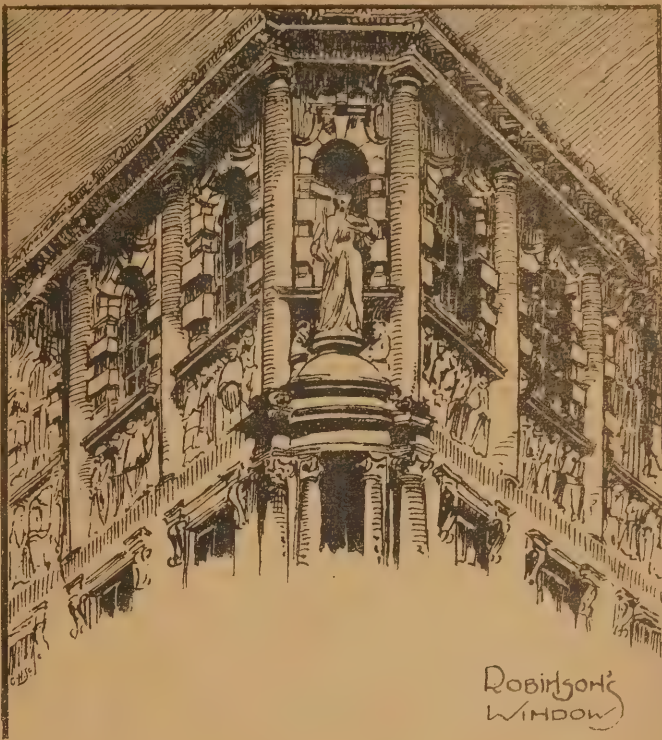
And they passed together, the ideas and the styles; full, round, and complete was the life of both, and also final.

The pagan idea at its best, so convincing of the union of mankind with the great engendering

power of Nature, an idea redolent of woods and fields, running water, and blue sky, so filled with the zest of open-air life, that I can never believe their temples had anything but open roofs, through which the sun and clouds might be seen like a jolly shepherd driving sportive sheep across great fields of blue. An idea, so evidently formed by happy, unconscious creatures, glad in the possession of the good brown earth, finding points of endless affinity between themselves and all the aspects of Nature, in bird, and beast, and flower; that one might well feel sad that such simple joys, and so simple a belief, are not for us; and sadder still, that all this should end in the thousand confusions, and follies, and senseless vices, of the last years of the pagan world. But how fittingly is the early faith expressed in the severity and simple beauty of the best periods of classic Architecture, and how tragically the squalor of its later days in the miserable remains of the later Empire of Rome!

And the Christian idea; with its gloomy consciousness of sin and its forebodings of the future, lightened by marvellous uprisings of faith, how vividly expressed by the cloistered gloom and up-darting shafts and spires of Cathedral and of Church, a fitness of expression maintained till the end, when the hardness, mechanism, and formality of Mediæval Christianity found its best type in the rigidity, perpendicularity, and stiffness of its Architecture.

Closely linked they were—these ideas and these styles—to both of them the vigour of youth, the maturity of manhood, the tranquillity of age, and, finally, the collapse of death.



No resurrection of them was possible—none, indeed, desirable; their work was done, their purpose accomplished, their decease had left the world free for other growth, and to both of them should have been the undisturbed seclusion of the grave.

This has, however, not been the case, for during the last hundred years a great number of persons, well-meaning, doubtless, but sadly misguided, have illustrated the truth of the little hymn, that "Satan finds some mischief still for idle hands to do," by ransacking the sepulchres of the styles, and exposing the world to the contagion of the vast quantity of decomposing remains which they have discovered there, and scattered to the furthest ends of the world.

So extensive and virulent have been the effects of their conduct, that, though in a flash of unconscious humour, the escape from the tombs of the decomposing essences of the styles has been termed a Revival, the true description of the age, and in this I am sure you will all agree with me, is that of an Age of Epidemics.

Fergusson attempts to make a distinction between the Renaissance and the Revivals, but I am not sure that such a distinction can be made, it rather appears to me that the spirit which made the Middle Age turn from its own proper form of expression to build after the manner of the Ancients, as Palladio quaintly puts it, was anything essentially different from any modern epidemic.

It was a first attack, and these are proverbially not so deadly; there were not the facilities for spreading it, and the world still had some remnants of robustness wherewith to throw it off; but it left its mark, and, as the revival of Greek philosophy monopolised some of the best minds of aftertimes in a vicious circle of barren reasoning, to the exclusion of practical science, so the Renaissance in Architecture infested men with an unnatural, unhealthy craving for bygone and effete forms that has ever since prevented the natural development of their ideas.

We can, however, limit ourselves to the present century and our own country, for in the history of its epidemics we have the history of a second Renaissance which may well be considered by itself.

By the end of the last century, the evil effects of the First Renaissance had worn themselves out, and the country was attaining to a healthy barrenness of Architectural form. The tremendous changes brought about by the industrial revolution were engaging the whole attention of the people, and making them happily forgetful of all their Architectural



\* Paper read before the Northern Architectural Association, Newcastle-on-Tyne.





absurdities, while our isolation from the Continent, due to the Napoleonic Wars (which Professor Banister Fletcher, with a curious inappreciation of the requirements of a new Architectural birth, seems to deplore in his recent history of Architecture) had cut us off from the principal, indeed, then, almost the only source of contagion. At this time a hopeful period for the future of English Architecture seemed to have begun.

Unfortunately these conditions did not last. The great increase in the wealth of the country, the growth of a new leisured class, imbibing all the false culture and aping all the extravagances of their predecessors, set the purveyors of Architectural novelties on their mettle to supply the new demands.

But the artistic vision was dimmed (by causes too deep for our time and space to discuss), and nowhere discerned a field in which the spirit of artistic Architecture might operate.

There was nothing for it but to rummage in the dust-heaps of the past, an action ever indicative of poverty, if not indolence. It requires abilities of a certain kind, doubtless, to plan the part of *chiffonnier* to the centuries, but they will scarcely rank with the qualities that, leaving the dead past to keep its dead, can wrest from the grasp of the present, or anticipate from the future the things desired.

I fancy if I were a woman I should not care to wear the necklace from a mummy's neck while there were pearls to be had fresh from the seas.

But in the early days of this century they knew of no "perilous seas" that were not already rifled of their treasures, and if they had, the art of diving was forgotten; there was nothing for it but the tombs. And they dwelt amongst them.

Their industry was remarkable. Not a tomb of note was left unvisited or unspoiled, and exhumation became a Fine Art, and body snatching the recreation of earls; the typical example of which being, of course, the acquisition (this is, I think, a sufficiently euphemistical term) of the Elgin marbles.

At first there was some fastidiousness in the choice of the remains. It must be Greek of a certain period if it was to win the approbation of connoisseurs, but this field was soon worked out, and while it was admitted that the older the remains, the more highly favoured and acceptable they were, yet it was soon felt that after all the main qualification lay in the fact that they were relics of something that had existed in the past. This greatly extended the area of operations. Roman remains were now felt to be worthy of attention, and Egyptian not altogether unprofitable.

For a time the supply of sufficiently decom-

posed Architectural remnants was sufficient to supply the demands of the cultured classes. Suddenly, however, some persons, either not possessing the requisite capital to open up Architectural graves in foreign countries, and envious of their more fortunate contemporaries, or else finding all the claims marked off, woke to the knowledge that there were actually remains in their own country and almost at their own doors. There was evidently even there a latent prejudice in English minds against things "made in Greece" or any other foreign country, and this these worthy gentlemen proceeded to arouse, and with considerable success.

There was a rush at once for this new field, and before long it was covered with busy workers. Every corner of it was ransacked, and for a time the completeness of the Gothic finds more than compensated for the greater age of the classic remains in the estimation of the cultured mind.

Fierce, however, was the rivalry between the two schools of ghouls now formed, and bitter and contemptuous the terms applied to each other. The affluent and travelled favoured the Classic, others the Gothic, and the Battle of the Remains was hotly contested.

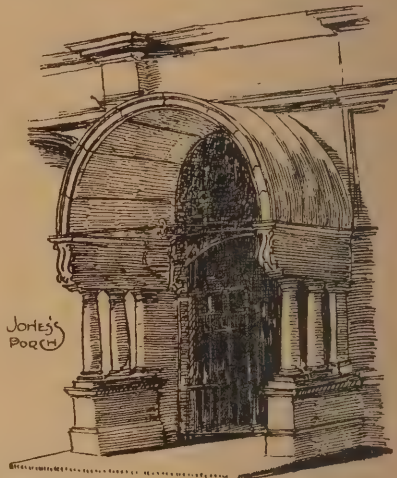
At last, however, these two great sources of supply began to lose their hold, and a spirit of individuality in the selection of remains sprang up. The up-to-date young ghoul, I mean Architect, was not content to feast on the remains so long exhumed, but would find some place as yet untouched, and there satisfy himself. So one would go to North Italy, another to Belgium, another to some part of France, another to Spain, and from these places return after busy weeks, in triumph, distinguished from the ruck of their fellows by the novelty of their fare, and their contribution to the great Architectural morgue, now assuming such vast proportions.

It will readily be understood that such meddling with the processes of natural decay as I have described could not escape the consequence, and, as a matter-of-fact, did not, for it is well-known that after each such interference there raged over this country what, as I have already said, was called a revival, but which you, I am sure, now see to have been an epidemic. There was, for instance the great Greek Epidemic, followed by the Gothic, and in our own day many of a milder character,



caused by the individual action to which I have referred. The causes having now been firmly established in our minds, let us regard the symptoms and effects of these visitations.

The chief way in which contagion has spread has always been through books. These passing through the country have carried the dread seeds and planted them in many a young mind that otherwise would never have been contaminated. In later days the illustrated papers have been especially disastrous in this effect, making the attack (which in the early part of this century often only happened once to a provincial practitioner in his lifetime, on his subscribing for a copy of a newly published Architectural work) now of weekly occurrence.



There is also in large centres such as this the personal contagion between old and deeply infested artistic constitutions with those younger ones, so susceptible to disease, placed in their charge.

There is also an atmospheric contagion, independent either of books or personal contact, but perhaps more insidious than either; so that the most robust and unlikely constitutions have been infected (such as that of persons engaged in building who have never seen a book which dealt, or been brought into contact with a person who was acquainted, with the sources of infection—i.e., Architectural remains). The disease showing itself in the introduction by them of rude imitations of Architectural ornament in buildings otherwise admirable for their barrenness.

This form of infection can only be accounted for, I think, by the presence of large numbers of buildings in our midst erected by persons evidently suffering from one kind of Architectural Epidemic or another.

The symptoms of infection are not difficult to detect; they will, if conditions are favourable, be plainly apparent. The most favourable conditions for the development of the epidemic in an individual are a client with a desire for show and the means to gratify such a desire. These conditions into which some unfortunate men are more frequently placed than others, lead to a very rapid development indeed. In such a case the inspection of executed works will be sufficient.

There are, however, many cases to which these conditions do not pertain, and in these the detection is somewhat more difficult. The subscribing to any Architectural paper is strongly presumptive of infection, while the possession of several volumes of Academy Architecture is tantamount to certainty. Perhaps the most certain sign is the appendage of A.R.I.B.A. after the name, for it may be considered an impossibility for any one to go over the ground necessary to secure such a possession without falling a victim to the dire scourge. An F.R.I.B.A. is not exposed to the same danger.

If you are anxious to detect the particular kind of epidemic most prevalent in the country at any time, you cannot do better than visit London during the months of May and August, for then (probably owing to the warm weather) it invariably appears in the form of an eruption



or kind of rash on the walls of a small room in Burlington House.

It will now be interesting to notice the effects of the epidemic upon different characters.

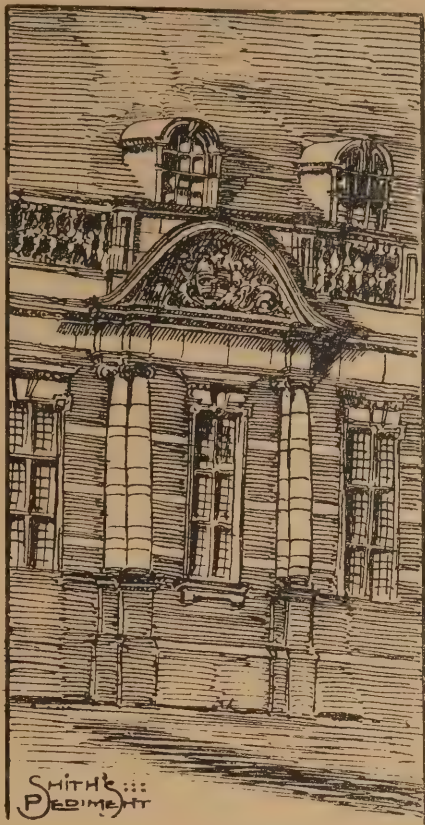
With some men it takes the form of an obsession or mania; this man is usually the victim of one of the great kinds—the Classic or Gothic—and its effect on him is to make him intensely eager in the imitation of some particular style of the past, his microscopical investigation and patient ingenuity in reproduction are wonderful, and after years of suffering he will attain to a skill in imitation equal to those Artists whose business it is to produce in less durable material from the remains of great men imitations for popular inspection in different parts of the country, notably at one place in London, although, I suppose, as these persons imitate remains of a higher class, they will consider themselves Artists of a finer order.

Their skill is sometimes so great that they will erect buildings that can scarcely now be distinguished in point of age from their prototypes, and in the course of a century or two will effectually deceive every antiquarian. This is especially apparent in Ecclesiastical Architecture.

This desire to imitate whatever is placed before it is given by Max Nordan in his brilliant and suggestive book, "Degeneration," as a strongly marked characteristic in one class of degenerates. These, you will recollect, according to his idea, are individuals who have dropped out of their rank in the present position of the march of progress, and fallen back to the standard of more primitive man while this particular characteristic indicates a return to a still more remote ancestry.

Max Nordan's ideas are, however, considered rather far-fetched, and when we remember that this characteristic is strongly evinced in many of the works of some of the most eminent members of our profession, it will, I think, be sufficient to disprove such an assertion to our minds.

The effect of an epidemic on other men is more analogous to measles, mumps, or whooping-cough—it is an effect of a decidedly juvenile character. They seem to enter the "bib and tucker" stage, and to view the parade of Architectural styles brought before them, much as a child gazes on his box of bricks when he holds it for the first time, and with



much the same avidity they clutch at the "pretty bits," and build up on paper or in actuality a building with Gothic windows, Renaissance pilasters, pointed arches, and crenulated towers, anything and everything incoherent, incongruous, and yet daring and breathless as the child's giddy column of bricks. Or sometimes he is haunted by some particular form, as in the case of a recent book, "Suggestions for Architectural Designs." The author of that book is plainly suffering from the "Horseshoe Arch" in one of its most malignant forms.

In other men it breeds the desire to unearth the skeleton of long defunct buildings and perpetuate their uselessness by the erection of dwarf walls to mark their plan. It is amusing to note how from the desire to preserve Notable remains, it is only necessary for a thing to be a "Remains" at all to excite a number of amiable idiots to the effort to preserve it, in the face often of its utter uselessness and sometimes utter nuisance. This desire to keep decaying matter in existence and in evidence, is no very pleasant characteristic, and indicative of no very exalted intellectual position.

Such men are as a rule wealthy amateurs, and are further often affected by a desire to undertake the restoration of ancient remains, and as a rule afford pretty instances of "how not to do it."

The unsatisfactory result of putting new wine into old bottles, and new cloth in old garments, is, however, familiar, and need not be insisted on.

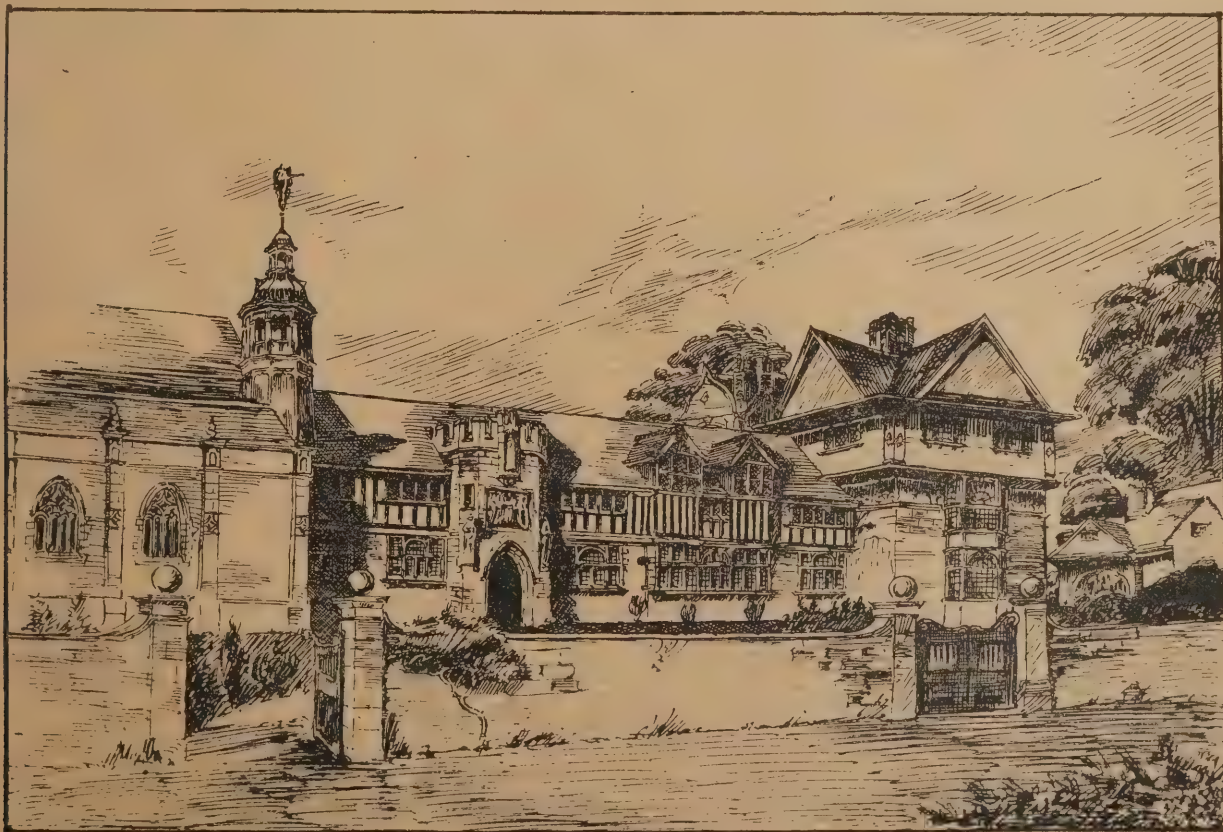
One of the most interesting phases of Architectural Epidemics and their effects, is that of the present complication of minor maladies.

In former days, when a man had either the Greek or Gothic form of ailment, he had contracted something that would in all probability remain with him for life, and was generally incurable. But to-day we have a number of trifling disturbances scarcely to be dignified by the names of epidemics, merely nerve complaints mostly effecting the younger of us, and of a very temporary character, not that the victims are ever free from some of these, but none of them are of a permanent nature.

They are generally started by the visit of some particularly susceptible young man to some obscure region of deceased Architecture. He returns with evidences of his infection in the form of sketches which, on publication, carry the germs of disease to all parts of the country.

A number of victims speedily follow, and the epidemic goes merrily on till the arrival of another young traveller from a new source of infection.

Among the first symptoms of these minor complaints is a fine assumption of artistic superiority over the older men, and a scarcely concealed contempt for those still in the grasp of the last epidemic but one. A drawing for the Academy is perhaps the most effective outlet



"BIG AND TUCKER" ARCHITECTURE.



for these cases, and will frequently quite relieve the victim.

Amongst those who suffer in this way there is usually a great desire for up-to-dateness, as I have been assured that in one case known to my authority, in the preparation of some drawings extended over some six weeks, the elevation was entirely compounded out of the six weekly issues of an Architectural paper; and the only regret expressed at the conclusion was, that the portions chosen from the first week's issue were a little out of date, when the design was finally completed.

These slight attacks sometimes manifest themselves in what may be called scissors and paste-pot Architecture. I know a case in which, with the help of a current number of the BUILDERS' JOURNAL and a piece of tracing paper, the plans and elevation of a church were successfully completed in an afternoon, to the satisfaction of the Church Committee.

Some, however, of the minor epidemics arise from the powerful contagion of personal example. For the moment the Architect of some particular building comes into prominence, and immediately a number of hysterical degenerates are infected with his methods. This year it may be Coll-Cutica, the next Belch-era, the year after perhaps both. They are usually affected by eccentricities in the designs that mean just as much as the butterflies in Mr. Whistler's literary productions. They serve as signatures to the designs. We say we know that is Jones's, that is his porch; or it is Smith's, I recognise his pediment; or it is Robinson's, I know his window. It may be a huge canopy, a sort of cross between an arch and a circular pediment, supported on inadequate corbels, or it may be a disposition of window to imitate a columnar building, with the inter-columniations built up, it doesn't matter, the eccentricity is noted and imitated, and we are surfeited with circular canopy porches, on inadequate corbels until some fresher eccentricity procures us sweet surcease of sorrow.

The great desire of this class is to become affected with some hitherto unknown form of Architectural malady, and if they can achieve this they will parade their condition through the Press with the same squalid joy that characterises the goitred mendicants at a Swiss railway station.

As a fellow sufferer, it is most remote from my intention to censure these victims of epidemics. I would as soon blame a man who was attacked by influenza, or complain of the conduct of a typhoid patient.

Leaving these types and speaking generally, it may be said that the effect upon the average Architect is to produce the conditions of a poet whose wife was once told that her husband had too good a memory ever to be original, for whenever he began to write on any subject, all the best things that had been said on that subject came into his mind, and unconsciously into his work. So with the Architect, he feels his best things have all been said, and the most he can do is to repeat them with as much freshness as possible.

Perhaps the worst result, however, of these epidemics is to be found in the enduring traces they leave on the country. Most English towns look as if they had just returned from a fancy dress ball, in which a pious Methodist chapel had appeared in the guise of a heathen temple, the gas office as a wing from a French palace, the bank as an irresponsible Italian villa, while others appear in that inexpensive, though sometimes striking costume, which may be made out of anything that happens to be left over.

I had intended to illustrate my remarks at this point by views of some of the recently executed work in Sunderland and Newcastle, but I have not had the time and opportunity to prepare them. To an observant man the streets are eloquent of the vicissitudes to which they have been exposed. That long street of houses, each with its ridiculous little Parthenaic porch is a melancholy remnant of the Greek infection, that wire-drawn church with its attenuated doors and windows, whispers of a Gothic craze; and to-day every new building has its tale of the anarchy and chaos that is bred by the constant recurrence of plagues, in

which every man does that which is right in his own eyes, from Dan even unto Beersheba.

This is a limitless subject, and to extend it would only weary you. We have seen the cause of these epidemics, the symptoms and effects, and it now only remains to indicate in what direction, if any, we may look for a cure—for a cure is not impossible.

There is, indeed, one remedy with which I shall deal which we might imitate ourselves, but which I am afraid we have not the courage to adopt.

If I have been correct in pointing out our too intimate connection with the past of Architecture as the cause of all our misfortune, it is evident that our only hope in the future lies in severing the fatal connection.

What we have to secure, if not for ourselves, for the more fortunate ones who shall succeed us, is a clean slate; a *tabula rasa* upon which, with unfettered imagination, they may portray with truth and beauty the expressions and desires of their minds and hearts.

Let us remember, then, that it is barrenness of idea we must cultivate, and as complete an ignorance of Architectural form as may be possible for us. Our predecessors have left us with an Augean stable, and upon us devolves the Herculean, if thankless, task of cleansing it.

We must be careful that the pernicious stream of Architectural literature which is contaminating the minds of our students shall be stemmed, and that, while they are instructed in all the theory and practice of construction, they are not hampered by being compelled to imitate dead and gone styles.

The uselessness of learning a dead language is being openly discussed, and perhaps to those interested the uselessness of learning a dead style may in turn become apparent.

Then we may discourage these individuals and societies that grub among the graves of men and things, if we cannot stop their work, we can at least be too busy to listen to them.

Then we can eliminate from the discussions of this and similar societies any reference to past Architectural forms (except, perhaps, in the way of denunciation) and confine our attention to useful and practical subjects, such as the section and size of drain pipes.

Then we can refuse to have any part or lot in the preservation of any ancient monument. Do you remember that weird story of Edgar Allan Poe, in which he tells how a man in the article of death was mesmerised and kept conscious long past the proper period for decay, until at last the mesmeric power being withdrawn, he passed before the eyes of the spectators into a ghastly, viscous fluid? I always feel that this may be the fate of the objects of the interest of the Society for the Preservation of Ancient Monuments.

In this and other ways we may dissociate ourselves from the past with its baneful influences and leave a virgin inheritance to the future.

But I am afraid that "custom doth lie upon us like a weight," "heavy as frost and deep almost as life," too heavy for us to throw off. We shall not be able to do these things, and yet how reasonable they are.

Why should we be overcome by a false reverence for the past?—"We the heirs of all the ages in the foremost ranks of time." Why should we in the manhood of the world seek to clothe ourselves in the garments it threw aside so long ago? When we were children we thought as children, we played as children; but when we became men some other rule of conduct should apply.

In this reverence for the past, for the lower forms of life from which we have emerged, we exhibit the characteristic of a race undeveloped and immature, and withal we are so illogical about it.

The Egyptians, who were perhaps the greatest Society for the Preservation of Ancient Monuments that ever existed, did, at all events, preserve the highest forms of natural objects; but if you were to ask a member of a modern society why, in his passion for ancient monuments, he does not exhume his own or somebody else's great-great-grandfather and utilise him for a drawing-room ornament, he would either shrink from you in disgust or else say he had no room.

But if this member's estimable, if somewhat long defunct, relative's body may not be allowed to occupy the attention or position needed by others, why, in all reason, should his house, or his church, or his jail have the privilege?

Professor Aitchison, in his opening Academy lecture, speaks very acutely of the insistency of Architectural objects, and emphasises the manner in which they will impress themselves upon those who live near them. Then, to say the least of it, it is positively immodest to allow a building, long after it has ceased to perform any useful function, to continue to monopolise the commanding position assigned to it in its first stage of usefulness, and to occupy a situation required for more deserving, if later, comers.

To use a personal illustration, who can assert for a moment that the function and duties of the County Council are not incomparably more important than those of the Dean and Chapter? And yet in Durham the County Buildings—in which this Association was so graciously pleased to interest itself some short while ago—are left in the retirement of the valley, while the Cathedral and Castle brazen it out from the hill.

Who can estimate the demoralising effect upon the inhabitants of Durham in so confusing the relative importance of these institutions? To me, the idea has sometimes occurred that the age of a building should be fixed by the length of its sinking fund.

Then, again, the perpetuation of ancient monuments by this spirit of false reverence serves most effectually to hamper the present and future, by fixing forms.

Now, forms are always changing, and must always change, if they are not to become a strait-jacket for the race, and anything that tends to make them permanent is inflicting an injury upon society. Like the Chinese women, Architecture goes hobbling to-day because of the bandages fastened upon her feet.

Who that has studied any period of real life and activity, and observed the myriad changing forms that passed across it, can doubt the truth of this? An idea materialises into a form to suit some given conditions of life, these alter, then the form must dissolve, break, and leave the idea free to remould itself in other forms. The mould must be plastic, not durable. We sometimes hear of men building for future generations. It is nonsense. They know nothing of the requirements of the future; they can only build for themselves.

There is a delicious irony, viewed in this light, in the efforts of many good folk to-day to preserve that which the builders, if they lived to-day in these altered times, would be the first to destroy.

I can almost fancy there was a touch of prescience about the builders of Peterborough Cathedral when they filled up the interior of their fair round nave pillars with unbounded random rubble and rubbish. They foresaw that the faith for which they built one day would die, and they did not care that their building should survive it—as why should it? Yes, and I fancy they will cheat these busy-bodies who cringe before their work after all.

And here I am reminded of one person who has been robust enough and sane enough to escape the almost universal infection. Not for him the meretricious forms of dead and decadent Art. In his work a simplicity, nay poverty, nay famine, of Art, and then how well he has grasped the principle of the transience of form, and how devotedly he has followed in the train of Nature, who makes her most lovely creatures out of her most fragile materials. True, rude people sneered at, some even forgot themselves so far as to call him "jerry builder," but what recked he? Secure in the knowledge that his buildings had no foundations, and his walls were tied with laths, he put a knocker on the front door, and an open jointed drain in the backyard, and went his way.

And yet it may be that when the "Artist, the Architect, and the Man" comes from the east and from the west to go into the Architectural heaven, the jerry builder may enter before them, for at least the evil that he does



dies with him, and his buildings are often interred before his bones.

From whence, then, cometh our help? Before answering this question I would invite your attention to the two conditions which made a new style possible after the Classic Age, and conversely the absence of which accounts for the rise of no new style after the collapse of the Gothic.

They are, first, the influx of a set of people, barbarian or foreign, to prevailing notions, not understanding and not appreciating them; and second, the use of a new ethical principle, at variance with established ideas, and directly rejecting them.

These were, you remember, in the case of the Classic Age, the overrunning of the Roman Empire by the Teutonic races, and the rise of Christianity.

Professor Aitchison, in a lecture sometime ago, deprecated the idea that a wave of barbarism was necessary to establish a new style, and instanced the Byzantine Architecture, a product of that portion of the Roman Empire least influenced by barbarism.

But this instance really confirms my idea, for however beautiful the development of Byzantine Architecture, it cannot be compared to those styles which grew up in these countries from which the traces of Roman influence were almost obliterated; indeed, to my mind it is little more than a final flare-up of the Classic Age under Greek influence, and inspired by the new idea just then come into the world.

For Professor Aitchison does not point out that if Byzantine Architecture did not benefit by the rude vigour of the barbaric element introduced into the Classic world, it did come greatly under the influence of the new ideas. And this was a very important one, for whereas the tendency of the barbaric element was to ignore through indifference and ignorance the Classic elements around it, the Christian idea intensified this by deliberately rejecting many of them, and so helped most influentially in the oblivion which gradually wrapped them round, and left the ideas of men free to develop in other directions.

At the collapse of the Gothic period there was, however, no break in the continuity of social or ethical life; the old faith had certainly ceased to hold the upper classes, but no new idea claimed its place, and they simply reverted to Paganism. Since then the social order has moved without any interruption either of its creed or its status—it has been content to retain the old ideas, though it may have but little faith in them.

At the time of the French Revolution it did seem as if a new starting point had come; but it was not so—the inertia of the world was too powerful for that movement, brilliant as it was, to overcome, and after its brief turmoil society subsided into its old routine.

There is, however, a movement in the future, near or far, which will supply these two conditions, and it is to this we shall have to look for any improvement in our parlous state.

This movement, known by various names, and sufficiently familiar to us all, will place in prominence a class of people that, in the sense of being foreign or alien to our existing notions, may well be called barbarians, and will introduce an ethic utterly opposed to almost every principle upon which our present society is based.

It is not from any foreign shore that we may expect this influx. As Macaulay, I think it is, tells us, we are manufacturing our own barbarians, who will in time assume over us the dominance assumed by the Teutons over the Latin races.

The truth of this is, I think, becoming more and more apparent to every observant man. The reins of power are slowly but surely passing into their hands, slightly in Imperial, largely, and in some cases almost entirely, the conduct of local affairs is being undertaken by them.

From our point of view, all this means only one thing, and that is the gradual neglect and disregard of all that we have come to think essential to the Architectural character of a building.

Our personal experience of this class will

confirm this view. We have met them on the committees of charities, as the trustees of Methodist chapels, and sometimes in the larger public bodies.

And their characteristic is always a wholesome common-sense and indifferent, if not contemptuous, regard of our little Architectural embellishments.

"What's this thing?" they ask us, to our confusion, as we try to explain that "that" is what gives our design its Greek or Gothic character, and only succeed in convincing them that we are anxious to waste their money. They have no reverence for the past. Well, it has done little for them, and they can scarcely be expected to love it.

Their delight is in modernity, the future they believe is theirs, and relics are not in their line.

By way of illustration I suppose the only genuinely modern feature of Architecture is the plate glass windows, and consequently the most abhorred by all Artistic Architects. But your barbarian delights in it. I remember how a little while ago, I had been erecting some small street houses in Sunderland while suffering under the influence of Mediæval domestic Architecture, aggravated by traces of Coll-Cutica lingering in my system, and had filled all the windows with small panes. A barbarian bought one of the houses, and contemptuously removed those small panes in which I had joyed and filled his windows with one sheet of plate. I admired him while I writhed.

They object to having their windows placed in out-of-the-way corners of the house, though you plead ever so strongly for a symmetrical front, and in a word are utterly regardless of any of your attempts to persuade them that to masquerade in your house is a distinct sign of culture.

I anticipate that as more and more of the control of affairs becomes theirs, building will grow plainer and plainer, all extraneous and superfluous adornments will be rejected, until at last we are as near the clean slate as even I could desire.

And this for two reasons, with which I will close.

First, because in the future the dominant motive will be to save labour as in the past it has been to save money.

To those who have known the hardships of toil, any useless expenditure of it will be hateful and impossible.

And, lastly, because the new ethic opposed to our present ideas will lead them to reject, as far as may be, everything that can remind them of their former conditions and the past. This, at first, will result in bareness, pure and simple; but, as in the case of the Christian rejection of Pagan Art, it will ultimately stimulate to a new birth in Architecture, that will surpass all others that have been by just as much as the happiness and morality of the future shall be beyond all previous social conditions.

THE new Glasgow City Parish Lunatic Asylum, which has just been erected at Gartcosh at a cost of about £200,000, was formally opened last week.

MR. JAMES GREEN, F.S.I., has been appointed arbitrator by the Local Government Board for the purpose of settling the amount of compensation to be paid by the vestry of the parish of St. George's-in-the-East in respect of claims arising from an improvement scheme made under the Housing of the Working Classes Act, 1890.

SEVERAL workmen engaged in building the new mission Church of St. Clement's, Bank Street, Warrington, experienced a narrow escape of injury by the collapse of the gable end of a house in Mersey Mount, which faced the site of the Mission Church. The men had been clearing out the foundations quite close to the house in question, and it is thought that in this and the removal of a stable, &c., the foundations had been disturbed, with the result that, without any warning, the whole gable end, from foundation to roof, two stories high, collapsed, and fell on to the mission site.

## NOTES ON CONCRETE & CEMENTS.\*

BY JOHN JAMES HENDERSON, DUNDEE.

CONCRETE in the dictionary sense means a combination or union of separate particles into one mass, either by spontaneous or artificial cohesion or adhesion. In our more limited sphere the above meaning is applied to a mixture generally consisting of two parts, one called the aggregate, and the other usually but somewhat improperly designated the matrix, so that in both senses natural stone may be called concrete, and concrete may be termed artificial stone.† The uses to which concrete has been applied are so numerous as to challenge computation, while at the same time they compel our interest and attention. Foundations, garden walls, houses, street pavements, bridges, reservoir dams, wells, kitchen sinks, drinking fountains, gasholder tanks, in fact for any and every purpose in which stone or brick is used, there concrete may be used, and when ornamental forms are being made it is more generally spoken of as artificial stone. It may not be out of place to refer to a few examples of its use more in detail. In the matter of houses and garden walls I have no doubt you have examples of mansions, tenements, and cottages. In a cottage which I saw built some years ago, the walls and partitions were run up in the rough, and afterwards plastered over and lined to imitate courses of stone. Out-and-in band corners were formed of cement and sand in shallow moulds of hard wood, allowed to set, and then cemented into place, the cost of the whole being 25 per cent. under that of stone. Although it may seem too radical to the æsthetic mind, which would like everything to be cut or carved and show the marks of the workman's tools, yet

### GOOD CONCRETE PRESENTS SEVERAL ADVANTAGES

even over honest stone and lime. It can be made to resemble any species of stone, either sandstone or limestone, in the finishing. It is absolutely vermin proof, and can be made quite waterproof, and much more impervious to sound than any other species of walling. To jump from a cottage to the dam of the Liverpool Waterworks at Vyrnwy, in Wales, may seem a marvellous transition, but the main principle of the two examples is practically the same, the details being modified according to circumstances. The dimensions of this dam are gigantic, at central section 117ft. in breadth of base, 129ft. in height, 40ft. of which are below the original surface of the valley. The history of its conception and execution would deserve a lecture to itself, and places it alongside the Forth Bridge, the Eddystone Lighthouse, or the Manchester Canal in national utility and importance. What more immediately concerns us is a comparison of the detail of its construction with that of a house wall. In ordinary housework the concrete is made up with larger aggregate similar to broken road metal or gravel, but in the best class of work the coarser aggregate is omitted, leaving the concrete more resembling mortar, and in that mortar is embedded rough blocks of stone, making the resulting wall not unlike random rubble, but possessing infinitely more strength; in fact, such work now goes by the name of rubble concrete. Of course, the form and strength of these filling-in pieces will vary according to the locality of the work. In this Welsh waterworks dam the large stones vary in size from eight tons downward through all sizes to that of 2in. road metal. For the centre of the work these are dressed flat only on the bed, and any unshapely projections are hammered off. A 2in. bed of concrete mortar is spread over the prepared surface and the stone lowered upon it and hammered until

\* A paper read before the Edinburgh Architectural Society.

† I am not here referring to Ransome's artificial stone, which is obtained by dissolving fluids, and subjecting the resultant paste to chemical action, nor to the new process known as "Owen Stone," a combination of hydraulic lime and sand under a pressure of 80lb. to the square inch, and at a temperature of 250 degrees. From specimens and reports this stone appears to have a great future before it.



the concrete mortar rises up around it. The interstices are filled up with stones according to the size of the space, even the 2in. macadam not being mixed with the mortar, but like every stone throughout the whole monolithic mass hammered into place. By these means voids or air spaces are absolutely impossible, while in a house-wall constructed with frames the hammering cannot be so persistent, and the voids are not so prejudicial, because of the finishing coat of cement plaster or cement painting usually applied. On the face of the dam the stones are squared top, bottom, and sides, and the joints caulked after the manner of caulking the timbers of a wooden ship, but with cement very slightly moistened. In one of his lectures Professor Unwin quotes the remark of a visitor of large experience in masonry—that the Liverpool people have in this dam a piece of masonry not surpassed for solidity by any masonry in the world. The two sections show a portion of a pipe embedded in concrete, laid by the Romans for supply of water to their camp at Lindum or Lincoln about the beginning of the Christian era. The core is a clay pipe unglazed, and the surrounding concrete is of lime and burnt clay or other small-sized hard angular porous aggregate. This lime concrete, though excellent of its kind, and watertight under moderate pressure, does not possess the strength of cement concrete. I should like you to compare with the Roman work a portion of a pipe from the Imperial Stone Company of London made of Portland cement and crushed Thames gravel. This bringing together side by side of the ancient and modern shows us that the Romans knew how to take advantage of the materials around them, while it also marks the

#### GREAT ADVANCE IN THE ART

since their day. The Roman pipe, you will find, has been coated with concrete *in situ*, subjected only to so much pressure as by a maul in the hands of a workman; while this London pipe has been made under mechanical compression of several tons weight. This may be taken as one of the proofs that the pessimists are wrong when they say that work was better done in the olden times than now. The purchaser can still get a good article if he is willing to pay the requisite price. Possibly there was not the keen competition and cutting down of prices among the Romans which obtains in our day. This pipe is said by the makers to be suitable for forming wells. Not long ago I saw a well formed of rough concrete where the excavation had been taken out in hexagonal shape, and the well formed circular inside, the least thickness being about 8in. If a pipe had been used of larger size, say 30in. diameter and 2in. thickness of metal, it would have acted as its own timbering, and have sunk to its position in the gravelly soil while the material was being dug out inside. At the Dundee Royal Infirmary there is a very fine example of the application of concrete to steps or staircases, with the addition of colour, made of granolithic, by Messrs. Stewart and Co. It is an outside stair to the front entrance, and the span is 9ft. 9in. between iron flying stringer beams. In a biscuit factory recently erected in Dundee the floors are of concrete, formed of crushed gas retorts, to obtain a substance absolutely fireproof. At Messrs. Coates' thread mills in Paisley all its six floors are of concrete, the five upper floors being supported on iron columns, rolled iron beams, and cross shallow iron rails. One mill measures 400ft. by 150ft., and the other 200ft. by 96ft., or a total area of between eight and nine thousand square yards, five-sixths of which are hung in air. About eight years ago a tenement of houses built in Dundee was formed with a flat roof of concrete, with the washing-house upon it, and an enclosed ventilated space for drying purposes. Provision was made in the specification that asphalt could be laid above the concrete in case the concrete did not sufficiently resist the atmospheric influences, and the usual expansion and contraction of so large a surface. When I examined it the other day I found that no asphalt had been required, but that some leakage from the washing tubs had repeatedly come through

and spoiled the ceiling of the upper houses, showing that the concrete had answered its original purpose, but that the other artificers had been careless in their manner of carrying out the subsidiary works of pipe-jointing and draining. I have a sketch showing one of the earliest methods of embedding the iron within the concrete, either in floor or roof, so as to shield the iron from the possible action of fire, and the latest application of this method is to construct a bridge or a wall of a series of iron gratings, and bed the concrete all round these. In sea-walls, piers, or breakwaters, the use of concrete in one form or another has been almost universal, and its method, proportion and size as various as the examples themselves. At Dublin you have cubical blocks of 100 tons weight lifted by giant cranes and gently dropped into position. At Wick even larger masses have been formed in position, but on occasion of fierce storms masses of 1300 tons weight have been dislodged from their position by the action of the waves. At other places, such as Aberdeen, it is deposited in bags so as to adapt its shape to that of the rocky bottom. Then in some of the Indian breakwaters it is deposited in blocks of fifty or sixty tons weight, set on edge, so as to be pressed down into the soil or gravel and gradually attain to a firm foundation. Again, in other cases where the bottom is too yielding a mound of loose stones is deposited along the line of pier, and the concrete blocks or bags lowered thereon. The use of concrete for gasholder tank walls or walls of wet docks illustrates the progress made. Formerly there would be a brick or stone facing, with the concrete only used for subordinate positions, such as foundation courses, pockets, or backing. In the next stage the whole wall is formed of concrete, with large-sized aggregate, as at the South London Gasworks; and a further step will be to make the wall of thin slabs with small-sized aggregate, and supported by counterforts, or, as a London gas engineer calls it, the cellular system of walling, which is just Mr. Cunningham's cellular foundation turned on edge. On the London Metropolitan Underground Railway you may see portions of walling constructed with the bare concrete, but I would like you to notice there the unfinished appearance of the work, because the aggregate has not been small enough, and the face appears porous or honeycombed. A coat of cement plaster on the surface would not adhere for any length of time because of climatic and water conditions, and a washing of fluid cement would scarcely suffice to fill up all the pores; in fact, there are very few positions where the coat of plaster will adhere; as you can easily understand, the time that elapses between the erection of the wall and the application of the plaster has formed a skin to a greater or lesser extent, which prevents the adhesion. It is far better to use such aggregate as can be run or pounded close together and form the smooth surface at the first time of asking; which, to be sure, implies the use of smooth boarding or lagging flush-jointed, and any small pores showing on the surface can be readily filled up by washing or painting with fluid cement. Just as you have seen vegetation of a certain kind growing on natural stone by the roots getting into the pores, so similar vegetation will get into the pores of concrete, hence the necessity for attempting to fill up these pores. In building garden walls, it is advisable to form pillars or some other means at short intervals by which to allow for expansion and contraction, because it is not very slightly to see nicely plastered garden walls disfigured by hair-cracks at irregular intervals, and these can only be avoided by doing the work in sections, as is done by the Granolithic Company in its street pavement work. The expansion has been calculated by the late Mr. Cunningham through a series of experiments at 1 in 19·20, or one-eighth of an inch in 20 feet. If any of you happen to visit Blairgowrie; by looking out of the railway carriage window on the west side, just after passing Rosemount station, you will see a most unsightly example of cheap unfinished work in the shape of garden walls and gate pillars, crumbling rough edges, holes, and general disintegration. I recently learned that

concrete is used for ballasting fishing boats. In a description of the loss of a Cellardyke boat, there occur these words: "Being filled with fixed cement for ballast, there would be no chance of the boat floating." On making enquiry, I am told that one boat so fitted was not a success, because the solid run-in floor destroyed the boat's flexibility. In other cases, the concrete is only run in under the cabin, while in the forward part, boulders are used, with boards above the boulders, and fixings or divisions to keep the boards in place. These boulders sometimes shift if the boat is lying much over to one side, and so prevent the boat righting itself, while they are generally removed when the boats are drawn ashore for repairs or cleaning. It seems to me there is here a field for a practical philanthropist to induce the fishermen to use blocks of concrete—loosely fitted to the shape of the boat, loose from each other, and also loose from the boat. This would preserve the flexibility of the boat, and at the same time give more room and a flatter floor inside, while they could easily be removed and replaced when occasion required or necessity demanded.

(To be continued.)

#### Business Premises, Mosley Street, Newcastle-on-Tyne.

OUR Illustration represents a small block of business premises, comprising a ground floor covering the full area of the site, and is partially top-lighted; three upper floors, a basement, and caretaker's apartments. The elevation is built in red Ruabon bricks and red stone. The Architects are Messrs. Armstrong and Knowles, of the same town.

THE temporary dispersal of the collections at South Kensington Museum will soon be put in hand. We believe that it is in contemplation to send the pictures comprising the Chantry bequest to the Tate Gallery. The Peyre collection of wood-work and carving will also be dispersed.

THE Central London Railway Company has officially notified its withdrawal of the Bill deposited by it for the present session for power to acquire certain lands on the north side of Oxford Street, and to alter the position of its station under Oxford-street, near Marylebone Lane.

THE Barton House Estate, South Warwickshire, comprising an original Jacobean mansion, built by Inigo Jones in the year 1615 for Sir James Overbury, with its estate of about 750 acres, has just been sold by Messrs. John D. Wood and Company, of Mount Street, for £27,200, including the valuable timber.

An alarming incident occurred at the Royal Hotel, Ashby-de-la-Zouch, where a fall of stone coping and lead from the roof took place. Several tons of rubbish lay scattered along the front of the hotel. The porch leading to the entrance was greatly damaged, and a gas-pipe severed. The hotel is an old building, and much used by the visitors in connection with the famous Ashby-de-la-Zouch baths.

A NEW bridge across the Spey at Boat of Inch, near Kincaig Station, was formally opened last week by Mr. John Macpherson Grant, Ballindalloch and Invershie. The structure replaces another erected nearly 30 years ago. It cost about £1000, and the contractor was Mr. Roderick Fraser, Inverness. The new bridge is within a few yards of the spot where the Queen and Prince Consort were ferried over in September, 1860, on their tour from Balmoral to Grantown.

THE Municipal Commission on the Paris Metropolitan Railway has considered the objections raised by the Compagnie Générale de Traction against the modifications made in the provisional contract and specifications. The Concessionaire Company asks that it be compelled to establish stations in buildings in line with the houses only in exceptional cases. It declines responsibility for the good condition of the works of infra-structure, and objects to the clause making it incumbent on it to take up a portion of the loan raised by the city for carrying out those works.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS

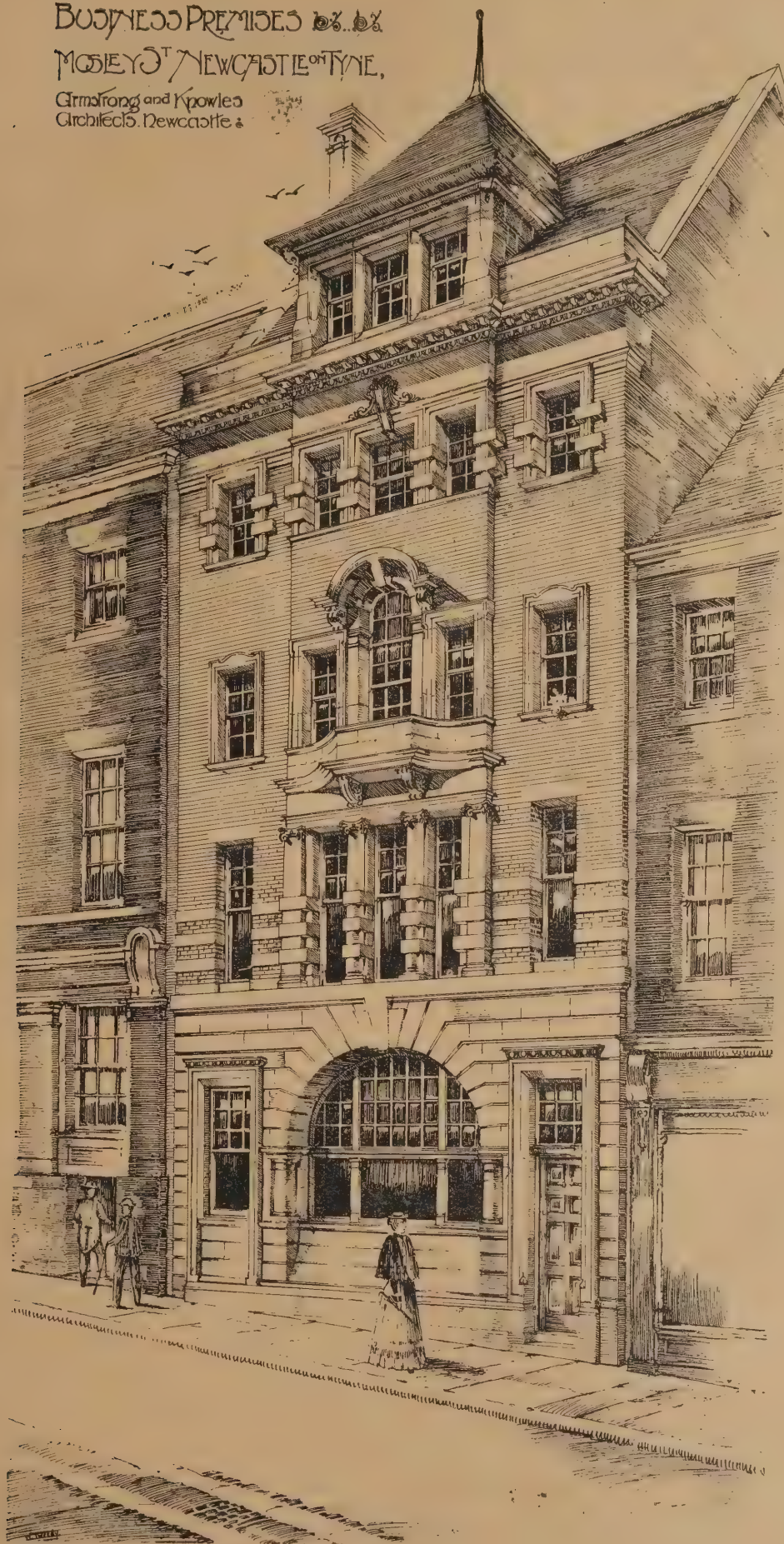




A PRIVATE CHAPEL, MATLOCK DALE, DERBYSHIRE. E. GUY DAWBER, ARCHITECT.



BUSINESS PREMISES NO. 10  
MOSLEY ST. NEWCASTLE-ON-TYNE,  
Armstrong and Knowles  
Architects, Newcastle.



BUSINESS PREMISES, MOSLEY STREET, NEWCASTLE-ON-TYNE.  
MESSRS. ARMSTRONG AND KNOWLES, ARCHITECTS, NEWCASTLE.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
June 23rd, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

If the Architecture of London is disappearing behind unlovely scaffolding, one comfort is that the County Council is diligently providing for the safety of those who will avail themselves of these points of vantage on Jubilee Day. Thanks to the consolidated system of local government now prevailing in the metropolis, and the ample powers vested in the Council, the most stringent regulations can be enforced against those speculators who are providing stands for the public at so much a head. The Architect's department is looking carefully to the solidity of the temporary platforms, a very necessary precaution; and not only is the strength of the supports minutely tested, but the structural plans are required to furnish adequate means of exit in the event of a panic arising.

FROM statistics, somewhat roughly taken it is true, we gather that the erection of stands on Constitution Hill consist of some 12,130 lineal feet. In Grosvenor Place and immediate adjoining spaces some 8,960ft. cubic of timber and over three tons of ironwork have been brought into use. From Hyde Park Corner to St. James's Street accommodation has been arranged for about 3500 occupants. St. James's Street in itself has provided temporary erections for 2500, and from thence to Regent Street will extend a chain of seats 8500ft. in length, most of which will be in double or treble tiers. It is said Charing Cross Station stand will have absorbed in its construction 630 tons of timber and four and a half tons of iron in bolts, nails, nuts, and shoulder-pieces. From the Strand to Cheapside it is computed that 198,525ft. of seating will be erected.

THE last stages of the decoration of the choir of St. Paul's Cathedral have now been reached. All the mosaics are finished, and the gilding of the stone bosses and the decoration of the mouldings of the panels of the choir arches are in hand. This final work is comparatively a small matter, and is now practically finished. Meanwhile, the decoration of the four quarter domes at the intersection of the transepts is being proceeded with. Mr. Richmond has completed his design for the first one, a representation of the Crucifixion; and has selected as subjects for the others the Entombment, the Resurrection, and the Sending Forth of the Apostles.

A STATUE of Mrs. Siddons, which has at last been erected near the grave of the great actress from a design of M. Chavilland and heartily approved of by the late Lord Leighton, was unveiled on Monday, the 14th inst., by Sir Henry Irving. The statue represents Mrs. Siddons as "Tragedy," sitting in a Greek chair similar to the famous marble ones in the "cavea" of the theatre of Dionysus on the slopes of the Acropolis of Athens. The marble selected, one of the hardest and most durable known, is from the Carrara quarries. The statue, which is of one solid block, and is placed on a boldly moulded pedestal of Portland

stone, on a raised platform of the same material, was modelled by M. L. Chavilland.

A STATEMENT with reference to the restoration of Rochester Cathedral has just been issued by Dean Hole. It appears that the total expenditure upon the west front and other works connected therewith was £7358. Besides this, between £600 and £700 has been expended upon the crypt. The old Norman work has been carefully preserved, and the southernmost aisle has been partitioned off into a series of vestries. Of the amount last claimed £500 was contributed by the Dean, as the result of his lecturing tour in the United States. It is now proposed to launch a larger scheme of restoration. It is desired to restore two of the roofs which were spoiled by being lowered in times gone by, and to build a new tower and spire in place of "the present deformity," as the Dean terms the existing tower. The estimated cost of this project is £20,000.

It would be extremely difficult to recall any exhibition of pictures where the whole sentiment of rest and tranquil beauty has been more fully conveyed than in those which are now on view at the Fine Art Gallery. They are the work of Onorato Carlandi, and are in water-colour. Their subject is Rome and the Tiber valley. To many visitors they will reveal a new Italy, seen through the medium of a somewhat melancholy temperament, which has been profoundly impressed by the dead glory of a long-forgotten day. The drawings are nearly all low-toned and of wonderful softness, but the work is direct and simple, untroubled by any working up. A very favourite subject with the Artist is the river, passing along between sandy banks, its colour muddy yellow, but wonderful in its liquidity. The landscape solemn in its solitude and stillness, the few trees leafless, their bare branches making a deeper note of colour.

THE Marquis of Dufferin and Ava laid the inaugural stone of the harbour in course of construction at Hastings last week. The work is promoted by local men, the contract price being £150,000. Some alterations, however, have been necessitated by the discovery of a mud bank, which will involve a further outlay. The acreage of the harbour in the deep part is to be twenty-seven acres. The two arms will be of the total length of 3000ft. The harbour at spring tides will have a draught of 13ft. of water, and the breakwaters will be 10ft. above high tide, the foundation structure being 15ft., and the superstructure 28ft. 6in. It is hoped to complete the western arm this year and to finish the eastern arm next year.

A CORNER of old Paris familiar to every tourist is shortly to be pulled down, but as the threatened buildings are altogether hideous the news will be received without regret. Every visitor to Notre-Dame has been disagreeably struck by the barrack-like erection on the southern side of the arm of the Seine. It is this eyesore, which is an annexe of the old Hôtel-Dieu Hospital, that is to be razed to the ground. With it will vanish the ugly wooden passage crossing the Rue de la Bucherie, which was a continuation of the Pont Saint-Charles, known as the "Bridge of the Dead," because it was traversed by the bodies on their way to the Saint-Julien-le-Pauvre Mortuary. On the space thus obtained the municipality intend erecting schools.

It has now been decided, with the concurrence of the Dean and Chapter, to erect in St. Paul's, where Lord Leighton is buried, a monument in the form of an altar tomb, supported by appropriate emblematic figures. The commission has been intrusted to Mr. Thomas Brock, R.A., who has furnished a design most satisfactory to the sub-committee. At present the total amount subscribed is about £2400.

THE Leeds Art Gallery Sub-committee has decided to recommend the purchase of three works which have been shown in the spring

Exhibition. They consist of two water-colours, "The Old Barn Door" and "Sunlight on the Hills," by G. C. Haité, and a large oil painting by Thomas Millie Dow, entitled "A Village in the Appenines." The Free Public Library Committee confirmed the recommendation, and resolved to purchase, subject to the approval of the City Council, oil paintings by Alfred East, Madame Ronner, R. Vicat Cole, James Clark, Owen Bower, W. L. Llewellyn, and R. C. Robertson, for which offers were made last month. It was, at the same time, decided to buy a metal plaque by G. Bayes, a bronze statuette by Beguina, and a bronze door-knocker by Alfred Stevens.

SEVERAL interesting items were included in the second day's sale, by Messrs. Sotheby, Wilkinson, and Hodge, of works illustrated by George Cruikshank, the property of Mr. W. H. Bruton, of Gloucester. "The Meteor; or, Monthly Censor, a Critical, Satirical, and Literary Magazine," with etched initials by Cruikshank, in 2 vols., fetched £73; "Wit's Magazine and Attic Miscellany," complete with humorous coloured plates, sold for £56; Illustrations to "Punch" and "Judy," the complete series, with plates, fetched £29; W. H. Maxwell's "History of the Irish Rebellion in 1798," in which the Artist has written "First proof, George Cruikshank," £45 10s.; "The Ingoldsby Legends," with proof illustrations, £29; and "The Humorist," a collection of entertaining tales and anecdotes, with coloured plates, first edition, £60.

At the forty-third general meeting of the shareholders of the Suez Canal Company held in Paris, reference was made to a scheme for a commemorative monument of the services rendered to the whole world by Ferdinand de Lesseps. "At Port Said," said Prince d'Arenberg, "there is at the very entrance to the canal a site where the statue of Ferdinand de Lesseps would stand out against the perennial blue sky of Egypt, and no one in days to come could enter the Suez Canal without having before his eyes the image of the man who, by his genius and indomitable energy altered the relations between peoples, and completed the work of nature, by abridging distances to the great benefit of humanity." The cost, amounting approximately to 250,000fr., would be spread over five years. The proposal was adopted unanimously. M. Fremiet, the sculptor who has been commissioned to execute the statue, says the monument will be four times life size. M. de Lesseps will be represented standing with the plans of the canal in one hand, and the other hand pointing towards the entrance. Upon the granite pedestal will be medallions representing in bas-relief the portraits of the three Khedives who encouraged the construction of the canal. It is expected that the statue will be finished and placed in position within two years from now.

At the seventh annual conference of the Council of Church Bell Ringers held at the Church House, Westminster, it was resolved that, having regard to the lamentable condition into which a large proportion of English bells, many of them of historic and priceless value, have been allowed to fall, a return should be prepared of the present state of all the more important peals, with the view of drawing public attention to the matter.

In an out-of-the-way spot on the north-west coast of Spain is a novel memorial which should be of interest to all British as well as Spanish subjects, for it is here that a tablet is erected by the British Admiralty to the memory of those who lost their lives on board the *Serpent* when she was wrecked in the neighbourhood. The tablets are secured to a huge mass of rock, on which the cross stone is supported. The left lower tablet is that of the *Serpent*; it is made of marble, and is let solidly into a recess in the rock. The right lower one is in memory of a Spaniard—D. José Vlanova Y. Vilar; this tablet is of marble, and is let solidly into the rock. Of the upper three, the one to the left is in



memory of the Reina Regente, and the centre one appears to be the official dedication.

THE Old Bell Tavern and Hotel in Holborn, one of the last, if not the very last, of the famous ancient London hostelries that still remain to us in anything like their original shape and form, and which, as previously stated, is shortly to be sold by auction and pulled down, stands in one of the most picturesque parts of Holborn. There are the heavy wooden gates that have swung on their hinges ever since the Old Bell was built on the site of the inn that it is said was there 300 years ago. There, to the left, as you pass them, is the queer little old kitchen of the establishment, and next to it the cosy little private parlour. Then there are the numerous little bedrooms for travellers opening out from the wooden galleries; and on the right is a long row of ghostly-looking little bells that have been rung many and many a time by travellers that have long ceased to travel. Below the bells is the cosy old coffee room, and close at hand the little hotel bar for those who still haunt the old place. All is just as it used to be in the good old days of comfortable inns. As we face towards the back of the house we catch sight of a tiny figure of Napoleon standing in a small niche above the gateway. The present occupier of the premises thinks the brick portion of them was built about 1720. Stowe's survey of 1633, brought up to date of 1720 by Strype, mentions the Bell as one of "several considerable inns very much frequented by wagons, coaches, and horses, from several parts of England, chiefly westwards and northwards." Therefore it is reasonable to allow, as is claimed by those interested in the old place, that in the days when the players were not very well provided with theatres, entertainments were frequently given in the old inn yard.

For some months past the front of the Sun Offices, at the corner of Threadneedle Street and Bartholomew Lane, has been concealed by a huge mass of scaffolding, which has been erected for the purpose of allowing extensive alterations to be made. The original offices of the Company were next to the Old Crown Tavern, in Threadneedle Street, and, together with the tavern, were cleared away for the additions to the Bank of England in 1770. When the Church of St. Bartholomew-by-the-Exchange was removed in 1841, the site at the corner of Bartholomew Lane and Threadneedle Street was secured by the Company for new offices, and Professor C. R. Cockerell, R.A., the Architect, prepared the design for the offices which were erected on that spot. There are several other examples of Cockerell's work in the City, notably the offices of the London and Westminster Bank in Lothbury, which were erected in 1837. The Sun Offices were built of Portland stone, and consisted of a large block, with a ground floor and three upper stories. The top floor was very shallow, with small, low windows, and the roof was supported by a row of stone columns rising from the level of the second floor. In 1893 the old premises situated next to the Sun office were secured by the Company for the extension of its premises, and, with the idea of adding a new floor to the existing offices, plans were prepared for the erection of the new building, which was designed by Mr. F. W. Porter, of Russell Square, to correspond with the proposed alterations in the frontage of the old building. The new offices consist of a ground floor and four upper stories, and, in order to make the whole correspond, the top story of the old building has been raised to range with the new portion, and the extra floor has been continued all round the building. The columns, which originally sprang from the level of the second floor, have been raised a story, and are now placed on pedestals so as to heighten the upper story. This alteration, of course, amounts practically to the destruction of Cockerell's design, and the result, which will be revealed on the removal of the scaffolding, is awaited with considerable interest. The new building is entirely devoted to the needs of the Life staff, whilst it is hoped that the extra story will afford sufficient

accommodation for the Fire staffs. The work of alteration has been one of considerable difficulty, and has necessarily proceeded slowly, as the business of the Company has been transacted in the offices throughout the alterations. It is, however, hoped that before the end of the year the alterations will be completed.

THE loan collection of works of Art which has occupied the walls of the Bradford Corporation Art Gallery in Darley Street for the past few months, closed a few days ago and opened again this week with a collection of works by J. M. W. Turner, R.A. As is well known, Turner left at his death the whole of the artistic contents of his house to the nation, and it is a striking testimony to the industry he displayed that there were among those works no fewer than 19,000 drawings—some being mere pencil notes, but many elaborate paintings in colour. Mr. Ruskin spent a considerable time in going through the vast mass for the National Gallery, and besides the more important works which are hung in the cellars in Trafalgar Square, he selected works to form travelling collections representing Turner's different periods of work. Other collections have since been formed, and five are now in course of circulation through the country, one of them being recently on view in Leeds. The collection to be shown in Bradford is the sixth of the series, and has never yet been exhibited, the fifty-three works composing it having only recently been selected from the great mass of drawings still lying in the National Gallery's strong rooms. In addition to this valuable exhibit, Mr. Merton Russell Cotes, F.R.G.S., of Bournemouth, has lent for exhibition a small collection of works by modern Artists. Many of these are by very well-known Artists, one of the most delightful being a sea piece by the late Henry Moore, A.R.A.; and Mr. Marcus Stone, R.A., Mr. E. Long, R.A., Mr. Erskine Nicol, R.A., Mr. J. McWhirter, A.R.A., Mr. Colin Hunter, A.R.A., the late G. B. O'Neill, Mr. C. W. Wyllie, Mr. W. Denby Sadler, and others are represented.

OCTOBER will probably witness, in the laying of the foundation stone, the first public ceremony connected with the removal of Christ's Hospital from its home in the City to the country estate that has been purchased at Horsham. That the decision of the almoners was the reverse of a wise one we are fully convinced, but now that the step has been irretrievably taken it is useless to further protest, and all that remains to be done is to strain every nerve to minimize the disadvantages and utilise to the full the advantages associated with the change. The Council has a hard battle before it, and it will need the united assistance of all who take an interest in the hospital, and we earnestly hope that its success in the future will rival its glorious traditions. Only by a united effort indeed will it be possible to avert the fate that so many fear is certain to follow in the wake of the sudden breaking away from old associations.

THE rival Paris Salons are drawing to a close, and in a few days they will be numbered with the past. Neither of them, perhaps, contained anything so remarkable as the four pastels which Rosa Bonheur exhibits in the gallery of Georges Petit, and to which all lovers of Art should pay a visit. The Artist is now in her seventy-fifth year of age. Her reputation dates from a long time back, and those who have not seen her works would be able to form some opinion of her talent by going to the Luxembourg, where they would find her "Labourage Nivernais," which was exhibited in the Salon of 1849, and bought by the State for 20,000 francs. The first painting of Rosa Bonheur appeared in 1840, and represented two rabbits nibbling some carrots and turnips. She continued to contribute to the Salon up to 1865, when, on the request of the Empress Eugénie, she was decorated with the Red Ribbon of the Legion of Honour. The pastels she now exhibits were completed in a year. One of them represents a number of stags wandering in a forest at moonlight; another shows us a drove of bisons in the snow; while a third portrays a flock of sheep

sleeping under the trees. They are all admirable for their wonderful fidelity to Nature.

DR. HUNTER-SELKIRK, of Braidwood, has presented the whole of his unique antiquarian and geological collection to Kilmarnock Museum. Dr. Hunter-Selkirk's museum, which is henceforth to be incorporated with that of Kilmarnock, is well-known as one of the most valuable and extensive in the possession of any private individual in the kingdom. Among its treasures are 30,000 old coins, mostly British, but including many rare foreign specimens. Old swords and guns, relics of Drumclog, Bothwell Bridge, and other Covenanting battles, are numerous, as are also articles illustrative of civilisation in the past, and curiosities in the shape of old watches, watch-keys, snuff boxes, &c. One of the finest sections of the collection is the old pottery, which includes many examples of rare Wedgwood ware.

THE Archaeological section of the Birmingham and Midland Institute recently visited The Nash, the seat of Sir Richard Temple, Bart. The Nash presents the appearance of a delightful Elizabethan manor house, and the greater part of it would be correctly so described. But the original mansion must be of much earlier date, as may be seen by the enormous thickness of the walls in certain places—capacious closets being actually ensconced in them. Several of the rooms are of great interest, being practically unchanged since the days of Shakespeare and of good Queen Bess. In this respect the dining-room is conspicuous. The old Elizabethan oak panelling, which, after being painted most of the colours of the rainbow, has been carefully restored to its original simplicity by the present owner, is yet more recent than the singularly fine ceiling in elaborate plaster work; and the hooks for supporting the tapestry, which the wainscot replaced, were discovered in the course of recent renovations. The overmantel is an elaborate and beautiful religious subject, apparently Italian. The hall is also a very fine room, and there are peculiarities in the domed ceilings of two apartments and in other internal arrangements which are deserving of careful study. The bedrooms are quaint, unexpected in shape, prodigal of unlooked-for corners, and suggestive of perfect comfort. The walls are covered with the paintings of three generations, among which the vivid depictions of Indian scenery by Sir Richard Temple himself are conspicuous. Rare prints, choice furniture of all ages, from Tudor times to the Sheraton period, decorative paintings on marble, attributed to Angelica Kauffman, a well-arranged and most attractive library, medals, miniatures, old china, priceless autographs, collections of Indian arms, fine overmantles, trophies of the chase, and family portraits, are everywhere in bewildering profusion.

A PUBLIC meeting, presided over by Lord Russell of Killowen, was recently held in the Hackney Town Hall to consider the steps to be taken for the establishment of a Technical Institute for the locality. The meeting was convened by the Hackney Vestry and the Technical Education Board of the London County Council. Lord Russell said the object of the meeting was to secure the establishment in Hackney of a fully-equipped technical institute, with allied trade classes, in order that the inhabitants of this working-class community might have the benefit of the most modern applications of Art and Science to the handicrafts of every-day life. The last attempt, made in 1891-2, to establish such an Institute proved unsuccessful, though funds in the hands of the Commissioners of the City Parochial Charities were available. It was proposed that the existing Sandringham Road School of Art and the North-East London Institute, which did not meet the requirements of the district, should be amalgamated, so as to form part of the proposed polytechnic. £5000 had already been secured from the Sir John Cass Foundation Funds. If the local support was freely given in this matter, assistance would be received from the Technical Education Board of the London County Council



—a body which had the administration of a large sum of money every year for the furtherance of technical education. These polytechnic institutions were rapidly increasing in numbers in the country, and, as far as the metropolis was concerned, when Woolwich, for instance, was able to obtain £5000 a year, Hackney ought, by bestirring itself, to secure increased educational advantages. He was willing to contribute £100 towards the sum to be raised by subscriptions on condition that £1000 was subscribed by Hackney.

THE Emperor William has caused a small barrack to be erected for him in the garden of the garrison hospital in Heligoland. The barrack is about 30 metres long by 15 wide, and is in the shape of an octagonal. On one of its sides is a small closed verandah. The interior of the barrack is divided into two parts by a passage. On one side are the Emperor's study and bedchamber, on the other side a bathroom and servants' room. The little edifice is painted grey-green outside, and inside white with brown and gilt ornamentation. In the latter the Prussian eagle plays a principal part.

At the annual Congress of Archaeological Societies, which will be held at Burlington House in the course of the present month, progress will be made with the scheme discussed last year for compiling a general catalogue of historical portraits throughout the country.\* Although it obviously involves some difficult and delicate questions, the idea is so excellent that one must wish it all success. Would it not be possible to utilise such a catalogue—possessing, as it will, an authoritative character—for deciding some of the points that arise under the Finance Act? There is, perhaps, no more eloquent testimony to the cruel strain the new death duties are inflicting on the old landed houses, already crippled by agricultural depression, than the way in which some of them are now being forced to sell their family portraits.

"THE Bishop of Chester has called attention in your columns to a very important question of Church planning," writes Mr. W. D. Caröe to the Times, "one which has been the subject of much anxious consideration upon the part of all thoughtful workers in Ecclesiastical Architecture. The document from which the Bishop quotes is a very familiar one, but the cloudiness of its conclusions and the absolute impossibility of their application in many instances render it comparatively useless except as a basis for further discussion. Neither does this document nor the Bishop's letter touch upon one aspect of the question to which, in these days, a great many of the surrounding difficulties may be traced; I allude to the frequent "monstrosity" of the modern organ, using the term in its fullest sense. It is more often than not that the organist and organ-builder can think of nothing but the magnifying each of his office, and the result is a prodigious erection quite incommensurate with the musical needs of the Church, out of harmony and scale with its proportions. Too frequently it is planted down to hide from view, if not actually to destroy, some object of beauty or antiquarian interest—a burden not only upon the edifice which it defaces, but upon the parishioners who have to pay for it. The sufficiency of the 8ft. harmonic pipe cannot be sufficiently urged instead of the 16ft. open; such a disastrous introduction into most Churches of moderate dimensions not originally constructed for it. If the York Committee will give its attention to the size of organs as well as to their disposition, and circulate some authoritative statement tending to curb the exaggerated notions of organists, they will be helping 'the adoption of more suitable arrangements for musical purposes' not a little, and secure the avoidance of much needless injury to many an ancient edifice. Even if commensurate in size to its surroundings, the organ is one of the most important, as it must be one of the most prominent, of Church fittings. Its construction is such that it can adapt itself readily to the highest and best of

artistic treatments—that of suitability and fitness not only to its environment, but to a proper expression of itself and its uses. Yet in most cases it succeeds in being the most ill-designed and generally the most vulgar erection imaginable. One point may be mentioned in reference to the much-abused organ-chamber. If the organ is too powerful for the Church, or too raw and blatant in tone, the best thing that can be done with it is to put it away in a properly-designed chamber, which, after all, is only after the manner of a swell-box in another form. The construction of the organ-chamber or 'place,' if the term be preferred, is thus also deserving of the York Committee's attention."

WE have already commented on the fortunes being made just now by the builders engaged on the erection of stands. Equally fortunate are the firework manufacturers, who are so inundated with orders that they scarcely know which way to turn, and are compelled to work day and night to cope with the demands made upon them. Prices have gone up to a fabulous extent, and, as the labour involved is small, each increase practically means so much additional profit. Not quite so fortunate, though very nearly so, are the firms that make a special feature of decorations and illuminations. In their case, however, the labour bill is a very costly item. Further, the prices are being "cut," whereas, as regards fireworks, all the trade rests with half-a-dozen firms, and the prices asked are readily accepted.

MR. R. BUTSON, surveyor, of Chancery Lane, forwards a letter in reference to the discussion last week at the meeting of the City of London Tradesmen's Club on the question of the erection of stands inside private houses and shops. Mr. Butson thinks that the protest entered at that meeting against interference with the inside of houses is quite out of the question in a matter so closely affecting the lives and limbs of the general public. He points out that the persons who have let their houses for the erection of stands have, by that very act, turned their rooms into places of public entertainment, and thus confiscated the right of self-control and privacy. If, argues Mr. Butson, the London County Council is right in enforcing its laws for the protection of the people outside the City, the attitude which the Commissioners of Sewers have assumed inside the City, by shutting their eyes to probable danger, is altogether wrong, and, should an accident occur which by ordinary prudent foresight might have been avoided, will at least shatter that confidence which the public should have in the rulers of this grand old City, and spoil the Jubilee celebration.

MESSRS. CHRISTIE, MANSON, AND WOODS sold on Saturday week the collection of pictures of the late Sir W. W. Burrell, and pictures by old masters, the property of Lord Waterpark. The Burrell pictures, eighty-four in number, realised £2200, and included two examples of George Romney, first a sketch in oils of Lady Hamilton, seated, resting her head on her right hand, in white dress, 24in. by 20in., 850 guineas. This portrait, the face of which has obviously been tampered with by either a restorer or cleaner, bears a striking resemblance to the beautiful sketch in the James Price sale of 1895, which realised 2030 guineas. The second Romney was an exceedingly good portrait, well preserved, of John Dunlop, in brown coat and wig, painted in 1778, 30in. by 25in., 125 guineas. The other pictures in this collection included works by J. Van Goyen, Sir T. Lawrence, A. Van der Neer, and J. Ward, R.A. Lord Waterpark's pictures included two portraits of William, fourth Duke of Devonshire, both by Sir Joshua Reynolds, in one of which the Duke is represented with robes and Order of the Garter, holding wand of office in his right hand, 50in. by 40in., 300 guineas. In the second portrait he is in a grey coat, with blue and gold facings, powdered hair, left hand resting on his sword, 50in. by 40in., 240 guineas. Other properties included: Zuccheri, portrait of Queen Elizabeth, in green dress, lace ruff and veil, and jewelled head-

dress, holding a fan in her left hand, 36in. by 27in., 82 guineas; A. Cuyt, "La Pêche au Saumon," a youth showing a salmon to a gentleman on horseback, signed, 42in. by 31in., 145 guineas.

THROUGH the breaking of a dam, brought about by the heavy rains, the town of Voiron, near Grenoble, has been the scene of most serious floods, several lives having been lost. It appears that the small River Morge, on which Voiron is situated, rose suddenly to the height of 18ft., causing a dam just above the town to give way, and the water rushed down in a terrific torrent. Two bridges were washed completely away, others were greatly injured, while several mills and factories have been destroyed, the amount of damage done being estimated at 10,000,000 francs. Voiron, which has a population of 12,000, is now without gas, and as many as 4000 men are thrown out of work by the washing away of the mills and factories which stood on the banks of the river.

FROM further particulars to hand respecting the electric light which is to appear on the central tower of Lincoln Cathedral on the night of the Jubilee, it appears it will be 20,000 candle-power more brilliant than in 1887. Altogether there will be 42 arc lamps, each of 2000 candle-power, or a total blaze of 84,000 candle-power. Thirty-six of the lamps are to be used in surrounding the top of the rood tower, ten appearing on each of the three sides, east, south, and west, and six on the north, the remaining six to be erected on a scaffold in the centre of the tower, 30ft. higher than the 36 others. The arrangement of the lamps is far more effective than in 1887. Six are of a much greater altitude, and every alternate one is to be enclosed in a glass globe, so that the light will not be subject to the variations of wind. Given a clear night, therefore, the glare will be visible for some hundreds of miles. The lights are to be taken from a large dynamo, which has been removed to the Dean's garden, on the north of the Cathedral, where it will be driven by a compound portable steam-engine of about 70 h.p.

CHELSEA sunsets are famous all the world over, and to imitate their glowing colours forms the ambition of hundreds of artists; but when they are accompanied with the unattractive odours which come from heaps of refuse cast indiscriminately on the river when the tide is low, the pictures of the Reach prove much more enjoyable than the reality. Painters are beginning to complain that the disreputable condition of the stretch between Battersea Bridge and Cremorne Tap threatens to deprive residents of these glorious sinking suns and strangers of their counterfeit presentment, because the odours which arise from the mud of the banks prevent the former from leaving their houses to witness them, and drive away the artists who desire to transfer the scene to canvas. The subject was discussed at the meeting of the Chelsea Vestry, and a communication was received from the Thames Conservancy in which it was suggested that the Chelsea Vestry should endeavour to prevent the deposit of refuse in the river, and it was agreed to ask the Commissioner of Police to issue instructions to the constables to deal properly with offenders. With the aid of a few vigilant policemen the sunsets of Chelsea may be expected to regain their old magnificence and charm.

THE place of M. Billotte's landscapes has been taken at the Goupil Gallery by about sixty paintings and drawings by Mr. J. Buxton Knight. Mr. Knight is a devoted student of nature, and his work is said to be done entirely in the open air. He is a lover of broad, rich effects, which he paints with a bold brush and a palette in which reds, browns, and purples predominate. Probably he would call himself a follower rather of Constable than of Turner, and he has many points of contact with the French landscapists of the day, among whom, if we mistake not, he has sometimes worked. It is difficult to select where everything is so sound in intention, but, perhaps, the little pictures of the golf ground of West



Drayton and of the neighbourhood of Charleywood, and the water-colour sketches of Ramsay, Dover, and Worthing are as characteristic as any.

IN one of the best positions in Park Lane the late Mr. Barnato elected to build his house. Some idea of the place can be given by saying that the freehold cost £70,000, the building £41,000 more, and the interior decorations nearly £30,000. It is a five-story structure, built of Portland stone, and commanding one of the finest prospects in London, the Crystal Palace in one direction and Highgate in another. The work of preparing the site for the superb building which now attracts the notice of every passer was begun in October, 1895, the actual building operations not being commenced until a few weeks later, the architect being Mr. T. H. Smith and the builders Messrs. Colls and Son. The house includes a ball-room—a magnificent one, with 2000 square feet of dancing floor—two drawing rooms, a conservatory, winter garden, dining, reception, morning, and billiard rooms, and a splendid hall. The first thing to strike the visitor is the grand marble staircase, with its statuary and ornaments, the wonderful balustrades, and the dadoes in wainscot oak. This staircase is four flights in length, and is lighted by a glass dome in the top of the house. The style of the interior is Renaissance, tinged with the slightly more florid taste of Louis XIV., the characteristics of which are greater freedom of ornamentation, ivory white and gold finishing being everywhere used, with a fine effect of lightness and elegance. Both the inside and the outside of the mansion might be described as a free treatment of the early Italian Renaissance, adapted to modern requirements, the statuary and carving being carried out in harmony with the style of the seventeenth century. All the floors are heated by hot water radiators.

It is probably not generally known that one result of Mr. Tate's new Gallery at Millbank is to be the destruction of the National Gallery, as we know it, at Trafalgar Square. The work has begun already, and the carpenters are now busy in the west wing of the gallery taking down and removing the pictures destined for Millbank. The selection does not seem a very happy one, nor is the principle which guides it quite intelligible. If our National Gallery is to harbour any of our own modern masters—which is surely a desirable arrangement—the collection, though small, says the Daily News, might at least be made representative. There is a great deal we would gladly see relegated to the new building, works that seem a little out of key with their present surroundings, and yet examples of our own school too characteristic to be passed by. One may be glad enough to miss from one gallery and to recover in the other Maclise's "Hamlet," Leslie's "Sancho Panza," Goodall's "Village Holiday," Stanfield's "Zuyder Zee," Webster's "Dame School." Productions of this kind are, as it were, dates in the history of English Art.

THE choice collection of old mezzotint portraits after Sir Joshua Reynolds, formed by the late Mr. Henry Tootal Broadhurst, of Beauchamp Hall, Leamington, came under the hammer at Messrs. Christie, Manson, and Woods' last week. The principal lots were as follows:—Mrs. Abington, as "The Comic Muse," whole length, by J. Watson—150 guineas; Mrs. Beresford, with the Marchioness of Townshend and the Hon. Mrs. Gardiner, by T. Watson—120 guineas; Lady Carlisle, by James Watson—160 guineas; Mrs. Carnac, by J. R. Smith, first published state—265 guineas; Lady Betty Delmé, by Valentine Green—250 guineas; Duchess of Gordon, by W. Dickinson—100 guineas; Lady Jane Halliday, by Valentine Green—150 guineas; Countess of Harrington, by the same—285 guineas; Miss Nelly O'Brien, by J. Watson—195 guineas; Mrs. Pelham Feeding Chickens, by Valentine Green—190 guineas; Countess of Salisbury, by the same—110 guineas; Viscountess Townshend, by the same—130 guineas; and the Ladies Waldegrave, by the same—560 guineas.

The last is said to be the highest price paid at auction for a mezzotint engraving. The sale also included a complete set of Turner's "Liber Studiorum," in two cases, mostly in first states—£130. The day's sale of 117 lots realised nearly £5000.

THESE are a few of the pictures that are now in course of removal. On the same grounds which most of the Landseers are left we are glad that some should be taken, and "Diogenes and Alexander," and the "Maid and the Magpie" seem a very fair choice for transportation. So, too, if a Wilkie is to be taken, "John Knox Preaching" is the one we should part with with least regret. But is it quite right to leave an artist like Müller unrepresented, or inadequately represented? If we send away the "Street in Cairo" might we not at least retain the "Dredging in the Medway"? Neither picture has as yet been removed, but both have been "selected." The National Gallery has three recently-acquired Rossetti's; we are to lose them all. At least an exception might have been made for the exquisite "Annunciation." We may still see in Trafalgar Square two examples of Fred Walker—"The Vagrants" and the beautiful "Haven of Rest." The latter for the moment hangs on a screen in the Turner Gallery, and holds its own among its imaginative surroundings. Here is a work we would be proud to show to any visitor, who, after lingering amongst the Reynolds and Gainsboroughs, might inquire what more recent English art has achieved. Both pictures are starred for removal. Is it too late to suggest that these decisions should be reconsidered?

MR. REGINALD BLOMFIELD has in the press an important book on the influence of the Renaissance upon English Architecture. We understand it is to be a comprehensive and exhaustive work, bringing the history of the movements and changes in Architecture down to the end of the last century, and is to be profusely illustrated with reproductions of drawings by Wren, Inigo Jones, and other great Architects of the period, as well as with many sketches by the author. Messrs. Bell and Sons will publish the book.

THE agitation against the Bill now being promoted by the Dock Board for the construction of a cattle jetty at Bootle appears likely to result in the Liverpool Corporation dealing in an effective manner with the long-standing question of the abattoirs, and providing at the same time a cattle market under municipal control. As to the building of new abattoirs, the Corporation has in view a spacious site in close contiguity to the north central docks, and affording all the necessary facilities for general railway communication. The continuance of the city abattoirs in their present situation in the midst of a crowded part of Liverpool is certainly not probable in any event after the Corporation lease has run out, as it will do in the course of a not very extended period. The suggested new site is free from objection on that ground, being surrounded by manufactories and warehouses, and comparatively close to the river. At a meeting of the Markets Committee of the City Council it was unanimously resolved—"That the Surveyor be requested to inquire and report verbally to a subsequent meeting of this Committee whether a suitable site can be acquired at a reasonable price of sufficient size to enable the Corporation to erect public abattoirs and cold storage premises, particularly with a view to giving accommodation for the Irish and Scotch trade; also whether a suitable site can be acquired for a live cattle market, in view of Stanley Market being closed."

MR. JOHN CASSIDY, of Lincoln Grove, Manchester, has just completed a large statue of the Queen, which is in many respects a highly interesting piece of work. The Queen is represented standing, with an olive branch in her right hand and the sceptre in her left. The dress is of lace, over which fall at either side the royal robes, and on the head is a crown. The features are treated somewhat conventionally, but the pose of the figure is full of

dignity, and the rendering of the lace, with its bold pattern, is clever. When the statue is placed in position, high up on the front of the new buildings at Belfast for which it is designed, this simple but original ornament should produce a rich and pleasing effect, and will at any rate save the statue from the reproach of being monotonous or commonplace, like so much of the sculpture in our streets and squares. The figure is carved out of greyish white Portland stone—a somewhat intractable material that must have added considerably to the difficulty of the task.

THE mace which Messrs. Elkington and Company are preparing for presentation to the City of Birmingham will be completed in about a month's time, and promises to be a fine example of Birmingham Art metal work. It will be of silver gilt, and will weigh between 150oz. and 200oz. The design is by Mr. A. Williams, while the execution is chiefly by Mr. Thomas Spall. The head or bowl portion of the mace is divided into four panels, one of them bearing a bold representation of the city arms, while the others are occupied by emblematical devices, in which figure respectively the rose of England, the thistle of Scotland, and the Irish harp and shamrock. The panels are divided by leafage of oak, emblematical of strength. An open Imperial Crown surmounts the head. This portion of the mace is joined to the stem by graceful brackets, formed out of the figure of Britannia, while the stem, suitably divided by bosses, will have spiral repoussé enrichment of oak and laurel. In the terminal boss will be inserted a crown piece of the present year's coinage.

The thirteenth Centenary Fund for the Restoration of Canterbury Cathedral now amounts to close upon £17,000.

A MARBLE bust of the late Master of Balliol has been placed in the gallery of the Bodleian Library by the Jowett Memorial Committee.

At a recent meeting of the West Bromwich Guardians it was decided to spend £2000 in extending the West Bromwich Workhouse.

WIGAN is commemorating the Jubilee by the erection of a technical college at a cost of £40,000.

MR. EMERSON BAINBRIDGE, M.P., on Wednesday last laid the foundation stone of a new Town Hall at Kirton Lindsey.

SIR BLUNDELL MAPLE, M.P., has erected at Harpenden a Home for the temporarily invalided, and Almshouses or Homes of Rest for the aged.

THE Nottingham Town Council has decided upon purchasing the local tramways. The proprietors' shares are to be acquired at par value, the total cost involved being £80,000.

THE foundation stone of a new Roman Catholic Church was laid at Beverley on the 15th inst., and at Kirby Moorside a Roman Catholic Church, which has recently been erected, was opened for service.

THE Court of Assistants of the Drapers' Company has offered to erect a building, at a cost of £15,000, to accommodate the Radcliffe Library at Oxford University, which has outgrown its accommodation.

ON the report of the Standing Joint Committee, the work of the Worcester County Council has necessitated a considerable enlargement of the county buildings, and it has been decided to add a story to either wing, a tender being accepted for the completion of the work for £3197.

A NEW Free Church has been erected at Craigneuk, Wishaw. The Architecture of the new building is a type of Gothic similar to some of the early Churches. Its interior is plain but comfortably furnished. The Church is seated for fully 500, with a vestry and hall to accommodate 150, and the estimated cost is £2150.

MESSRS. CLEMENT WELER and LOCKER, of Birmingham, announce for sale an interesting collection of pictures, including representative works from the brush of Peter Graham, Sidney Cooper, G. H. Boughton, Charles Jones, B. W. Leader, Frank Holl, John Pettie, McWhirter, H. Pennell, Phil. Morris, Erskine Nicol, and other painters of high repute.



## Professional Items.

**ARBROATH.**—Alterations are at present being carried out by the School Board at Keptie School. These consist of a considerable extension to the school accommodation and various improvements on the school building. The new room will contain 75 places. Besides this classroom several internal alterations are being made in the school. With a view to making some improvements, the infant department has been altered and enlarged. Then the front classroom on the east side has been enlarged by clearing out the female teachers' room, and a new room and lavatory have been formed in the large lobby and coal-house on the east side; a new entrance from the front has also been provided. A new system of heating has been introduced, the whole school now being warmed with hot water instead of open fires. A new entrance for carts is being formed from Keptie Street, and the drainage of the school is being entirely renewed. The following are the contractors:—Mason work, Alexander Reid; joiner, A. M. Soutar; slater, John Mitchell and Sons; plumber, John Rayne; plasterer, Middleton and Donald; painter, W. L. Grant; heating engineer, James Keith—all of Arbroath. Plans have been prepared by Messrs. Carver and Symon, Architects, Arbroath and Forfar, and the work is being carried out under their superintendence.

**BILLINGBOROUGH.**—The Church of St. James's at Aslackby, near Billingborough, which has been undergoing an extensive restoration for some time, has just been reopened. The Church, which possesses architectural features of considerable antiquity, and has for many years been greatly neglected, has now been put into a thorough state of repair. The interior has been almost entirely remodelled to plans prepared by the late Mr. James Fowler, of Louth, and since carried out under the superintendence of his son, Mr. Reg. Fowler. The contractors were Messrs. Walter and Hensman, of Horncastle. Upwards of £800 has been spent on the work.

**BIRMINGHAM.**—The new organ which has been placed in St. Chrysostom's Church, Birmingham, in commemoration of the Queen's long reign, was formally dedicated on the 16th inst. by the Bishop of Worcester. The instrument is a two-manual one, by Eustace Ingram, London. There are thirteen stops on the great organ, eleven on the swell, two on the pedal organ, three couplers, and six composition pedals. The pedal action is pneumatic.

**DORRIDGE.**—The new portion of St. Philip's Church, Dorridge, Knowle, was dedicated on Wednesday last. The committee appointed to carry out the scheme entrusted the work to Mr. J. A. Chatwin, Architect, Birmingham, who designed a new chancel, to be built of stone, with chancel aisle, organ chamber, and vestries. The new buildings have been joined to the old Church. The ultimate intention is to substitute a stone nave, aisles, and tower for the present brick nave. The total cost of the completed edifice will be between £5000 and £6000.

**DUDLEY.**—The alterations and additions to the Guest Hospital, including the provision of an operating room, two small wards on the women's side, increased accommodation in the female wards, new laundry fitted with steam appliances, and the remodelling of the kitchen arrangements, which, with furniture and fittings, have entailed an expenditure of about £4000, are now completed, and will be opened this week.

**ECCLESFIELD.**—The new Wesleyan Chapel, of which the foundation stones were laid recently, has a frontage to the main street, and is being constructed by Messrs. J. Mastin and Son, of Cavendish Street, Sheffield, from the design of Mr. Herbert W. Lockwood, Architect, of Pinstone Street, Sheffield. The building consists of a nave and transepts, with

a large organ and choir gallery, and accommodates on the ground floor and in the gallery, which occupies three sides, 650 people. The work externally is of rock-faced stone, with ashlar dressings, and the style adopted is Renaissance in feeling. In the centre of the front is a large, deeply-recessed double doorway, under a moulded and enriched arch, with stone cornice and balustrade. Over this is a three-light window, flanked by engaged columns, and finished with a segmental pediment. Right and left of a spacious central vestibule are wide stone staircases, leading to the gallery, and forming semi-circular projecting bays, filled in with mullioned windows, and finished with stone cornice and balustrade. The side elevations have arched and mullioned windows. All the windows are to be glazed with leaded lights, in Cathedral tints. The internal woodwork is to be of pitch-pine, varnished. The ceiling is to be panelled and moulded in pitch-pine. The method of heating will be of low-pressure water. The old chapel is to be turned into a school, and the cost of the whole scheme will be about £3000.

**EDINBURGH.**—The reconstruction of the Waverley Station continues to be pushed forward as rapidly as possible. The booking-hall has already been completed. Built from the plans of Messrs. Blyth and Westland, the new booking-hall is alike spacious and handsome, the ornamentation of the interior being of a very elaborate kind. The building is of the French Renaissance style of Architecture, and measures 75ft. square; it rises to a height of 30ft., having a dome in the centre of the roof, surrounded by eight flat cupolas. Prudham stone has been used exclusively in the erection of the hall. The beautiful woodwork of the roof is composed of wainscotted oak, the intervening panels being filled in with Tyne-castle tapestry of pretty design and colour. The large centre cupola is of good design, the frieze being well brought out with semi-relief figures in gold on a coloured ground. The booking-office itself, which is placed in the centre of the hall, is also a handsome structure. It is composed of wainscotted oak, and is richly carved in keeping with the general artistic surroundings. Octagonal in shape, the office, in so far as convenience and suitability for its purpose is concerned, is probably the most complete of its kind in the country, as assuredly the booking-hall is as a whole. The design of the mosaic tile flooring is elaborate. Ferguson's patent Carlisle fire-proof flooring has been used, and the outside protecting cupolas that lie over the flat ones are glazed with Pilkington's patent wired glass. The contractors for the booking-hall are Messrs. G. and R. Cousin, Alloa; the joiners, Messrs. Drysdale and Gilmour, Edinburgh; the tapestry decorations were by Mr. Scott Morton, Tyne-castle Works Company, Edinburgh; while the mosaic tile floor was laid by Messrs. Doulton, London.

**ELGIN.**—A new hall, erected in Greyfriars Street, Elgin, was opened recently. Messrs. Reid and Wittet, who were the Architects, adopted the Scotch baronial style. The mason work is in rubble, rock-faced, with crow-stepped gables, the side wings being relieved at the top with a boldly moulded stone balustrade. The main hall measures 71ft. by 39ft. and is 25ft. high. It has heavy roof principals, of which the laminated ribs and the beams and struts are exposed, supported on artistically cut stone corbels. The main hall will seat 540 people, and the gallery 180. At the north end of the main hall there is a smaller hall measuring 32ft. by 22ft., and 13ft. high, seated to accommodate about 150 people. In the west wing of the building there is a still smaller hall or room, 25ft. by 19ft. and 13ft. high, with accommodation for about seventy people. There are also cloak rooms, lavatories, &c. The heating apparatus has been placed in the basement, the whole building being warmed, when necessary, by low-pressure water-pipes. The contractors were:—Masons, Messrs. Davidson and Hay, Elgin; carpenters, Messrs. A. and W. Dunbar, Elgin; plumber, Mr. James Ross, Elgin; slater,

Mr. George Ogilvie, Elgin; plasterer, Mr. George Gray, Elgin; painter, Mr. William Fordyce, Elgin; heating engineers, Messrs. Mackenzie and Moncur, Edinburgh; iron work, Mr. George Souter, Elgin.

**FINCHLEY.**—The National Hospital for the Paralysed and Epileptic has been able to extend materially its scope by the addition of a new home at Finchley. The house itself is conveniently placed upon an open site acquired from the Ecclesiastical Commissioners. Mr. R. Langton Cole is the Architect, and has built it in bungalow style to accommodate forty patients. It is tastefully furnished throughout, with good provision for the nursing staff. The cost has been £10,000, of which an individual donor, who did not live to see the work completed, gave £3000.

**GLASGOW.**—The new Gartloch Lunatic Asylum, erected at Gartcosh, about seven miles to the north-east of Glasgow, has just been opened. The institution has been erected by the City Parish of Glasgow at a cost, including grounds and furnishing, which will not be far short of £200,000, and it is recognised by the medical faculty as the most complete and most scientifically constructed building of the kind in the United Kingdom. For the erection of the Asylum the estate of Gartloch, extending to 347 acres, was purchased, and the plans of Messrs. Thomson and Sandilands, Architects, Glasgow, having been accepted, the building was commenced in September, 1890, the construction of the institution having thus taken nearly seven years.

**GRANDTULLY.**—A new school was opened at Grandtully on Thursday week, the old building at Ballinluig, Grandtully, having been condemned by H.M. Inspector. The accommodation is for 130 pupils. A dwelling-house for the teacher has been erected near the school. It is a plain, substantial structure, with suitable accommodation. The following is a list of those who have carried out the work, viz.:—Mason work, Charles Robertson, Pitlochry; joiner, W. R. Reid, Aberfeldy; slater, W. M. Dow, Murthly; plumber, A. J. Menzies, Aberfeldy; plaster work, Thomas Stewart, Aberfeldy; bellhanging, John Bryden and Son, Dundee; iron work, P. Murray, Strathay heating, G. H. Nicoll and Company, Dundee; painting, John Simpson, Aberfeldy. The buildings were erected from plans by Mr. William Bell, Architect, Aberfeldy.

**HEELEY.**—Extensive alterations have been made at Heeley Parish Church. A new aisle has been added on the south side, and the Church has been thoroughly renovated. The windows are of cathedral glass, with tinted borders. The heating and lighting apparatus has been remodelled and improved, and in the south transept an opening has been made for a new organ front to face the new aisle. A new oak pulpit, with modelled base of Bath stone, will shortly be completed. The total cost of the improvements and additions to the Church amounts to £1200.

**HETTON-LE-HOLE.**—A new Conservative club building has been erected on a prominent site near the railway station. The frontage is about 48ft., and the depth is nearly 100ft. The building stands about 12ft. back from the highway. The principal entrance is at the middle of the front, and is a wide stone-arched doorway, surmounted by a modelled head of the Queen. The building is of two stories, and contains a billiard room, reading and committee rooms, on the ground floor, divided by a patent sliding and folding partition, so as to make one room when required; a smoke room, also on the ground floor, near the entrance, with a communication to the bar; a caretakers' room; a kitchen and out-buildings in the rear, on a level with the reading and smoke rooms. There are two bedrooms above the kitchen. Mr. Frank Caws, Architect. The contractor is Mr. Stephen Branton.



**HOLMFIRTH.**—Colonel Hasted, R.E., Inspector under the Local Government Board, held an inquiry at Holmfirth on the 16th inst. respecting the application of the Urban District Council for sanction to borrow £19,877 for the purposes of sewerage and sewage disposal.—Mr. Lomax, clerk, stated that the Council had an agreement to purchase ten acres of land at Neilleys from the Earl of Dartmouth for £1500, and the scheme would drain the whole of the district at a cost of £19,877, inclusive of the treatment of partially clarified trade effluents.—Messrs. Beesley and Barraclough, the engineers, explained the scheme.—Mr. Mills opposed on behalf of the Honley Urban District Council, as the scheme proposed to treat the sewage of part of the districts of Thurstonland and Honley, and the whole of the district of Netherthong, and they were not included in the present plans. Honley did not object to the outfall works being placed in their district, but asked to be protected from any nuisance from sludge being deposited.

**HULL.**—The ceremony of laying the foundation stones of new baths for the Eastern Division of Hull was recently performed by the Mayor. The site is in close proximity to the James Reckitt Public Library, on the Holder-ness Road, and the building will be in the Renaissance style, in red brick, with buff terra-cotta facings, making a handsome frontage. A large bath 96ft. by 30ft. will be provided, with a depth of water 6ft. 6in. There will also be a boys' bath 60ft. by 30ft., with a depth of 4ft. 6in., and thirty-one private baths. Very extensive arrangements have been made for the convenience and comfort of bathers. The whole design is by the Borough Engineer (Mr. A. E. White), under whose superintendence the work will be carried out, and the cost, exclusive of land, will be £12,500.

**KIRBYMOORSIDE.**—The new Roman Catholic Church recently opened is on the road from the station to the town, and is erected from plans by Mr. Bernard Smith. It is capable of seating 120 persons, and is of the Early English style of Architecture, which flourished at the beginning of the thirteenth century. It consists of a sanctuary, the internal dimensions of which are 16ft. by 16ft., and 29ft. to the ridge. The nave is 40ft. 1in. by 20ft., and is 31ft. to the ridge. The roof is a groined one. There is a triple-lighted window well up in the east wall, and there is also a triple-lighted window in the south wall of the sanctuary, and in the east wall are a piscina and a recess ornamentally carved. Three steps of white Carrara marble lead from the nave to the altar, and the sanctuary is paved with encaustic tiles to correspond with the surroundings. The nave and vestry are paved with wood blocks. The font is exceedingly handsome, and consists of a polished West Riding stone base, shaft and capital of Abbey Roche magnesian lime-stone, and an octagonal basin of Carrara marble. The roof timbers are of Memel, with trusses springing from moulded corbels, groined and divided into panels. The exterior of the roof is covered with best Welsh slates. The contractor's work has been carried out by Mr. Anthony Lyons, of Norton, Malton.

**KIRKCALDY.**—At a meeting of Kirkcaldy Police Commission, it was moved that the Commissioners entertain the scheme for the formation of a direct carriage road from Victoria Road to Nairn Street by erecting a bridge, which it is estimated would cost £10,000. In the discussion which followed, Councillor Lockhart stated that the money could be more advantageously spent in other parts of the borough, and that this proposed road was not at all necessary. The motion was agreed to without a division.

**LEITH.**—The Leith Dock Commissioners are at present considering the question of erecting a warehouse at the docks for the storage of grain. Messrs. T. Robinson and Sons, Rochdale, have submitted for their inspection a working model of a warehouse on the silo system. The silos are a series of vertical cells

about 10ft. in diameter, from 50ft. to 70ft. in height, partitioned by either timber or thin brick. Each cell is built on an iron hopper-shaped bottom, from which the grain is taken out.

**LEEDS.**—New day schools which have been erected in connection with St. Luke's Church, North Street, Leeds, have been formally opened by Mr. A. T. Lawson. The schools have been built on the central-hall system, with the classrooms arranged on either side. There are four classrooms, each 25ft. by 20ft., and two 28ft. by 20ft. The central hall is 60ft. by 28ft., and at the south end, opposite the entrances, is a raised platform, divided from it by patent swivel partitions, so as to form a teachers' room, or a platform and stage when the central hall is being used for parochial or public purposes. Entrance to the schools is gained by two porches and lavatories, 18ft. by 16ft.; which are built close up to the Skinner Lane frontage. The building is heated by means of hot-water pipes and coils; and it is exceedingly well lighted by lofty mullioned and transomed windows. The lights to the Skinner Lane elevation are contained beneath pressed brick arches, the spandrels being filled in with diaper bricks to special design. The central hall is not only lighted by large windows in the gables, but by clerestory windows at the sides. The whole of the buildings are faced with pressed brickwork, and the playgrounds are concreted. The cost of the building per child is less than half the cost which obtains in the case of the Board Schools in the city. The buildings have been erected from the designs and under the superintendence of Messrs. Smith and Tweedale, Architects, South Parade.

The carrying out of the plan for the covering in of the open space between the blocks and the fish depot at the Leeds Kirkgate Markets has now reached an advanced stage. The Committee decided to put up a lofty roof, in four bays, resting upon high columns of cast iron, and glazed with rough plate glass. One of these bays has been completed. A second bay, or span, will be completed in a fortnight's time, and the work of erecting the two others will be pushed on as rapidly as possible. The estimated total cost will be about £8000. Messrs. Braithwaite, of Swinegate, are the contractors for the whole of the work.

**LISKEARD.**—Matters pertaining to the pulling down of the present dilapidated Church tower at Liskeard, and the rebuilding of a new one, are at this moment very much strained, in consequence of the Chancellor refusing to grant a faculty for the purpose unless the new tower to be erected is built of precisely the same design and height as the present one, and with the old material.

**NEW SPRINGS.**—The new Church of St. John the Baptist has just been completed. The plan of the Church is unusual. There are no nave aisles, but a broad nave, which is drawn to an apsidal ending towards the east. The centre arch of the apse opens into the chancel. The side skew arches open respectively into the north and south chancel aisles. The south chancel aisle is regarded as a chapel for services in which only comparatively few take part; but it is so arranged as that its occupants can conveniently join in the service when the Church is full. Near this chapel is a door. The north chancel aisle, marked off from chancel and nave by arched traceried screens, is divided into clergy and choir vestries and organ chamber. At the west end is a central tower, the lower story of which is four steps above the nave floor, and forms the baptistery. On the north side, near the west end, is the spacious main entrance porch, provided with a narrow side door (in addition to the wide front door), so that in cold weather the inrush of cold air may be checked, and no direct draught be felt by anyone. Looking eastwards from the nave, there is seen the bold chancel arch carried on massive circular pillars, and flanked by the two side arches of the apse. The east window has three lights of unusual width, and

tracery above. Looking west from the chancel steps is seen the lofty arch of the baptistery, with a wide one-light window beyond. The window is filled with glass of soft tints, the main device being a large cross. The east chancel window is of a similar glass in pattern, with symbols and devices. But the centre light, which is 3ft. wide, is filled with fine stained glass, the work of and the gift of Messrs. Heaton, Butler, and Bayne. The fittings generally are of pitch-pine. The work throughout has been designed and superintended by Mr. Medland Taylor, Architect, of Manchester. Mr. C. B. Holmes is the builder.

**NOTTINGHAM.**—The tender of Mr. John Hutchinson for the erection of the new Constitutional Club in Market Street, Nottingham, has been accepted. Mr. Hutchinson's tender, which was the lowest, amounted to £10,652. The contract for the foundations, basement, sub-basement, Conservative offices, ladies' room, &c., was let separately some time ago to Mr. J. W. Woodsend, and he has now completed his portion of the work.

A chancel screen and richly carved choir stalls are being erected at St. Peter's Church. The work is rapidly approaching completion, and it is hoped will be entirely finished before the visit of the Church Congress to Nottingham in October. The work is in the hands of Mr. J. W. Woodsend, of Castle Gate, the designs having been prepared by Messrs. Evans and Son, Architects, of Nottingham, the estimated cost exceeding £1500.

**PAIGNTON.**—A notable pulpit was recently dedicated by the Vicar of Paignton. The stairs and base are of Mansfield stone. Supported on shafts of green Connemara marble is a single piece of the same stone, weighing about 30cwt., which forms the floor of the pulpit. Above this comes an incised course of a light coloured, variegated marble. The panels are red marble, with an inlaid design of green and dark marbles. The coping and battlemented canopies of the niches are of the same marble as the lower course. On the face of the panel over which the preacher would generally look is an alabaster cross with the figure of our Saviour. On the north side of this are three niches and on the south side two. The background of the niches is filled with gold mosaic, of the English kind used in the decoration of St. Paul's Cathedral.

**PETERHEAD.**—The new Parish Home, which it is proposed to erect at Peterhead, will cost a little over £2000. The building will be of granite, two stories high, with projecting wings at either side and in the centre, and a back wing of one story height. It will be built on the same site as the present, running parallel with King Street, and the frontage towards the south. The entire length of frontage will be 108ft., the depth of the main building 30ft., the side wings 55ft. each, and the ground space of the centre and back wings about 70ft. On one side of the entrance lobby, in the centre projecting wing, is to be a committee room, and on the other side the governor and matron's private parlour. The whole space between the committee room and the east projecting wing is set apart as a day room for the male inmates, while on the other side is the women's day room. On the male side there is a dormitory, 21ft. by 17ft., containing eight beds; and another, 17ft. by 16ft., with six beds; while on the other side there is the same amount of accommodation.

**ROTHERHAM.**—New choir seats and chancel screen erected in the Rotherham Parish Church, in commemoration of the blessings of H.R.H. Queen Victoria's reign of sixty years, has been dedicated. The scheme, which also includes the re-hanging of the bells, the renovation of the gas coronas and standards, and other improvements, has been undertaken at a cost of £500. The whole of the woodwork has been carried out by Messrs. Johnson and Appleyards, of Rotherham and Sheffield, from designs by, and under the superintendence of, Mr. James E. Knight, Architect, of Rotherham.



**ST. HELEN'S.**—Colonel D. Gamble has intimated his intention of the erection of a parish room and caretaker's house, in connection with St. Mark's Church, at a total cost of about £1500. Plans for the building, which will be erected on the vacant land between the Church and the Park Hotel, have been prepared by Mr. James Gandy, and the contract for its erection has been let to Mr. Peter Tickle, builder, for the sum of £1400. The new parish room will be in the same style of Architecture as the Church, and the caretaker's house, which will have a handsome bay window erection, will front to North Road.

**SWANSEA.**—The new Swansea Metal Exchange recently opened was designed by Mr. H. W. Wills, and the contract was given to Mr. Thomas Davies, the total cost of the building being £3500. The Exchange is built in Queen Anne style, and carried out in red brickwork, with stone dressings. The main entrance is from Fisher Street, though, perhaps, the most convenient means of ingress will be from Wind Street, through the Cambrian office—a right-of-way having been secured by the members of the Exchange. The principal entrance is both spacious and imposing, large columns being on either side, whilst above there is some excellent carving, with a centre figure allegorical of Swansea. The corridor is tiled, and leads into the large exchange, the inside of which is 50ft. by 40ft., and 20ft. high, and has a carved elliptical roof. It is splendidly lighted by means of large elliptical windows, containing upon them the arms of Swansea. The building also contains two other rooms, arranged in suites for offices, and a notable feature about it is the fact that the members of the Exchange, having a desire to promote the tin-plate industry, had the roof covered with tinplates instead of slate.—At a meeting of the Swansea Harbour Trust, Mr. Griffith Thomas presiding, it was reported that the committee had let the contract for the North Dock new entrance works at £40,024, to Mr. L. P. Nott, of Manchester, who had agreed to complete the whole of the work by the 1st of January, 1901.

**STAFFORD.**—In consequence of the present Board School being overcrowded it is suggested that an infants' school be erected, which will materially relieve the present school.

**TUNBRIDGE WELLS.**—The new parochial schools of St. Barnabas, Quarry Road, Tunbridge Wells, were formally opened last week. The schools have been erected from designs by Messrs. H. H. and E. Cronk, the Architects, and built by Mr. W. T. Judd, and will provide room for 450 children of St. Barnabas parish. The building, a lofty, spacious structure, is of red brick with stone facings, and is two stories high. One room is 71ft. by 22ft., with means of subdivision when needful, and a class room 25ft. by 24ft., with 15ft. pitch. The building is fireproof. Pitch pine wood has been used inside, and gives a pleasing appearance to the structure, which is well ventilated and lighted.

**WALSALL.**—Mr. Rienzi Walton, on behalf of the Local Government Board, held an inquiry at the Endowed Schools, Aldridge, on Wednesday, with reference to an application by the Walsall Rural District Council to borrow £4500 for sewerage purposes.—Mr. Lewis explained that the Council had been obliged to adopt a comprehensive scheme for the sewerage of their district. A report issued by the County Council in 1895, as to the pollution of certain streams, was also another element in the matter. The scheme upon which the inquiry was being held had been prepared by Mr. Willcox, C.E.—Mr. Jones, in opposing, contended that all that was necessary for Aldridge could be provided at much less cost than that proposed to be incurred by the Council.—Mr. Clarke contended that the ratepayers had had no opportunity of considering the scheme, but were of opinion that a much less extravagant one might be devised.—The Inspector afterwards went to visit the area.

**WEST HARTLEPOOL.**—A bronze statue of the late Mr. Ralph Ward-Jackson was unveiled at West Hartlepool a few days since.

The statue was designed by Mr. Onslow Ford, R.A., is of bronze, 8ft. in height, and was cast from the model of Mr. Ford by the Cire Perdue process, by Messrs. Rovini and Paulanti, Parson Green, London. Mr. Jackson's figure is in an oratorical attitude, standing upon a 7ft. pedestal of Portland stone. The squares are adorned with bronze shields.

## Enquiry Department.

### A SANITARY POINT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—The enclosed rough sketches are intended to indicate three methods of connecting a waste pipe from a lavatory basin with the drain. I sent them at the foot of a letter to my chief, asking him to mark the one he preferred. The answer was "Finish it as No. 1, Nos. 2 and 3 were insanitary and could not on any account be sanctioned." I really should like an expression of opinion from yourself, through your Enquiry Column. CLERICUS.

In my opinion, as drawn, sketch No. 1 is the most sanitary, but it has the objection of discharging the waste on the top of the gully, which in many positions is most unsightly. No. 3 would obviate this difficulty, but the lead trap immediately under the lavatory basin must be ventilated if this method were pursued, and then I see no objection to it;

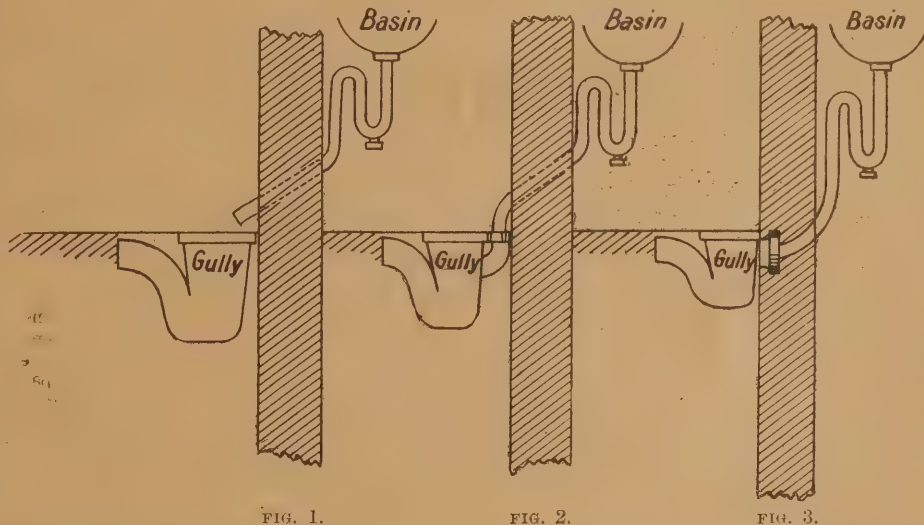


FIG. 1.

FIG. 2.

FIG. 3.

indeed, I should prefer it personally to No. 1. A very able paper on the subject of Plumbers' Work and Sanitation was read before the Architectural Association recently by Mr. S. S. Hellyer, and I would advise your reading it. The paper appeared in recent issues of the BUILDERS' JOURNAL.—ED.

### R.I.B.A. EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—As I intend studying for the preliminary R.I.B.A. I shall be obliged if you or any of your readers can inform me where I can get two or three years' examination papers, so that it will give me a better idea of the scope of the Examination. Do any of the London booksellers publish them in book form? Thanking you in anticipation.—Faithfully yours, STUDENT.

The Institute Examination papers are not published in book form so far as I am aware. I should advise you to write to Mr. Church Howgate, 70, Gower Street, W.C., who can supply you with any information you desire regarding the Examinations.—ED.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Could you kindly inform me, through your "Enquiry Department," who are the publishers of "Dent's Chemistry of Building Material"? Also the price, and its use as a text-book on "Physics as Applicable to Building" in reading for the Intermediate

Examination of the R.I.B.A. A reply will much oblige yours truly, PROBATIONER.

The book you refer to was published in India, but is now out of print, and I think you would find some difficulty in obtaining a copy. The only one I know on this subject is a small pamphlet entitled "Notes on Chemistry of Building Materials," by A. J. Evans and Albert Grenville, the publisher being C. Bateman, 1, Three Tons Passage, Paternoster Square, and a series of papers that appeared in the Builder some time since, commencing Jan. 7th, 1893, and continuing, at intervals, until June 17th, 1893. Beyond this I do not think there is anything published, as this subject, though forming one of those required for one of the Civil Service Examinations, has received very scant attention.—ED.

### CHURCH BUILDING AT YEOVIL.

THE new Church of St. Michael and All Angels, Pennill, stands upon one of the most commanding spots in the neighbourhood, and is of distinctly West Country character, in the fifteenth century style of Gothic. It is built wholly, within and without, of warm tinted Ham Hill stone, and has been designed by Mr. J. Nicholas Johnston, Architect, of Yeovil. The South Western town is square and embattled, rising some 80ft. The original drawings showed its battlements capped by carved pinnacles, and these were duly erected, but during the great gale last year several of

them were blown down, and so it was deemed prudent to remove the others to prevent any possible accident in the future. Although thus shorn of its ornamental appendages, the tower's design generally, with its quaint octagonal angle bell turret at the south-west corner, has not suffered by the alteration. On plan the Church consists of the tower, with nave and north and south aisles, the latter divided from the former by arcades of five bays on the north side and of four on the south. There are also two bays north and south of the chancel. These arcades are supported by clustered columns. The organ chamber is on the north of chancel, east of the north aisle, and there is a spacious vestry east of it. The walls of the aisles, which have lean-to roofs, are embattled and substantially buttressed, and the windows, especially that at the east end (a five-light one), are large, and filled by gracefully designed tracery. The nave and chancel roof are of the west-country type of "waggoned" open timber, and are panelled. The chancel screen stands upon a dwarf stone wall, and is divided into two bays on either side of the central one, which itself forms the approach, and has double gates of artistically wrought iron, by Messrs. Hart, Son, and Peard, of London. The tracery is light and graceful, and the upper parts are most ornately carved and surmounted by pierced cresting. The general contractor was Mr. H. W. Pollard, builder, of Bridgwater, and about £10,000 has been spent on the building.



## Trade and Craft.

### A NEW ALLOY.

An exhibition was given last week at Winchester House, Old Broad Street, by the Peerless Metal Company Limited, of 38, Parliament Street, Westminster, of a variety of articles made in a new alloy—the "Peerless Metal"—to the production of which the firm mentioned exclusively devotes its attention. The "Peerless Metal" closely resembles old silver in colour, but it is claimed to be greatly superior to that metal in point of strength and durability. It does not, it is stated, oxydize from atmospheric influence, and it is not affected by salt water, while, being a solid metal of uniform quality and colour throughout, its appearance is not impaired by wear, as is the case with plated articles. It may be used for practically all purposes in which brass or silver finds a place, and has advantages over iron and steel in certain industrial operations. It can, it is stated, be manufactured and sold profitably at a cheaper rate than the ordinary white metals or German silver, and the facility with which it can be rolled, drawn into tubes and wire, or brazed and soldered, will commend it to manufacturers of all classes of articles. The goods produced in this metal which were exhibited at Winchester House ranged from pens and vesta cases up to church bells, bedsteads, and complete sets of parts for building a bicycle.

### NAVAL ARCHITECTURE.

One of the most difficult forms of designing known is that of Naval Architecture, for it is so cramped by the exigencies of the utilitarian requirements of various classes of vessels that anything new which the Naval Architect may attempt is rather in the nature of a dangerous experiment. In these days it may be said that a Naval Architect always has to be studying something new, for he has ever to adapt the broad principles of his knowledge to new inventions, new types of engines, and new theories as to speed and safety. Naval Architects are very highly paid, and they exercise an amount of daily, almost hourly, supervision over the construction of the works they have designed, which is quite unheard of amongst ordinary Architects. It may not be known that even in the case of so-called "twin" vessels, made from the same designs and built side by side, and fitted by the same engineers, the rate of speed and seaworthiness between the two ships will often vary very widely indeed. In the case of iron ships, each plate of the vast number used in forming the contour of the vessel has to be specially cast, and each plate is numbered and sent with its order set forth in the lines prescribed by the Architect. In each shipbuilding yard there is a vast covered floor space, upon which are marked by the Architect's assistants the exact lines of the vessel in its actual size, and at every stage the drawings are made of great size and in the simplest possible form.

### INTERESTING TO BUILDERS.

Some time ago an action was raised in the Perth Sheriff Court at the instance of Edward Welsh, labourer, 212, South Street, Perth, as tutor and administrator in law of his pupil son Martin Welsh, against Messrs. Fraser and Morton, builders, for £50 damages for personal injuries sustained by plaintiff's son—a boy of eight years—through a large paving-stone having fallen on him on March 15th, 1896, during the erection of the Wilson United Presbyterian New Church in New Scott Street. It was stated that the defendants had left a large flagstone of 4ft. or 5ft. square and 9in. thick unwatched and in an unsafe condition, not properly supported, and liable to fall at any moment, and that on a Sunday afternoon the stone fell on the boy and crushed him seriously. Defendants denied that the stone was not properly supported, and said it could not have fallen unless the props had been deliberately removed, and, further, that the boy Welsh was trespassing in being where he met with his

accident, and had himself maliciously removed the props, and thus by his own contributory negligence caused the accident.—His Lordship was of opinion that the boy by his own conduct caused the accident, and that the defendants were not liable.

### MESSRS. J. DEFRIES AND SONS.

The question of street decoration and illumination is all-absorbing just now—in fact, it comes only next to the great question of the Jubilee. It was wise forethought and prudent enterprise on the part of Messrs. J. Defries and Sons, which led them to hold an exhibition last week of a few representative designs of the work they are carrying out—or rather we should now say have carried out—for the Prince of Wales, and many public bodies. To Messrs. Defries and Sons, who, by the bye, were engaged in the work of public decoration and illumination before the Queen came to the throne, must be accorded credit for a laudable attempt to substantially raise the standard of design employed in such work. Their object has been to introduce to a much larger extent than has been practical hitherto the elements of line and form as contrasted with colour and mass—to be bright and brilliant certainly, but at the same time to be artistic. Messrs. Defries' largest illumination is that of the Bank of England, and to provide the design here they have invoked the aid of Professor Legros, an Artist whose participation in the work of public decoration marks an important epoch in the Art. Among the numerous other works the firm is carrying out are the decorations of Marlborough House, every detail of which is made in cut crystal; York House, in St. James's Square; the Royal Exchange; the Junior Army and Navy Club, etc. It will be found that the effect of the illuminations is due not only to a careful consideration of the lines of the design, but also to the richness of the tints used. Two entirely new elements of illumination have been introduced on this occasion. The one technically known as "arborescent" devices, is a method of obtaining a more subdued glow than occurs with crystal, without sacrificing the richness of tint which is essential to a good effect. The other element lies in the construction, out of glass, by a patented method, of garlands of flowers, foliage, etc., which hitherto have only been made in paper or similar materials, so that they not only give the desired decorative effect by day, but also are illuminated by night, and appear as though the flowers themselves were luminous. Messrs. Defries are certainly displaying great artistic taste, and although many striking designs which they have had prepared were rejected, thus showing, as they truly remark, "how very unsatisfactory is the standard of taste by which designs are selected," their work cannot fail to charm the million.

### BUILDING DISPUTE AT BLACKBURN.

The Vice-Chancellor at the Manchester Sittings of the Chancery of Lancashire gave judgment in the case of Wilding v. Bowman, which was heard before the Whitsuntide vacation. The plaintiff, the lessee of a plot of land forming part of an estate at Pleasington, near Blackburn, claimed an injunction to restrain the owner of the estate, J. E. B. Bowden, from sanctioning the building of, and the other defendants from building, a certain class of houses on the estate referred to. The plaintiff's case was that by a building scheme made in 1856 by the defendant Bowden's predecessor in title, the estate at Pleasington was planned out for detached, or semi-detached, houses, that this building scheme was an implied contract in the leases to the plaintiff, and that the plaintiff was therefore entitled to have a proposed erection of a terrace of houses on the estate restrained. In giving judgment, his honour said the law applicable to cases of that kind was tolerably clear. If the owner of a building estate laid it out, and, in the language of Lord Macnaghten, if the public were invited to come in and take a portion of the estate, which was bound by one general law, then a person who came in on that representation was entitled to insist

that that general law should be observed. But it did not necessarily follow that the preparation of a plan and the showing of the conditions constituted a general law, binding the estate and binding the parties. Whether there was such a general law depended on the facts of the case. In the present case the leases granted to the plaintiff's predecessor in 1857, and to the plaintiff in 1885, did not themselves correspond with the plan and conditions of 1856. Then, with the exception of those leases, and one to another person, nothing had been done in connection with the development of the estate. The proposed streets had not been made, and, with the exceptions mentioned, the estate remained agricultural land up to the commencement of the building operations now in dispute. The result was that, in his opinion, the plan and conditions of 1856 were merely suggestions that were adopted by the then owner for the purpose of developing his estate if he could obtain purchasers who were willing to take it on those terms, but not a contract by him to bind the estate for the benefit of the persons who took any special portion of the land. He thought the plaintiff's own deed showed that he was not taking on the terms of any building scheme such as was set up, and if he was not bound by the building scheme, why should he come and ask that the owner of the land should be bound by it? Again, the matter was much too vague. It was said that the building scheme was for villas, but he did not know any definition in law which would enable him to grant an injunction restraining a man from erecting a house which was not a villa. Another point had been raised by the defendants, as to whether the owner in 1856, who was only a life tenant, was competent to enforce a binding building scheme. There was a good bit to be said for that argument, but it was not necessary for him to decide the point, inasmuch as he had come to the conclusion there was no definite binding building scheme such as was suggested. The action would therefore be dismissed, with costs.

### MESSRS. N. C. SZERELMEY AND CO.

"The Cause and Cure of Damp and Decay in Masonry" is the alliterative, yet no less comprehensive, title of a booklet issued by Messrs. N. C. Szerelmey and Co., now in its fifth edition. The contents are just as comprehensive as the title. The A.B.C. of the question is presented in a few pages, and valuable information on the cure of stone decay—the great cause of which has been shown to be damp—is given. What the building world wants is something which will act as an antidote to the mighty forces of damp. It is claimed, and we think rightly so, that Szerelmey Stone Liquid furnishes such an antidote. Its effect is to moderate and delay the action of damp. It fills the interstices between the particles of the stone, and it clothes the particles themselves with an inert substance impervious to moisture, acid, and alkali. Experiments carried out a few years ago in connection with the Houses of Parliament, fully proved the preserving qualities of the Liquid, which since then has been much in demand. The Company also manufacture special porcelain paints, iron paints, varnishes, &c.

MR. T. P. MARTIN, Architect and Surveyor, of Swansea, died a few days ago at Coleford, Gloucestershire. Mr. Martin was one of the best known members of his profession in South Wales, and has designed a number of fine buildings.

A STATUE, just finished by the Hungarian sculptor Danis Hasseirris, will be placed on the grave of Henri Heine, in the Montmartre Cemetery at Paris. The entire cost of this statue, it is said, will be defrayed by the Empress Elizabeth of Austria.

To the old Church of St. Mary, Todmorden, there has, during the last year, been added a handsome chancel, with organ chamber and vestries, and the old nave has been renovated. The dedication of the new chancel and the reopening of the nave will take place during the first week of July.



## SOCIETY MEETINGS.

**Edinburgh Architectural Association.**  
The Edinburgh Architectural Association on Saturday week visited Torphichen Church, the chief centre of the Knights of St. John in Scotland. Mr. Henry F. Kerr, A.R.I.B.A., who conducted the party, explained that the Hospital of the Knights was probably founded in 1153, when the order was introduced into Scotland. An old archway occupying a site under the westmost arch of the crossing was probably the chancel arch of the first Church. The rest of the mediæval remains were of Late Pointed work, consisting of north and south transepts, with a tower at the crossing, which must originally have been a bold feature, with its cape house gathered with crow steps. The vaulting of the transepts and crossing were still standing, but in some places the vaulting ribs were badly split, and some of the vaulting stones had fallen out.

The annual excursion of this Association took place on Saturday. Linlithgow was the rendezvous, and the Palace the first object of interest. In this building is work of the fifteenth, sixteenth, and seventeenth centuries, and probably it is the finest example of domestic Architecture remaining in Scotland. It is

built in the form of a square with a central courtyard. All the apartments communicate with each other and with various staircase towers. On the south side the entrance to the Palace and the Royal Chapel are situated. On the east side is the great hall, a most magnificent structure, and also another entrance of great richness of decoration. The west side is occupied with what were probably family apartments, and on the north side there are various banqueting halls, an oratory, kitchens, &c. St. Michael's Church, which was next inspected, adjoins the Palace, and consists of a nave and choir with north and south aisles, eight bays in length, a western tower, and an eastern apse. The north and south chapels may be regarded as transepts. The fine southern porch has a priest's room over it lighted by a beautiful oriel. Bonhard House, also visited, situated about two miles north from Linlithgow, is a building of the L plan, with a staircase turret in the re-entering angle. Some of the rooms have ornamental ceilings with panelled walls and handsome fireplaces. The house was built by the Cornwalls—a well-known Linlithgow family—and their arms with the date 1591 are beautifully cut on a dovecot at Bonhard. Kinneil House is an ancient possession of the Hamiltons, consisting of an

oblong keep, 56ft. 6in. by 31ft. 6in., to which wings have been added, and also a block of building to north-east, which may at one time have been a separate house. The keep walls are 6ft. thick, and the ground floor is vaulted. Frequent alterations render it difficult to assign the date of this structure. The attached building was originally L-shaped and, combined with the keep, made into one building in the reign of Charles II.

**The Architectural Association of Ireland.**—The annual excursion took place on Saturday week. The party visited Mellifont Abbey and Monasterboice. At Mellifont a couple of hours were spent measuring and sketching the remains of this fine old Cistercian foundation. The Chapter House in particular is in excellent preservation, and affords much

**THE SMOKELESS FIRE CO. LTD.,**

Sole Proprietors of Marsh's Patents

FOR THE

**COMPLETE COMBUSTION OF FUEL.**Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.**BILLS OF QUANTITIES, &c.**

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.  
**J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.**

**HOISTING APPLIANCES**OF ALL KINDS.  
Catalogue, 40 Pages, Free.**WESTON**

AND OTHER

**Pulley Blocks**

in Stock, with any length of

**CHAINS.**

Chain Maker on Premises for Repairs, &amp;c.

**LONDON HOIST AND CHAIN CO.**

32, Norton Folgate, E.C.

**"ECLIPSE" PATENT ROOF GLAZING.**Absolutely Imperishable. Needs no Maintenance Whatever.  
Millions of Feet Fixed.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

**MELLOWES & CO.**

Works: SHEFFIELD.

LONDON: 28, Victoria St., Westminster, S.W.

GUARANTEE sent with each Basin.



Recommended &amp; Specified by Architects &amp; Sanitary Engineers.

Perfect Sanitation, Healthy Houses

OBTAINED BY ADOPTING THE

**"TWYCLIFFE"**

Patent Pedestal Syphon W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W.C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.

Practically noiseless in action.

Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.

Simple in construction, reliable in action.

No complicated mechanism to get out of order.

Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

**TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.****HOMAN & RODGERS,**

ORIGINAL PATENTEES OF ALL GIRDERS

**ENGINEERS.**

FORMED OF JOISTS AND PLATES

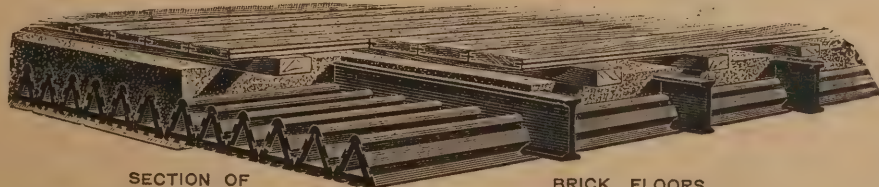
CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS  
USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES

PIERS,



SECTION OF

BRICK FLOORS.

GRANITIC

PAVING STEPS,

ASPHALTE.

**LONDON** OFFICES: 17, GRACECHURCH STREET, E.C.  
WORKS: NINE ELMS LANE, S.W.  
Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue.

**MANCHESTER** OFFICES: 10, MARSDEN STREET.  
WORKS: WEST GORTON.  
Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637

**FIRECLAY BRICK WORKS, PARKSTONE, DORSET.**



material for study for the Architect and the antiquarian. At Mellifont Monastery the round tower and the two well-known Celtic crosses were examined and sketched.

**Society of Engineers.**—At a meeting of the Society of Engineers, held at the Royal United Service Institution, Whitehall, on the 14th inst., Mr. G. Maxwell Lawford, president, in the chair, a paper was read by Prof. Herbert W. Unney, entitled "The Compression of Air by the direct action of Water." The author, by way of introduction, referred to the importance of obtaining compressed air by the simplest possible means. In particular he called attention to the best of all methods, being the only one whereby the compression takes place isothermally. The idea, however, he observed, was not a new one. He referred to the ancient methods in use in Spain, and stated the general principle underlying the system. He then directed special attention to the plant erected by Mr. Frizell, of New York, which gave an efficiency of 52 per cent. when tested. He stated that an abstract of these experiments was recorded in the proceedings of the Institution of Civil Engineers in 1880. The author then described a plant which has recently been erected by Mr. Taylor, of Montreal, giving an increased efficiency of 10 per cent. He gave in detail the method of impregnating the water with minute bubbles of air, the improvement being entirely due to this feature, and pointed out the alterations necessary, being confident of obtaining 75 per cent. of the power at command. He also gave records of the trials conducted, and has computed the various hydraulic losses in the

apparatus. He summarised the advantages of adopting this principle as follows:—1. The compression takes place isothermally. 2. The initial outlay, repairs and working expenses are less than by any other means. 3. It is suitable for adoption in the case of low waterfalls. He claimed that these far outweighed the objections of sinking a shaft.

**Institution of Electrical Engineers.**—The annual conversazione given by the council of the Institution of Electrical Engineers was held last week at the Natural History Museum, and the guests, who numbered nearly 1000, were received by the president, Sir Henry Mance, and Lady Mance. Among those present were Professor D. E. Hughes, F.R.S., Professor Ayrton, F.R.S., Professor Spooner, Professor R. H. Smith, Professor Silvanus Thompson, F.R.S., Professor Crookes, F.R.S., Professor Kennedy, F.R.S., Professor W. C. Unwin, Dr. John Hopkinson, F.R.S., General C. S. Webber, Colonel J. R. Jocelyn, Major McMahon, F.R.S., Major B. Scott, Major Wrottesley, Dr. O. Pyffers, Dr. W. E. Sumpner, Dr. W. Woodward, Messrs. R. E. Crompton, Horace Bell, H. Edmunds, C. E. Spagnoletti, W. G. McMillen, F. C. Danvers, J. Hooke, C. E. Fagan, A. R. Binnie, R. Inwards, H. W. S. Rentell, Kenric B. Murray, and E. W. Richards.

The new Tivoli Theatre at Dover was opened last week. It is a very ornate building, and was designed by the late Mr. C. J. Phipps. The house is fireproof, and has accommodation for 1000 persons, and there is not a seat from which a perfect view of the stage cannot be obtained.

The extensions of the buildings of the Royal Institution for Deaf and Dumb Children, Edgbaston, were opened by Lord Calthorpe on Wednesday, the 16th inst. The additions and alterations have effected a surprising change in both the internal and the external aspect of the buildings.

The foundation stone of a new manse, in connection with the Congregational Church, Ingatstone, was laid on Tuesday, the 15th inst.

A new Baptist Sunday school was opened in Every Street, Nelson, on Wednesday. The building has cost £5000, and provides accommodation for 800 scholars, including lecture halls, classrooms, and vestries.

The Blackburn Road Congregational Church, Bolton, built by Messrs. Lever Brothers, at a cost of nearly £30,000, has just been opened.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**BROMLEY (Kent).**—For sanitary improvements, Bromley College, for the trustees, Messrs. Waring & Nicholson, Architects, 55, Parliament-street, Westminster, S.W.:

	No. 1	No. 2	No. 3
D. Payne	£788	£554	£66
Crossley and Son	732	517	74
Arnand and Son	720	519	54
T. D. Grady	687	505	57

**CELBRIDGE (Ireland).**—For additions, &c., to Workhouse, for the Union Guardians, Mr. L. A. McDonnell, Architect. Quantities by the Architect:—  
John Croner ... £617 | W. Fennell, Celbridge\* £57  
\* Accepted.

**DARTFORD.**—For making-up, paving, &c., Kent, Essex, and Westgate roads, and Highfield-road, North Dartford, Kent, for the Kent and Essex House, Land, and General Investment Co., Ltd.: Mr. G. W. Cobham, Surveyor, 49, Windmill-street, Gravesend:—

Kent Road, &c., Co. £2,438 3 8	T. Adams, Wood
J. Mowlem and Co. 2,237 0 0	Green, N.* £2,118 0
A. T. Catley ... 2,200 0 0	* Accepted.

**EALING.**—For erecting St. Saviour's Mission Church, Ealing, S.W., Mr. Geo. H. Fellowes Pryne, Architect, Queen Anne's-gate, Westminster, S.W. Quantities by Mr. R. Henry Hale, Surveyor, 33, Old Queen-street, Westminster, S.W.:

A. Porter ... £10,972 12 11	Dove Bros. ... £9,705 0
Holloway Bros. 10,555 0 0	Goddard & Sons, ... 9,460 0
Lawrence & Sons 10,300 0 0	Farnham* ... 8,651 0
Holliday & Green-wood 10,220 0 0	Adamson & Sons 8,367 0
Rider and Sons 10,108 0 0	Dorey and Co. ... 8,235 0
H. L. & R. Roberts 10,030 0 0	T. Nye and Sons 8,235 0

[Messrs. Adamson and Sons, Dorey and Co., and T. Nye and Sons withdrew.]

**ELGIN (N.B.).**—For the erection of a dwelling-house, Glenmoray Distillery, for Mr. A. M. Gregory, Mr. C. Doig, Architect, Elgin:—

Building.—Alex. Allan, Elgin	£230 0 0
Carpentry.—James Ross, Elgin	153 5 0
Slating.—Geo. Ogilvie, Elgin	32 18 0
Plumbing.—John Gordon and Son	24 16 8
Plastering.—Scott and Sellar, Aberdeen	52 4 0
Painting.—Alex. Forsyth, Elgin	9 5 0

**HEATON NORRIS.**—Accepted for flagging, &c., Heaton Moor-road, for the Urban District Council:—

4in. flagging at Heaton Moor, 7s. 0d. per yd. 3in.	Hayes Bros., Stockport.
--	-------------------------

**HULL.**—For the execution of drainage works, Heasle, for the Sculcoates Rural District Council. Mr. W. H. Wellist, engineer, Prince's Dock Chambers, Hull:—  
B. Robinson ... £295 0 | A. H. Atkinson, Hull\* £24 0 0  
E. Frost ... 690 0 | \* Accepted.

**LONDONDERRY.**—For the erection of premises, Ferry Quay Gate, for Mr. E. Colhoun. Mr. T. Johnston, Architect, 11, East Wall, Londonderry:—


McClelland and Co., Ltd.	£2,029 0 0	Michael Sweeney £1,695 0
Joseph Colhoun	1,850 0 0	Shannon & Rutledge ... 1,665 0
S. McLaughlin and Co.	1,736 6 8	J. F. Fulton, Fountain, Derry* ... 1,566 10
W. J. Maultsby	1,700 0 0	* Accepted.

**LONDON.**—For new shop front, &c., and alterations at repairs, &c., 170 and 172, High-road, Kilburn, for Mr. C. Chandler. Mr. John Spink, Architect, 64, Holborn Viaduct, J. Bennett ... £420 | E. Wheeler\* ... 375  
Sumner and Co. ... 375 | \* Accepted.  
[Architect's estimate, £346 14s. 6d.]

**WOOD-BLOCK PAVING.**  
(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.  
Estimates and full particulars on application to  
**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM JOINERY WORKS,  
Clapham Junction, S.W.

**LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

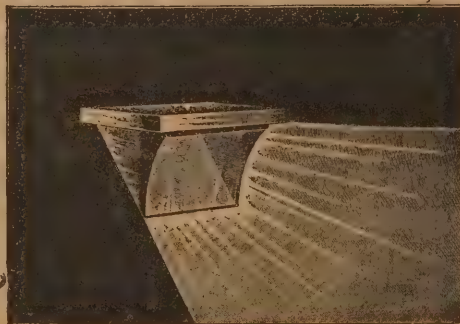
 <p><b>GEORGE WRAGGE</b></p>	<p>DECORATIVE METAL WORK GAS &amp; ELECTRIC LIGHT FITTINGS</p>	<p>Reg No 273662 Section No 21 GLASS INSIDE</p>	<p>WARDRY WORKS SALFORD MANCHESTER LONDON 22 SURREY STREET STRAND W.C.</p>	<p><b>METAL CASEMENTS &amp; SASHES</b></p>
---	--	---	--	--

# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.



## "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation falling on anything which happens to be below.

## WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

## WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



LONDON.—For alterations to No. 133, Kennington-road, S.E. Messrs. Waring and Nicholson, Architects, 55, Parliament-street, Westminster, S.W.:

T. Laphorne and Co. £497 0 Wm. Smith £411 0  
T. Hooper 428 0 Victor Rogers 365 9

LONDON.—For rebuilding the "White Hart" public-house, Kennington Cross, S.E. Messrs. Waring and Nicholson, Architects, 55, Parliament-street, Westminster, S.W.:

F. and H. Higgs £5,835 C. Ansell £5,441  
T. Hooper 5,700 John Marsland 5,405  
C. Dearing and Son 5,532 Wm. Smith 5,355  
T. Laphorne and Co. 5,500

LONDON.—For the erection of artisan dwellings, Nos. 13 to 25, Hayles-street, Southwark, for the trustees of Hayles Estate. Messrs. Waring and Nicholson, Architects, 55, Parliament-street, Westminster, S.W.:

M. Wells and Co. £4,695 C. Ansell £4,402  
P. C. Farmer 4,610 Wm. Smith 4,337  
John Mills 4,500

LONDON.—For erecting private residence on Plot 9, Wandstead Hall Estate, for Mr. A. C. Day. Mr. Joseph G. Needham, Architect and Surveyor, 11, Powerscroft-road, Clapton, N.E.:

W. J. Maddison, Canning Town £1,500

LONDON.—For private street works, for the Hornsey District Council. Mr. E. G. Lovegrove, Engineer and Surveyor:

	Grove- road	Under- road	Hampden- road	Upland- road	Seymour- road	Back- lane
W. T. Williamson and Son	783	2,567	1,229	1,090	784	463
F. A. Jackson & Son, Ltd.	763	2,496	1,197	1,064	767	452
W. Griffiths	739	2,393	1,152	1,028	741	443
T. Adams, Wood Green*	696*	2,240*	1,081*	965*	695*	422*

\* Accepted.

LONDON.—For the erection of 108 workmen's dwellings at Hornsey, for the District Council. Mr. E. J. Lovegrove, Engineer and Surveyor:

J. Chessum and Sons £35,814 McCormick & Sons £37,454  
Dove Bros. 37,587 Patman and Fother-  
ingham 58,934  
C. Godson and Sons 36,620 C. Wall 31,000  
Kirk and Randall 35,165 J. Willmott & Sons, Hornsey\* 28,374  
E. Lawrence and Son 35,520  
Mattock Bros. 35,233  
\* Accepted.

LONDON.—For stabling, ambulance shed, and cottage, at Muswell Hill, for the Hornsey District Council. Mr. E. J. Lovegrove, Engineer and Surveyor:

G. Godson and Son £1,150 J. Willmott & Sons, Hornsey (accepted) £1,141

LONDON.—For the erection of a house, Bostal Heath, for Mr. Brodie. Mr. W. H. Chancy, Architect:

Houghton £885 10 A. J. Ware £610 0  
Thomas and Edge 631 0

LONDON.—Accepted for the construction of two underground conveniences, High-street, and East-road, for the Shoreditch Vestry. Mr. J. Rush Dixon, C.E., Town Hall, Old-street, Shoreditch, E.C.:

Shoreditch High-street Convenience. £2,380  
Geo. Jennings, Lambeth [Surveyor's estimate, £2,500]

New North-road Convenience. £1,575  
Geo. Jennings, Lambeth [Surveyor's estimate, £1,600]

LONDON.—For the erection of a dwelling house, Argyle-street, for Mr. T. M. Knight. Mr. T. Johnston, Architect, 11, East Wall, Londonderry:

John Golligher & Co. £166 12 6 Alexander Dunlop £148 0 0  
Jas. A. Fulton 165 0 0 W. J. Maultsald, Colihoun Brothers. 158 0 0 Rosemount\* 110 0 0  
\* Accepted.

LONDON.—For the erection of business premises, James-street, for Messrs. Brewsters. Mr. T. Johnston, Architect, 11, East Wall, Londonderry:

Jas. McClay £3,431 18 6 Joseph Colihoun £2,695 0 0  
McClelland & Co., Ltd. 3,255 0 0 W. J. Maultsald 2,625 0 0  
M. Sweeny 2,450 0 0

MANCHESTER.—For alterations at the Royal Eye Hospital. Mr. W. Cecil Hardisty, Architect, Manchester. Quantities by Mr. C. Jackson, Brazenose-street, Manchester:

Wilson and Toft £1,338 Slatham and Whitty £1,171  
Southern and Sons 1,230 F. and E. Haynes 1,159  
R. Neill and Sons 1,175 \* Accepted.

MANCHESTER.—For extension and alterations at the Hospital of Consumption, Bowdon, Cheshire. Mr. W. Cecil Hardisty, Architect, Manchester. Quantities by Mr. C. Jackson, Brazenose-street, Manchester:

Wilson and Toft £2,712 0 R. Neill and Sons £2,578 0  
T. Broadbent 2,648 4 J. Hamilton & Son, M. Stone 2,610 0 Altrincham\* 2,537 0  
Southern and Sons 2,500 0 \* Accepted.

MIDDLESBROUGH.—For the execution of street works, for the Corporation. Mr. F. Baker, C.E., Borough Engineer, Municipal-buildings, Middlesbrough:

Joseph Spark £160 1 7 Bennett-street.  
Thomas Hunt 147 0 2  
John T. Dixon, Preston-on-Tees\* 103 17 3  
John T. Dixon, Preston-on-Tees\* 299 6 10 Laws-street.  
Thomas Hunt 147 0 1 Booth-street.  
John T. Dixon, Preston-on-Tees\* 103 2 1 King George-  
Thomas Hunt 232 17 2 street.  
John T. Dixon, Preston-on-Tees\* 170 18 9 Tomlinson-  
Thomas Hunt 153 16 11 street.  
John T. Dixon, Preston-on-Tees\* 105 18 9 \* Accepted.

MORECAMBE.—Accepted for the erection of two houses, Setton-road, Heysham, for Mr. E. Edmondson. Mr. J. Marshall, Architect, Bank-crescent, Morecambe:

Masonry.—Wm. Pool, Morecambe £629 10  
Joinery and Carpentry.—J. Schofield, More-  
cambe 378 12  
Slating and Plastering.—Hall and Son, Lan-  
caster 150 0  
Plumbing.—J. McNair, Morecambe 89 0

NEWHAVEN.—For the extension of premises, Chapel-street. Mr. E. J. Hughes, Architect, Riverside, New-  
haven:

Kemp and Sons £2,332 G. E. Chapman £1,970  
Berry and Bussey 2,070 P. Peters and Sons 1,964  
Longley and Co. 1,989 N. Woolgar 1,948  
General Builders' Co. 1,980 Redmond Bros. 1,800

REIGATE.—For extension of cottage hospital. Messrs. Baker and Penfold, Architects, Reigate:

J. J. Carrick £1,144 0 T. Bushby £895 0  
C. Nightingale & Sons 1,074 0 Buckland and Waters 924 0  
Bagaley and Sons 995 0 R. Killick 898 10

ROEHAMPTON.—For electric lighting, Holy Trinity New Church, Roehampton, S.W. Mr. Geo. H. Fellowes Pryne, Architect, 6, Queen Anne's-gate, Westminster, S.W. Mr. T. Ekin, Engineer, 21, Old Queen-street, Westminster, S.W.:

Tickner and Partington £201 11 6 Electrical and Gen-  
eral Engineering  
The Brush Elec-  
trical Engineer-  
ing Co. 151 8 6  
Laing, Wharton,  
and Down, Ltd.,  
London\* 151 0 0  
Belshaw and Co. 179 11 6 \* Accepted.  
Walter P. Adams 164 14 0

SHERINGHAM.—For building the "Grand Hotel," Sheringham, Norfolk. Mr. Herbert J. Green, Architect and Diocesan Surveyor, Norwich:

Cornish & Gaymer £32,241 14 0 Bardell Bros. £26,909 0 0  
W. H. Brown 29,835 0 0 J. Youngs and  
J. S. Smith 29,893 0 0 Son, Nor-  
wich\* 26,793 0 0  
George Riches 28,729 18 4 James White  
Francis Thoday and Co. 28,300 0 0 (too late) 26,198 0 0  
\* Accepted—subject to modification.

SKEGNESS.—For the erection of a residence, South Parade, for Miss Kirkby. Messrs. Sheppard and Harrison, Architects, 17, Kirkgate, Newark:

J. Crawshaw £1,264 0 Dunckley and Son, Skegness\* £1,040  
J. T. Turner 1,148 13 H. W. Parker 1,025  
\* Accepted.

SOUTHALL (Middlesex).—For levelling, paving, &c., Harewood and Featherstone-terraces, for the Southall-Norwood Urban District Councils. Mr. H. R. Felkin, Engineer, Southall:

Free and Sons £292 A. and B. Hanson, Southall\* £198  
W. Brown 239  
H. Lee 212 \* Accepted.

Harewood-terrace.  
W. Brown £278 A. and B. Hanson £220  
Free and Son 252 H. Lee, Southall\* 226  
Bell 236 \* Accepted.

SPENNYMOOR.—For making highway footpaths from Garden House to Tudhoe Village, for the Urban District Council. Mr. G. W. Rogers, C.E., Silver-street, Spenny-  
moor:

W. Westgarth £1,298 7 0 J. McGuire £1,177 8 4  
R. Raitton 1,206 7 6 F. Dixon, Hebburn\* 986 1 4  
\* Accepted.

STOCKTON-ON-TEES.—For alterations and additions to 1, 2, and 3, Bishop-street, for Mr. J. Harrison. Mr. J. Sanderson, Architect, 134, High-street, Stockton:

C. Dodds £498 16 0 J. Davison, Stockton-  
W. Atkinson 429 0 0 on-Tees (accepted) £418 6 0

TUNBRIDGE WELLS.—For the supply of 1,000 tons Cherbourg quartzite, for the Corporation:

Sommerfeld and Co. s. d.  
Kent Maintenance Company, Ltd. 14 0 per ton.  
Lambert and Co. 14 0  
Whitwick Granite Company, Ltd. 13 5  
W. Hudson 13 3  
Coopers, Ltd., London (accepted) 13 0  
Penlee Elvan Stone Company, for Penlee stone 12 11

WARWICK.—For the erection of tramp wards, &c., at the Workhouse, for the Union Guardians. Mr. F. P. Trepass, Architect, 3, Jury-street, Warwick. Quantities by Archi-  
tect:

J. W. Randall £2,751 7 1 J. H. and J. Cash-  
R. Bowen 2,699 0 0 more 2,324 0 0  
G. F. Smith and Sons 2,428 0 0 E. Tallis, War-  
wick\* 2,212 0 0  
T. Bailey 2,338 6 0 \* Accepted.

[Architect's estimate, £2,535.]

WEST ARDSLEY (Yorks.).—Accepted for the erection of stables, &c., Boyle Hall. Messrs. Nelson and Savage, Architects, 15, Park-row, Leeds:

W. Kitson and Son, Wakefield £1,600

WEST HAM.—For the execution of street works, the Portway, Church-street South, and Plaistow-road. Mr. Lewis Angell, Borough Engineer, West Ham:

Guernsey, Norwegian, Leicester.  
G. J. Anderson £ s. d. £ s. d. £ s. d.  
J. Mowlem & Co. 10,092 10 0 10,092 10 0  
T. Adams 9,963 18 4 10,223 18 4  
W. Wadley 9,107 0 0 9,107 0 0  
W. Griffiths 9,52 6 3 9,242 6 3  
W. Wilson Auchember Pitching 8,857 8 4  
\* Accepted.

WOODFORD.—For building two cottage residences, Malmesbury-road, Woodford Hall, Essex, for Mr. J. F. Gascoyne. Mr. Joseph G. Needham, Architect and surveyor, 11, Powerscroft-road, Clapton:

W. J. Maddison, Canning Town £730

WREXHAM.—For the erection of a Welsh Baptist chapel, Pentre Broughton. Messrs. Davies and Moss, Architects, 11, Regent-street, Wrexham. Quantities by Architects:

John Rogers £1,060 0 Wychelly and Co. £335 0  
S. Moss 987 0 R. S. Roberts, Brough-  
ton (accepted) 882 15  
R. Williams 954 0

# McNEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.) McNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to  
**F. McNEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works  
Kirkintilloch, near Glasgow.

## THE SUNBURY LINCRUSTA-WALTON. WALL DECORATION.

NOVELTIES for 1897—DADOES, FRILLINGS and CEILINGS at 1s. a yard, 21in. wide.  
CHEAP DECORATIONS, DELICATE COLOURINGS, supplied by all Decorators, Furnishers  
or Builders in the United Kingdom.  
LINCRUSTA WALTON, tested and triumphant, "King of Wall Hangings," the only  
Wall Decoration on the Market.  
SOLID in colour, SOLID in relief, and SOLID in value.

Write for Price List, Illustrations of "JUBILEE" and "NATIONAL EMBLEMS," &c., to  
**FREDK. WALTON & CO. Ltd.,** Sole Patentees and Manufacturers,  
Telephone, 3769. 2, NEWMAN ST., OXFORD ST., LONDON, W. Telegrams: "Lincrusta-Walton," London.



Price 3s.

**GLOSSARY OF TECHNICAL TERMS**  
used in Architecture and the Building Trades.  
By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**

—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**SANITARY INSPECTORS' EXAMINATIONS.**

—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required.—For particulars and testimonials apply CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

**R.I.B.A. EXAMS. PREPARATION**

personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

**LONDON PLATE-GLASS INSURANCE CO. LTD.**

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

MODERATE RATES. PROMPT REPLACEMENTS.

SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited.

Liberal Terms for Business Introduced.

**APPOINTMENTS VACANT.**

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**THE LONDON (TELEPHONE {Holborn,} No. 1011.)  
DRAWING & TRACING OFFICE,**

98, Gray's Inn Road, Holborn, W.C.

(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS,  
PERSPECTIVES, SURVEYS,  
COMPETITION DRAWINGS,**Black Line PHOTO-COPIES and Blueprints.  
Quantities, Specifications **LITHOGRAPHED.****MODELS, DIAGRAMS, &c.**TRACING and PRINTING Rooms, HATTON GARDEN,  
connected by Private Telephone.**TO LOCAL SURVEYORS.—ASSISTANCE**

in the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &amp;c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL. 24

**ARCHITECT and SURVEYOR'S ASSISTANT (junior) REQUIRED.** must be good draughtsman, tracer, writer, and general routine. Permanency if suitable. Also an ASSISTANT for spare time or evenings. Thoroughly experienced in quantities and dilapidations.—Letter, stating age, experience, and salary, X., 26, Croxley-road, Paddington, W.**ASSISTANT.**—City Firm, Architects and Surveyors, REQUIRE a good all-round ASSISTANT. Neat draughtsman, with knowledge of valuing and levelling. Permanent if suitable.—Apply, letter only, stating terms, &c., N. D. 428, Messrs. Deacon's, Leadenhall-street.**THE MANTLELESS INCANDESCENT****GAS CORPORATION, Limited,** are about to appoint AGENTS throughout the United Kingdom for the sale of their Patent Burners, and are now prepared to receive applications from gas engineers, ironmongers, gasfitters, plumbers, builders, decorators, &c.—Apply by letter, in the first instance, to THOMAS FLOYD and Co., 20, Victoria-street, London, S.W.**CLERK of WORKS (experienced) RE-****QUIRED (Architectural),** to proceed immediately to a British Colony for service in the Public Works Department. Age between 30 and 40. Salary, £450, rising to £500 per annum. Three years' engagement. Must be fully qualified, and have been in charge of building operations of an extensive character.—Apply by letter, with copies of recent testimonials, to Sir BENJAMIN BAKER, 2, Queen-square-place, Westminster.**FOREMAN BRICKLAYER (Experienced)****REQUIRED** immediately for Government appointment on the West Coast of Africa. Aged between 25 and 40. Must be robust, unmarried, and of strictly temperate habits. Free passage out and home, and free quarters are provided. The length of engagement to be for one year.—Apply by letter only, stating wages required and enclosing copies of testimonials, to W. S., 35a, Great George-street, Westminster, S.W.**WANTED, Capable ARCHITECT'S ASSISTANT.**

—Apply HALL and FENTON, Architects and Surveyors, 10, Paradise-square, Sheffield.

THE

**Local Government Journal**

AND MUNICIPAL, COUNTY, DISTRICT AND PARISH COUNCILLOR.

Record of Poor Law, Sanitary Progress, Official Contracts Open and Appointments Vacant.

**THIS JOURNAL, ESTABLISHED IN 1872,**

Furnishes List of Situations Vacant, Tenders Open under Public Bodies, and gives all information concerning Local Self-government.

**IT IS A FIRST-CLASS MEDIUM FOR OFFICIAL ADVERTISEMENTS,**

And is the Medium between

**LOCAL AUTHORITIES AND CONTRACTORS,**

Forming a most Valuable Medium for the Advertisements of articles suited to the requirements of Public Institutions; and comes before

**50,000 MEMBERS AND OFFICIALS OF LOCAL AND OTHER PUBLIC BOARDS,**

Who are engaged in carrying out the work of Local Government.

**Every Saturday, Price 2d.**

Post Free, Three Months, 2s. 6d.

S. EDGE-CUMBE-ROGERS, 2, Dorset St., Fleet St.

**HAMILTON & CO.'S  
PAINTING BRUSHES,**

GRAINING

TOOLS, &amp;c.

TRADE

SEMPER  
IDEM

MARK.

For Prices apply to Lead and Glass, Varnish, and Oil  
and Colour Merchants, Ironmongers, &c.**Manufactory: 96, CLERKENWELL ROAD, LONDON, E.C.****WOOD BLOCK FLOORING.****MASTIC** for laying above supplied in any quantity.

W. BRIGGS, Chemical Works, DUNDEE,

SOLE MAKER OF

"Tenax" Building Rock Composition

For Wall Cavities.

**PILKINGTON'S**

WORKS:

CLIFTON JUNCTION,  
NEAR MANCHESTER.**TILES.**

MANUFACTURERS OF HIGH CLASS TILES.

F Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR

CHURCHES, PUBLIC BUILDINGS AND

PRIVATE RESIDENCES.

London Show Rooms:

Chambers, 45, Whitcomb Street W.C.

Manchester Show Rooms

37, Cross Street

Reading Cases may be had on application  
to the Manager. Price 1s. 9d. each.


**GODWIN'S TILES**  
for PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGGERHILL WORKS, WITTINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

**FLOOR TILES**

in Stock.

Quick Supply!

Best Quality!

Low Price!

**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.**CAMERAS AND  
SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.

Illustrated  
Catalogue Free.



# Surveying and Sanitary SUPPLEMENT.

JUNE 23RD, 1897.

## PLANNING OF SMALL HOUSES.

(Continued from page lvii.)

By H. V. LANCHESTER, A.R.I.B.A.

No. VI.

**B**EARING in mind the degree of excellence that has been achieved by so many Architects in the design of the small country house, it is with some diffidence that one ventures to supplement the works of men whose abilities in this direction are so noticeable. To name George Devey, Ernest Newton, E. J. May, C. F. A. Voysey, and G. C. Sherrin is to name only a tithe of those who have contributed to the Architectural pre-eminence of our country in this direction. While one cannot but feel the weakness of the English school in buildings requiring a bold and monumental treatment, few will dispute its claim to a leading position where the effect desired is that of homely and unpretending simplicity, interesting in detail, but kept in such harmonious restraint as to render it

absolutely in place among rural surroundings.

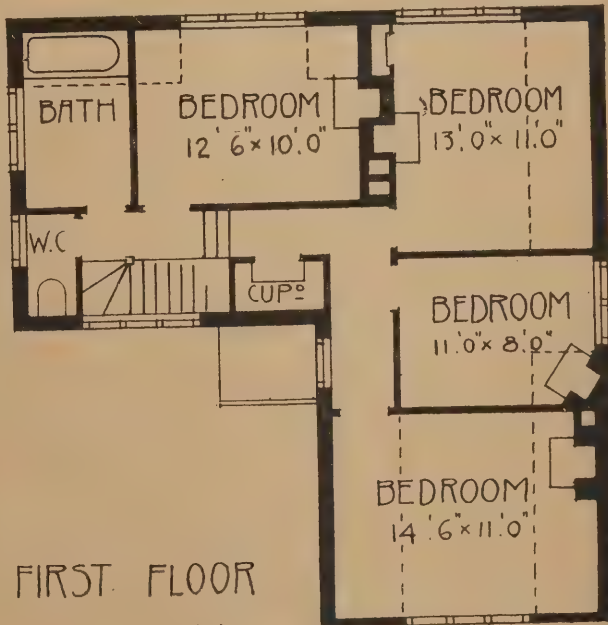
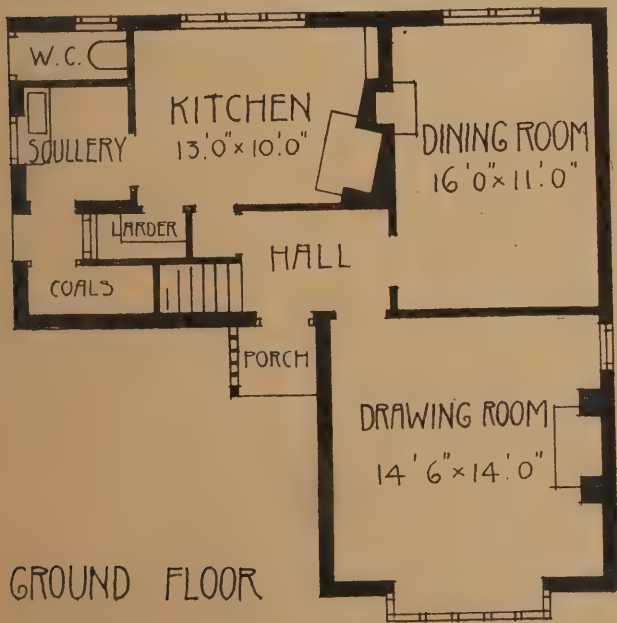
On account of the general high standard of the work that has been carried out on these lines, and illustrated from time to time in the building papers, I have dealt less fully with this portion of my subject than I should otherwise have done. Nevertheless, as these brief articles only deal with the practical side, they could hardly omit some examples of the smallest class of detached country houses, such as the three illustrated herewith. These can scarcely claim to be more than cottages, costing as they do but some four or five hundred pounds, while at the same time they form perfectly suitable residences for small households. Nos. 14 and 15 are not planned with regard to any limitations of site, though the frontage they occupy is not more than could be well spared in any but crowded districts; No. 16, the largest, could be placed on a minimum frontage of 35ft. With regard to No. 15 it will be noticed that the kitchen offices present some modification from the usual arrangement, the scullery being combined with the kitchen, and a pantry, where one or two could sit, being placed so as to form

a lobby cutting the kitchen off from the rest of the house; this may usefully be adopted in larger houses, and would frequently be preferred in one of this size. In other respects the plans do not call for explanation; it may be mentioned that in each case the form and construction of the roof has been considered. Nos. 14 and 15 would be covered with L-shaped roofs, having a pitch of 45° or a little over, and No. 16 would have a low-pitched roof running from front to back, thus showing a wide gable to each, or by carrying the walls a foot or so higher, the roof might be hipped back instead.

The garden and surroundings of the country cottage are perhaps scarcely within my subject, but their importance in contributing to a satisfactory result excuses a brief reference to them. Too much consideration can hardly be given to the question of harmonising a house to its environment. Any paths near the building should be laid out in rectangular lines, and may be paved with red quarries; if there is a fall in the ground, a brick terrace forms a base, as it were, on which the house stands with more dignity than on the general level. Unless the treatment adopted has more scale and solidity than is usual in the cottage

No. 14 DETACHED HOUSE

CUBE AT 12 = £70

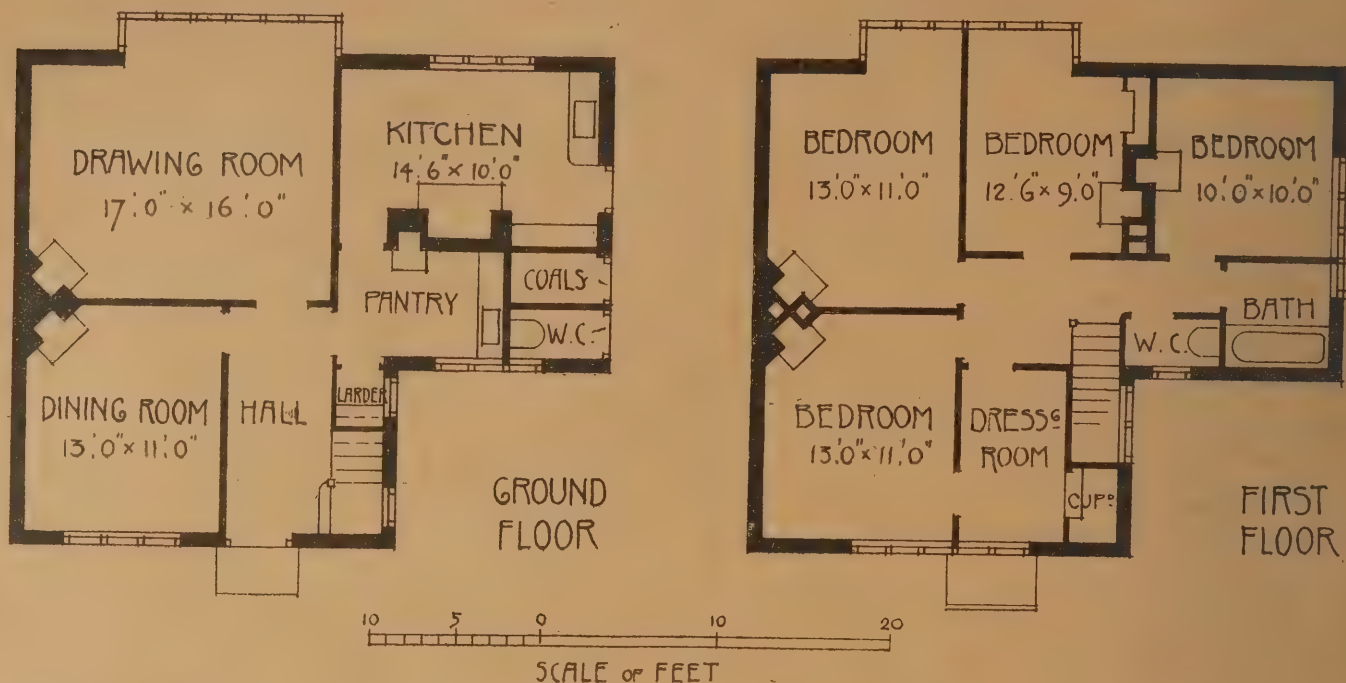


10 5 0 10 20  
SCALE OF FEET



## No 15. DETACHED HOUSE

CUBE AT 12 = £80



it is important to avoid making much of the accessories, such as walls, gates, &c. A clipped hedge is better than an oak fence, and the latter in its turn to be preferred to a brick wall, particularly if the latter has a cast-iron railing on the top. How often do we see a charming wayside hedgerow ruthlessly destroyed for no reason other than that dictated by the conventional idea that a house must have something "better" than a hedge. A simple utilitarianism is often a safer guide than even cultured conventionality.

## DISINFECTION.\*

## PHYSICAL, CHEMICAL, AND MECHANICAL.

(Continued from page 287.)

By W. NOBLE TWELVETREES.

IT must not be supposed that micro-organisms are altogether undesirable creations. On the contrary, they perform many most useful functions. To one type is attributed the conversion of sugar into alcohol. This, perhaps, may not be universally accepted as useful work, but is counterbalanced by the fact that another variety converts alcohol into vinegar. Microbes also effect the decomposition of animal and vegetable matter, thereby releasing elements for further use in the growth of vegetation. The formation of nitrates and nitric acid in the earth is also due to their action. If it were not for the work of bacteria, the earth's surface would be cumbered with the undecomposed remains of animals and plants, and the soil, deprived of its sources of fertilisation, would become barren and incapable of supporting the inhabitants of the world. The ultimate effect of putrefaction, or decomposition by microbes, is purification, organic matter being resolved into carbonic oxide, hydrogen, ammonia, nitrates, &c. During transition, however, poisonous substances are formed, and if microbes have the opportunity of multiplying in the body disease is produced, not so much by the organisms themselves, as by mechanical irritation, the prevention of nutrition, and by the excretion of toxics into the blood. Millions of tiny, unseen creatures such as these, both harmless and harmful, attend our every

action. They exist in the food we eat, the water we drink, live in our streets, offices, and homes, even in our very flesh and blood, ceaselessly performing the work for which they were created by an intelligence wiser and more far-seeing than our own. In their world are no strikes, no agitations for shorter hours, no movements save those of continuous labour and of uninterrupted overtime. Under such circumstances, it is but natural that injury should in certain cases be caused to animal life. The remedy is to be found in the exclusion and extermination of undesirable types, and in the limitation of their influence. These objects have been greatly facilitated by the microbial examination of air, water, and earth.

## COLLECTING.

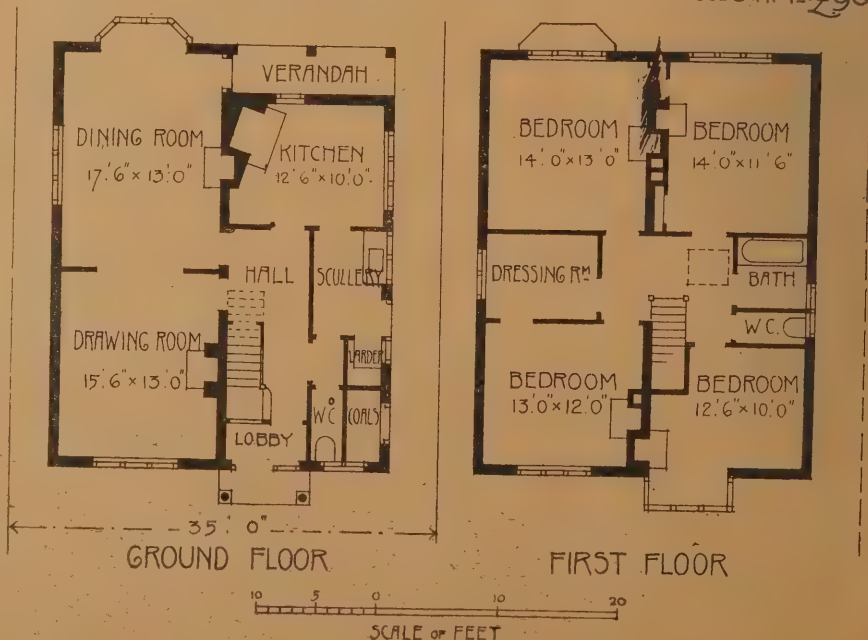
Various forms of apparatus are used for collecting and studying the characteristics of microbes in air. The germs are received in a suitable vessel, through which a measured quantity of air is drawn by means of an aspirator or an air pump. Three well-known types of such

apparatus may be mentioned: (a) Pouchet's—collecting on a glass plate smeared with glycerine; (b) Frankland's—collecting in a tube coated with gelatine; (c) Petri's—collecting in a sand filter. Frankland's and Petri's apparatus have facilities for enabling the operator to ascertain if all germs in the air have actually been collected. Frankland's apparatus has two plugs or filters of glass wool, the second of which should contain no germs. Petri's sand filter should contain no germs in the second or lower section. Water and earth of course require no such apparatus for their examination. Next to the process of collection comes cultivation, performed by placing the germs collected in media composed of gelatine, agar-agar, broth, potatoes, &c. The operation is frequently assisted by means of an incubator, which is a water-jacketed box of sheet metal, lagged with felt, having glass doors, water gauge, thermometer, and a thermo-regulator regulating the supply of gas used for heating. The regulator is actuated by the rise and fall of a column of mercury, and a bye-pass is provided

## No 16

## DETACHED HOUSE

CUBE AT 12 = £90



\* A paper read before the members of the Civil and Mechanical Engineers Society.



so that the flame need never be entirely extinguished.

#### STERILISING.

All experiments are conducted with the greatest precautions for ensuring the absence of all living germs other than those under immediate examination. All apparatus, water, and media are sterilised before use. The sterilising apparatus employed is practically a model disinfector, and the practice of bacteriologists is, therefore, extremely valuable in determining the efficiency of disinfecting apparatus on a large scale. In sterilisation, hot air at a temperature of about 300 deg. F., and steam at 212 deg. F., are employed. The hot air steriliser is an air-jacketed metal chamber usually heated by gas, provided with thermometers to inner and outer compartments and a thermo-regulator. Koch's steam steriliser is a copper vessel, producing steam from a water-pan by means of gas. The lid is loosely fitting to prevent pressure of steam. The apparatus has gauge-glass and cock, thermometer, and a false wire bottom and inner pan with wire bottom, in which objects are placed for treatment.

#### RESULTS.

The results of experiments show that large numbers of germs exist in the air, the quantities varying according to position. Dr. Fischer found that 120 miles from land, sea air is practically free from germs. Dr. Frankland tested two gallons of air in each of the following positions with the below mentioned results: Norwich Cathedral, 300ft. height, seven organisms; Norwich Cathedral, 180ft. height, nine organisms; Norwich Cathedral, ground level, eighteen organisms; Primrose Hill, top, nine organisms; Primrose Hill, bottom, twenty-four organisms. The number of organisms falling per minute on a dish of one square foot area, gave the following figures at the Natural History Museum: Morning, 30; afternoon, 293; Whit Monday, 1755. The old adage that there is "safety in crowds" seems here to be unmitigably reversed. Germs contained in air are chiefly of the less harmful species. Water, both liquid and solid, almost always contains germs, chiefly bacilli. Unfiltered Thames water has been found to contain 20,000 per cubic centimetre, whilst deep well water is almost sterile. Foods, both liquid and solid, contain microbes in considerable numbers, owing largely to contamination with earth and insects. Speaking generally, microbes require for growth both moisture and warmth. Many kinds die if dried; others are rendered dormant, but revive with moisture. Most varieties prefer alkaline to acid solutions. Light kills pathogenic, but helps the growth of harmless types. The increase of the latter in water has a destructive effect on pathogenic germs. Microbes themselves are destroyed with comparative ease, but their spores have much greater resisting powers. Sterilisation by hot air necessitates the free exposure of spores to a temperature of 284° F. for three hours. Sterilisation by steam at 212° F. is said to be effected in five or ten minutes. Boiling is a fairly effective means of sterilisation.

#### PHYSICAL DISINFECTION.

The earlier types of disinfecting apparatus were used with hot air, and were similar in design to the hot air steriliser already described, except that fire was the usual means of applying heat. The high temperature necessary for sterilisation and the length of time occupied owing to the slow penetrating power of hot air, were great drawbacks to the hot air system. Another serious difficulty was the regulation of temperature so as to avoid scorching on the one hand, and imperfect disinfection on the other. Hot air stoves are now practically obsolete, but between them and steam apparatus a connecting link is supplied by Mason's disinfecting chamber. This is a brick-built chamber having a furnace beneath, generating steam and heating the air. Either dry or moist heat may be used separately or in combination. A damper or louvre is provided with the object of automatically regulating the heat. All air leaving

the chamber is purified by passing through the furnace, which is constructed for consuming the cheapest forms of fuel. The apparatus has been favourably reported on by experts, and is being successfully used in many public institutions in the north of England.

#### STEAM DISINFECTORS.

Disinfection by steam is the most rapid and effective means known, but there is an important difference between the operations of superheated and saturated steam. Experiment has shown that superheated steam at 285° F., acting for twenty-two minutes on spores of bacillus anthracis, had no sterilising effect, whereas the action of saturated steam at 213·80° F. for eight minutes entirely killed a portion of the same cultivation. Saturated steam, when introduced to the interior of a disinfecting chamber, condenses so soon as it meets any objects which are of lower temperature. The steam in condensing becomes a thin layer of water, giving up latent heat, which is absorbed by the objects. More steam then occupies the space left vacant by condensation, and the same operation is repeated until the whole of the objects are raised to the temperature of the steam and penetration is complete. This result is usually arrived at within fifteen minutes, the time depending of course on the thickness of the material to be penetrated. Superheated steam, on the other hand, being a perfect gas, acts simply by conduction, and is even slower in its action than hot air. The only useful manner in which superheated steam may be employed is for drying purposes after disinfection has taken place. If so used, care must be taken to prevent superheating at too early a stage. In modern disinfecting apparatus, saturated steam is applied either under pressure in a confined chamber, or as a continuous current through a chamber having a suitable vent. Machines used with steam under pressure are of two classes, viz., high or low pressure disinfectors. Condensation, as affecting the dryness of goods after disinfection, requires consideration, and is variously dealt with by the use of jacketed chambers and other means.

(To be continued.)

## Surveying and Sanitary Notes.

A START is to be made this summer with the outlet works at the lower end of Loch Katrine. These works include the building of a new masonry dam by means of which the level of the water in Loch Katrine will be raised 5ft. above its present top-water level. This will bring up the storage capacity of the loch to 9849 million gallons, which it is estimated will enable it to yield a supply of 65 million gallons per day. The level of Loch Arklet is also to be raised till it is 25ft. above its present level, and a tunnel will connect it with Loch Katrine. This extra source will increase the supply to the city to 75 million gallons per day.

At a meeting of the Birmingham Tame and Rea District Drainage Board, held on the 15th inst., Mr. J. J. Hughes brought up the report of the Works Committee on the preparation and promotion of the Extension Bill. In proposing that the arrangements mentioned in the report be approved and confirmed, Mr. Hughes said that the Bill had become law, the sum of £400,000 having been inserted as the amount that they would have to spend. In passing the Bill there were some eleven obstacles to overcome. Ten of those were distinctly overcome and settled for the time being. The only matter that remained to be dealt with was Mr. Wakefield's case, which stood for arbitration. As for the settlement with Lord Norton, £25,000 seemed to be a large sum; but they obtained the 118 acres of land to start with, besides the water rights at Forge Mills, and further rights of irrigation,

as to which nothing had appeared. As to the borough of Tamworth, their opposition was a great obstacle, but their requirements were so far satisfied that the opposition from that quarter in the House of Commons was withdrawn. In the House of Lords there was no serious opposition.—Alderman Clayton, as an old member of the board, who knew what was involved in these matters, wished to say, on behalf of his colleagues and himself, that they thoroughly appreciated what had been done by the Works Committee and the officers of the board in bringing this matter to a successful issue. The fact that they had brought themselves at last to face the question of doubling the size of the farm, showed that they had arrived at a time when urgency might fairly be said to be in the ascendant. Now that they had obtained the Act he had no doubt that an equal amount of energy would be shown by the Works Committee in carrying the scheme out. They had had to admit the necessity of the scheme, and the work should be carried out as promptly as possible.—It was agreed that the £400,000 be borrowed from the Corporation for the purposes of the scheme.—The Chairman said that all those who had been associated with him in promoting the Bill must have been more and more impressed with the absolute necessity of going on with the matter without delay. He thought that the Works Committee was the proper body to undertake the work. Three years were allowed in which the land must be purchased, and five years in which the work was to be done, and he believed that they would be able to successfully carry out the scheme within these limits.—It was decided that the Works Committee make the purchases of properties and carry out the works authorised by the Act.

COLONEL JOHN ORD HASTED, R.E., one of the inspectors of the Local Government Board, held an inquiry at the Municipal Offices, Keighley, into an application by the Keighley Town Council for borrowing powers for street improvements and gasworks extensions. The amount asked for in respect of street improvements was £40,000, and Mr. Burr explained that the actual estimate of the cost was £39,591 6s. 10d. The application referred to property in North Street, which was included in a Provisional Order confirmed by Parliament in 1892, authorising the Corporation to widen and improve North Street and Cavendish Street. Of the total amount, £32,212 was for North Street, and the sum embraced properties which had already been purchased. The balance of the sum asked for on account of street improvements, amounting to £7376, was for the making of a road from Bradford Road to Belvoir Terrace in Worth Village, and included also the erection of an iron girder bridge over the river Worth. The application for the gasworks was for the sum of £10,639, in order that two additional lifts might be added to two gasholders. Mr. Burr said that the gasworks were of old date, and had belonged to the town since 1824, and extensions had been made from time to time, borrowing powers having been duly granted by the Local Government Board.

THE supply of water in the Leeds reservoirs at the present time is 1,820·96 million gallons, representing seventy-five days' supply. The storage at the corresponding date last year was 1,956·93 million gallons, or eighty and a-half days' supply. The Waterworks Committee has been in negotiation for the purchase of a piece of ground for the purpose of a new burial ground at Fewston. Two plots were selected as suitable, but both of them were objected to by medical officers, and it was therefore decided that a further effort should be made to find a suitable plot.

THE ancient and Royal castle of Tamworth, the property of the Marquis of Townshend, was recently offered for sale at Tamworth Town Hall. The Town Clerk, on behalf of the Corporation, bid £3000, at which figure the property was declared to be bought by the Corporation.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
June 25	Abergavenny—Alterations, Castle-street School...	Managers of Voluntary Schools...	E. A. Johnson, Architect, Abergavenny.
" 25	Bangor, Wales—Stores and Houses, Sackville-road	T. G. Williams	R. Davies, Architect, Bangor.
" 25	Duffton, near Elgin—Offices, Mortlach Distillery		C. C. Doig, Architect, Elgin.
" 25	Glasgow—Station Buildings	Caledonian Railway Company	C. Foreman, 160, Hope-street, Glasgow.
" 25	Mickleover, Derby—Cottages (Two)	County Asylum	J. S. Story, County Surveyor, St. Mary's Gate, Derby.
" 25	Mickleover, Derby—Teak Flooring, Wards	County Asylum	J. S. Story, County Surveyor, St. Mary's Gate, Derby.
" 25	Northowram, Halifax—Alterations, &c., Mechanics' Institute	Directors	J. F. Walsh, Architect, Lancashire and Yorkshire Bank-chambers, Halifax.
" 25	Aughur, Co. Tyrone—Repairs, &c.		Rev. F. Doherty, Tully House, Aughur, Co. Tyrone.
" 25	Hampton, Middlesex—Engine-house, &c.	Urban District Council	T. Shone, 47, Victoria-street, Westminster, S.W.
" 26	Bala—Class Rooms, &c.	County School Managers	R. L. Jones, Architect, Mount-place, Bala.
" 26	Bridlington—Brick Gasholder Tank	Gas Company	T. Newbigging and Son, 5, Norfolk-street, Manchester.
" 26	Bridlington—Houses, &c.	G. V. Mainprize	S. Dyer, Bridlington Quay.
" 26	Glasgow—Masonry Dam	Corporation	J. M. Gale, City-chambers, 45, John-street, Glasgow.
" 28	Torphins, Aberdeen—House	W. Ross	Jenkins and Marr, 16, Bridge-street, Aberdeen.
" 28	Wigan—School and Hall		J. B. Thornley, Powell's-chambers, Standisgate, Wigan.
" 28	Corsham, Wilts.—Additions, &c., Mansion House		T. Holloway, Chippenham, Wilts.
" 29	Bideford—Repairs, 16, Bridgeland-street	Trustees of the Long Bridge	R. T. Hookway, Warden, Bideford d.
" 29	Dover—Car Shed, Buckland	Town Council	H. E. Stilgoe, Town Hall, Dover.
" 29	Kimberworth, Yorks.—Houses, &c.		J. Axleby, Architect, Wilton-lane, Masborough.
" 29	Tong, Bradford—Offices, &c.	School Board	W. and J. B. Bailey, 9, Market-street, Bradford.
" 30	Barnsley—Houses, &c.		H. Crawshaw, Architect, Barnsley.
" 30	Burnley—Works	Lancashire and Yorkshire Railway Co.	Engineer's Office, Hunt's Bank, Manchester.
" 30	Bristol—Grand Stand (800 persons)	Farmers' Club Exhibition	Secretary, 3, Broad-street, Bristol.
" 30	Horsforth, near Leeds—Gate Piers, Walls, &c.	Committee	F. B. Fraser, 8, Park-square, Leeds.
" 30	Oxford—Alterations to Fish Market, &c.	Corporation	Dead Weights Office, The Market, High-street, Oxford.
July 1	Middlewich—Schools and Free Library	Urban District Council	R. T. Worth, Town Hall-chambers, Middlewich.
" 1	Waterford—Cottages (Thirty-five)	Corporation	Borough Surveyor, The Mall, Waterford.
" 1	Bucks.—Brick and Steel Girder Bridge, &c.	County Council	R. J. Thomas, County Hall, Aylesbury.
" 2	Halifax—Works, Canal Machine Works	Managers	M. Hall, 29, North-gate, Halifax.
" 3	Alnwick—Cottages, Wagon Way-road		Clerk of Works Office, Alnwick Castle, Alnwick.
" 5	Enniskillen, Ireland—Town Hall	Commissioners	W. Cleland, Town Clerk, Enniskillen.
" 5	Luton—School Buildings	School Board	J. R. Brown and Son, Market Hill, Luton.
" 5	Porth, Wales—Class Rooms, &c., Porth County School	Governors	J. Rees, Architect, Pentre, Rhonda Valley.
" 7	Douglas, Isle of Man—Municipal Buildings	Corporation	T. H. Nesbitt, Town Hall, Douglas.
" 19	Baslow—Cottages (Twelve)	Urban District Council	V. R. Cockerton, Clerk, Baslow.
<b>ENGINEERING—</b>			
June 25	Crowborough—Pipe-laying, &c.	Provincial Gasworks	Company's Office, St. Stephen's-chambers, Telegraph-street, E.C.
" 25	Wistaston, Cheshire—Widening Bridge	Rural District Council	J. Bebbington, Surveyor, Willaston, Nantwich.
" 26	Lossiemouth—Boom of Iron Rails		Cooper and Wink, Solicitors, Elgin.
" 28	Irvine, Scotland—Wharfage, &c. (270ft.)	Harbour Trustees	G. Thomson and Deas, 97, Wellington-street, Glasgow.
" 28	Portland—Waterworks	Urban District Council	E. J. Elford, Engineer, New-road, Portland.
" 28	Tyldesley, Lancs.—Engine, &c.	Urban District Council	J. Timmins, Netherleigh, The Park, Wigan.
" 29	Plymouth—Boiler Workhouse (Local Contract)	Guardians	Master, Plymouth Workhouse, Plymouth.
" 30	Weston-super-Mare—Pier	Pier Company	Mr. Yockney, 46, Queen Anne's-gate, Westminster.
July 1	Denham Watersplash, near Uxbridge—Bridge	Bucks County Council	R. J. Thomas, County Hall, Aylesbury.
" 5	Diss, Norfolk—Bridge	Urban District Council	Surveyor, Roydon-road, Diss.
" 6	Darlington—Gasholder Tank (143ft. 3in. diameter)	Corporation	Borough Surveyor, Town Hall, Darlington.
" 6	Darlington—Gasholder Tank (140ft. diameter)	Corporation	Borough Surveyor, Town Hall, Darlington.
" 6	Stowmarket, Suffolk—Pumping Plant	Rural District Council	J. Taylor, Sons, and S. Crimp, 27, Great George-street, Westminster.
" 7	London, S.W.—Kitchen Fittings, Western Hospital	Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 10	Wilton, near Lakenheath, Suffolk—Bridge	County Council	T. H. B. Heslop, County Surveyor, Norwich.
Aug. 28	Craiova, Roumania—Water Supply		The Office, Mairie, Craiova, Roumanie.
<b>IRON AND STEEL—</b>			
June 26	Kettering—Sewerage Disposal Ironwork	Urban District Council	T. R. Smith, Engineer, Market-hill, Kettering.
" 29	Navy Contracts—Iron Blocks	Admiralty	Great Western House, Livery-street, Birmingham.
" 30	East Retford—Corrugated Iron Roof	Water Committee	J. B. Fenwick, Gas and Water Offices, Retford.
" 30	Halifax—Rails, &c.	Tramways Committee	E. R. S. Escott, Borough Engineer, Town Hall, Halifax.
" 30	Halifax—Bolts, &c.	Tramways Committee	E. R. S. Escott, Borough Engineer, Town Hall, Halifax.
" 30	Littlehampton, Sussex—Fencing, &c.	Urban District Council	H. Howard, Surveyor, Town Offices, Littlehampton.
July 1	Littenhage, Cape Colony—Pipes	Corporation	Library, Institution of Civil Engineers, Great George-street, London.
<b>PAINTING—</b>			
June 30	London, S.W.—Painting, &c., Infirmary	Guardians	A. N. Henderson, Clerk, St. John's Hill, S.W.
<b>ROADS—</b>			
June 25	Milton-under-Wychwood—Footpath, &c.	Urban District Council	R. Gorton, High-street, Milton-under-Wychwood.
" 25	Walthamstow—Making-up and Laying Concrete Flags	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
" 28	Farnham—Carting Materials	Rural District Council	J. Stedman, The Poplars, Ash.
" 28	Heywood—Materials, &c. (nine months)	Corporation	J. A. Settle, Borough Surveyor, Heywood.
" 29	Haywards Heath, Sussex—Granite (900 tons)	Urban District Council	E. Waugh, Clerk, Haywards Heath.
" 30	Braintree, Essex—Granite (600 tons)	Urban District Council	H. H. Nankivell, Surveyor, Waterworks, Braintree.
" 30	Litherland, Lancs.—Widening, Macadamising, &c.	Urban District Council	W. B. Garton, Surveyor, Sefton-road, Litherland.
" 30	Litherland, Lancs.—Completion, Violet-road	Urban District Council	W. B. Garton, Surveyor, Sefton-road, Litherland.
" 30	Woolwich—Granite Spalls (200 tons)	Guardians	T. Cutter, Clerk, Union Offices, Wopwich.
" 30	Wrexham—Road Stone	Rural District Council	J. Strachan, Crispin Lodge, Wrexham.
July 1	Cardiff—Gravel and Sand (6000 tons)	Corporation	C. H. Priestley, Town Hall, Cardiff.
" 2	East Molesey—Making-up	Urban District Council	J. Stevenson, Council Offices, East Molesey.
" 3	Sevenoaks—Street Works	Urban District Council	J. Mann, Surveyor to the Council, Sevenoaks.
" 5	London, W.C.—Materials	Vestry of St. Martin's-in-the-Fields	C. Mason, Surveyor to the Vestry, London, W.C.
" 6	Middlewich—Macadam, &c.	Urban District Council	R. T. Worth, Town Hall-chambers, Middlewich.
<b>SANITARY—</b>			
June 28	Northallerton—Sanitary Pipes (510 yards)	Urban District Council	W. Fowle, Clerk, Northallerton.
" 28	Tewkesbury—Sewerage Works	Rural District Council	J. Villar, 1A, Cambray, Cheltenham.
" 28	Whitchurch, Wales—Sewer (660 lineal yards)	Rural District Council	W. Fraser, 17, Queen's-chambers, Cardiff.
" 29	Brownhills, Staffs.—Sewerage Works	Urban District Council	H. B. Nicholls, 59, Corporation-street, Birmingham.
" 30	Buckfastleigh—Sewerage Works	Urban District Council	J. Willcocks, Surveyor, Buckfastleigh.
July 5	St. Albans—Scavenging	Rural District Council	R. W. Brabant, Clerk, St. Albans.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
June 29	West Hartlepool—Designs, &c., for Laying out Pleasure Grounds		Corporation.
" 30	Hereford—Designs for Bridge	£10	T. W. Meats, Hereford.
July 1	Elne, France—Water Supply Scheme		La Mario, Elne, Pyrenées Orientales.
" 20	Howth—Presbyterian Church	£20 (merged £10)	Rev. J. Wilson, 4, Rhoda-villas, Howth, Co. Dublin.
" 21	Rugby—Plans for Municipal Buildings	30, 20 guineas	Urban District Council.
" 21	Bury—Plans for Art Gallery and Public Library	£75, £50, £25	Corporation.
" 31	Boole—Designs for Technical School	50, 30, 20 guineas	Corporation.
No date.	Boscombe, Bournemouth—Plans for Hospital Enlargement.		Building Committee.
1898			
Jan. 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.





### Facias and Street Signs.

IN the ante School Board days, when large numbers of the population received no education, and many others made only the most elementary acquaintance of the three R's, it is recorded that a persevering sweep learnt how to read by studying the names of the shopkeepers and their trades and professions, with any other street signs that he happened to pass on his morning rounds in chimney-sweeping. Although we have now had the blessing of universal education for nearly thirty years, it is still possible to find many blunders perpetrated into our street signs, and the before-mentioned sweep must have had a very bad time when he acquired his rudimentary education, for in those days the errors were many and glaring

making assurance doubly sure. Accommodation is also frequently only accorded one *m*. Again, there is very often to be seen on the notice-boards of builders and house decorators (after enumerating the various things the firm can accomplish) the announcement that "experienced workman are sent to all parts." In a well-known thoroughfare leading from Holborn is an announcement of this description. As an instance that even Government departments blunder, it may be mentioned that a little over twenty years since the official stationery department had their carts inscribed "H.M. Stationary Office." The blunder was only allowed to exist for a few days, but not before some wide awake evening newspaper had drawn attention to the "stationary" fact. The floricultural art, too, does not appear to lend itself to correctness in facias, as there is very frequently to be seen on florists' announcements that "bouquets and wreaths" are made to order. As gardeners, as a rule, are somewhat illiterate, this would seem to point to the fact that sign-painters follow their written instructions, as also that invoices from gardening establishments are, at times, fearfully and wonderfully made. In making out invoices and bills the gardener follows what he considers the sound of the names of the plants; in painting sign-boards the Artist or

in, are often more ludicrous than truthful. Again, the haberdashers, or, rather, such few of them as still adhere to the custom of their forefathers, afford much amusement by their suspended goat. Hanging by means of a belly-band at all seasons in such a changeable climate as that of England, and subject to the atmosphere of the metropolis, has not a tendency to cheerfulness, but certainly these suspended goats present more the appearance of drowned sheep than any other animal known to mankind. Then there are the glovers—look what fearful outrages the carvers literally perpetrate at their hands, for certainly was never seen yet a decent, well-shaped hand, gloved or otherwise, suspended from the facia of a glover's establishment, though why we fail to understand, as we should imagine the carving of a good, honest representation of the human hand was not beyond our wood-carvers of the present day. There is still another abomination in carved shop signs, this being the gilded block of wood shaped somewhat after the manner of an isosceles triangle with a rounded base, which is intended to represent a ham—York or Westphalia, as you please. This is one of the worst signs to be seen in the London streets, and we would respectfully suggest that, if it cannot be improved, the ham and



WROUGHT IRON BALUSTRADE. "THE TROCADERO." MANUFACTURED BY MESSRS. JONES AND WILLIS.

indeed. With these, however, it is not our purpose to deal on the present occasion, but rather to touch upon a few of the peculiarities to be found in facias and street signs in the course of a day's ramble through the thoroughfares of the Metropolis; albeit, we must be permitted to remark that it is more than passing strange that sign-writers should be, as a body, such an ill-educated class of men as to be capable of the many blunders which they from time to time commit. We take no count in the following lines of the lavish manner in which commas and other points are distributed in their writing, or of the many unwarrantable liberties which are taken with the possessive case, as a bare enumeration of these errors of commission would occupy far more space than we have at our command. It is not so very long since that he who ran may have read in large letters painted on the side wall of an undertaker's establishment in a northern metropolitan district that funerals were "conducted on the most economic principal." This legend enjoyed the light of day for many years. In a North London coffee-house the public are informed that tea and coffee are "always ready," while the legend on the window of a City coffee-shop instructs passers-by that hot coffee is "ready every morning at five a.m.," which looks much like

writer follows his "copy"—i.e., his written orders. Leaving the mis-spellings, the pranks played by he who gives us bold advertisement are equally strikingly apparent in the carvings. To leave the fearful lions which are found in the Royal Arms, but which have become so common as to cease exciting either notice or ridicule, and who look like fearfully compounded cats, who cannot recall a veterinary establishment where the horse is represented as having a foreleg upraised, presumably intended for an action in trotting, but which really conveys the impression that the animal has been newly shod, and that one of the nails has penetrated the soft portion of the foot, which has been lifted through pain; or that other place, devoted to the sale of lacteal products, where a miserable-looking cow is being milked by an equally unhappy-looking milkmaid. Then there is the Lombardian sign adopted by pawnbrokers, which, commonly known as the three gold balls, are really the arms of the Medici family, and originally represented pills, the founders of the house being apothecaries: hence, when these golden orbs are seen decorated with an encircling ring half-way through, we know that the carver has been allowing his fancy to run free. Signs, again, of public-houses, when carving or pictorial representation is indulged

beef shop proprietors should go one better, and improve it off the face of the earth, leaving to the glaring red in which their establishments are usually painted—why, we wonder, should this be so?—the task of making known the virtues of tasty ham, succulent beef, and toothsome carrots. The three last-mentioned signs are among those which residents in the metropolis certainly could very well dispense with, as they are nothing but the most veritable of artistic eyesores, and in these days serve little, if any, practical use, as all who run now can read—which was not the case in days gone by. The wisdom of our local authorities occasionally comes out in the nomenclature of streets, a notable instance being some years since, if not even now, in the Strand, at Surrey Street, which was so spelt at one end, and Surry at the other, on the principle, we presume, of taking your choice. Only a short time back a road in Clapham caused some discussion, residents of the locality all declaring that it was spelt, *wir*, *wur*, and *wyr*, the name being Wirtemberg. Who shall decide when residents disagree. But none the less someone had blundered. Many other such could be cited. The above are a few of the instances which can be met with every day wherein the sign-writer or carver has



outraged the canons of the English tongue or artistic taste, and the list could be extended to far greater lengths. The samples, however will suffice. As Mr. Herkomer, Mr. Stacy Marks, Sir J. E. Millais, and others have effected a much appreciated reform in the matter of street pictorial advertisement, could not those who have the training of our sign-making wood carvers do something to improve matters in that respect? The sign-writers, we are afraid, are beyond reformation in the matter of mis-spelling, as they are almost sure to follow their own sweet will and way.

#### SHOREDITCH ENTERPRISE.

THE combined scheme of electric lighting and dust destruction which Lord Kelvin inaugurated in Shoreditch on Monday signalises a great advance in municipal house-keeping and in economy of production. The system of using dust as fuel has already been tried, and has proved successful on a small scale. But Shoreditch has adopted a bolder scheme than any yet attempted. Dust and refuse are utilised for generating electric light and for supplying hot water to public baths and laundries, and as on the same site a public library and museum and technical schools are being erected, we have a striking group of buildings which illustrates the progressive movement in Shoreditch. Ten years ago Shoreditch stood for all that was worst in London vestrydom. The only thing upon which the parochial busybodies showed any particular energy was in the consumption of refreshments. But Shoreditch has undergone a marvellous change. Nepotism and pluralism have disappeared, the contractor has been displaced, and a vigorous municipal policy has been pursued. It has given good results in many directions. A notable enterprise was the establishment of a municipal technical school. The centre of the cabinet-making and wood-working industries, Shoreditch was much in need of technical training for its

#### FUTURE ARTIFICERS AND CRAFTSMEN.

But the poor parish had no endowments to support technical education, and it could not levy a rate for the purpose. The Vestry overcame the difficulty by the ingenious device of raising money by letting the street lamp-posts for advertisements. The school soon justified its existence, and will become the nucleus of a much larger and better-equipped institution. When Shoreditch Vestry took the duty of dust removal and cleansing into its own hands it obtained relief from an expensive contract system, but did not solve the problem of economical dust disposal. It has always been a trying thing in great cities to get rid of the daily accumulations of dust, refuse, and garbage. The system of carting or barging the waste away into the country was too expensive to be continued. It was discovered that a cheaper method was its reduction to smoke and clinker by dust destructors. Then it was recognised that the dust crematory involved a shameful waste of heat. As a result, several attempts were made to construct boilers which could use the heat profitably. Schemes were carried out at St. Pancras, Ealing, and elsewhere, but they were not sufficiently matured to ensure absolute confidence in dust as fuel. Shoreditch, after careful investigation, has been able to benefit from all previous experiments, and to establish a

#### UNIQUE UNDERTAKING.

The station which it has constructed is upon the most modern lines. The contents of the household dustbin, street and trade refuse, are carted to the works. Electric lifts and motor-cars distribute the refuse on tipping platforms; mechanical feeders pick it up and charge the cells of the dust destructor. Forced blast is produced by motor-driven fans, and as the works stand near a sewer a fan ventilates the sewer, draws out the gases, passing them into the furnaces, where they feed the flame. A new system of thermal storage which has been introduced economises and stores the heat, as while the dust destructors must be

kept continually at work, an equal production of electric current is not required. The steam generated by the dust destructor passes on to drive the engines and dynamos of the electric lighting station, and the hot water is drawn off as required to the adjoining baths and laundries. All classes in the community are thus served by this system for the utilisation of refuse. The contents of the domestic dustbin returns to the householder in the form of electric light. The vestry is starting wisely by supplying current on a sliding scale which will encourage consumption. The average price may not be more than 4d. per unit. Further, to encourage the popular extension of electric light, penny-in-the-slot meters, with all necessary fittings, will be placed in houses without charge. Free fittings will be supplied in other cases. We may, therefore, look for the popularisation of electricity in Shoreditch.



The current should also be used largely for motive power by the many small manufacturers and cabinet-makers in the district. The whole combined scheme will undoubtedly result in great economies in various directions.

MESSRS. GORDON, LOWTHER, AND GUNTON, Finsbury House, are the Architects to whose designs a public hall and institute are about to be erected at Fordham, Cambs.

At the Kensington Town Hall the case of Peston v. The London County Council came on for arbitration. The claim was made by the trustees under the will of the late Mr. William Peston, the sum claimed being £5753 16s. in respect of the compulsory purchase of the freehold and buildings at 10, Church Court, Kensington. The land was acquired by the London County Council under the Metropolitan Improvement Act of 1894, for the purpose of building a coroner's court and mortuary for Kensington. Since the claim was formulated, the Council had offered the sum of £3400 in settlement. Judgment for £5753 16s. was entered by consent, with costs.

#### THE LOUIS RHEAD POSTERS.

A COLLECTION of some seventy new posters by Mr. Louis Rhead, representing his latest, and certainly most characteristic work in advertisement design, has been on view for some weeks past at St. Bride's Institute, Ludgate Hill. That such an exhibition by a single artist, and one little known as a picture-painter in the ordinary sense, could become an annual affair, and hold its own among the art shows of the London season, would hardly have been credited three years ago. To-day it is one which the student of decoration can least afford to miss. Happily, for the City wayfarer, it is no longer thought unworthy of an Artist of quality to have his signature on the public hoardings as well as on the Royal

Academy walls; and the designing of posters for commercial use may now be looked to as one of the most fruitful fields for experiment in colour and pictorial effect. Already the waste places of our streets have been redeemed from something of their former vulgarity and ugliness by the posters of Dudley Hardy, the Beggarstaff Brothers, J. Hassall, Fred Hyland, and a few others who have been feeling their way towards decorative advertisement, and teaching us the lesson so uncongenial to the English mind—that in order to be original, unique, and impressive, it is not necessary to be hideous, abnormal, or grotesque.

The Art of Louis Rhead, though developed within somewhat narrow conventions, and with a limited set of decorative types, generally fulfils the conditions of a good poster: firstly, that it shall arrest the eye and convey a clear idea of the wares advertised; secondly, that its manner of announcement shall be so pleasing and appropriate as to give a favourable impression of the wares themselves, and invite our interest and patronage. The designs embrace all manner of desirable commodities, from pianos and bicycles to soap, marmalade, and boots. A collection of three score of such posters in the mass is a little confusing to the vision, and each perforce loses something of its quality amid the blaze and glare of its peers; but, at the same time, we are enabled to take a more leisurely and comprehensive view of them in this quiet and well-lighted gallery than we can do in the streets, and thus to gain a better insight into the principles and methods of the poster-painter's art.

The first thing that strikes us in Mr. Louis Rhead's work is his remarkable fertility and ingenuity of design. He can twist a piece of orange peel into a most dainty decorative border for a marmalade label, picturing in the centre a girl with oranges on a balcony looking out towards the sea, and carrying out the colour scheme in rich, cool yellows, admirably set off by the background of blue. Equally ingenious is the poster for "Hop Bitters," in which the light ornamental pattern in white has the effect of being laid over the picture as an afterthought, giving a very quaint and pretty appearance. The female figures are for the most part stately and severe in drawing, sometimes archaic, sometimes classic, sometimes frankly modern, and advertising their wares more often by a contemplative attitude than by declamation or action. To gain this contemplative attitude without affectation is by no means an easy task, but Mr. Rhead achieves it by a wonderful spontaneity and lightness of touch, combined with a dignity and breadth of line which keeps the picture simple and strong, and eliminates everything unessential to the brief and clear statement it is meant to make. These leading figures, which reappear in many guises of race, rank, and costume, have been variously described as Greek,



Italian, and even Japanese in character. It might more justly be said that Louis Rhead's women approximate to an Egyptian type. There is a sort of weird *naïveté*, a mysterious poetry in their look and bearing which is distinctly pleasing, and lends itself remarkably well to the large effects of a poster. Of course we have the pastoral type also—the pink and dimpled milkmaid (whose picture, by the way, has been bought by King Milan of Serbia)—and the characteristic Irish girl whose whisky bottle is very cleverly arranged in a design of shamrock, with trefoil border of the national plant. The symbolic figures for magazine covers, though more conventional, are always graceful and appropriate, and the colour-schemes are thought out with almost unvarying success.

It is indeed as a colourist and a decorator that the artist reveals his individuality and power. One of the most beautiful harmonies in the Exhibition is the "Tobacco" poster, depicting the historic Sir Walter with his pipe, in the costume of the period. Contrary to the artist's custom, the face is slightly shaded, but otherwise the drawing, though bold, is very simple, and three secondary colours suffice for the painting. Only once is a primary colour used in such a quality as to be absolutely painful and violent—namely, in the man's cap in another tobacco poster, where the blue might have been modified without any loss of power. Mr. Rhead is exceedingly happy in his yellows and browns, and some of the most charming of the smaller designs are for printing in two colours only, notably the "Pure Jams" in black and green.

With such a variety of style and subject matter, it is difficult to select any two or three posters as the best in the show. But certainly the "Peacock"—among the smallest and least pretentious of designs—is one of the most perfect decorative devices that the poster-art has yet given us. The conception of a tall, thin girl in yellow, with a green face and black hair and eyes, does not sound at all pretty in words, but the audacity of it is withal so delicate, and the drawing and colouring so ethereal and winsome, that we



are fascinated before we think to criticise. No descriptive formula can give any just idea of the effect which Louis Rhead can get from a few broad lines and three ungraduated colours. In this peacock-girl one is tempted

to call it magic; the lines seem to vibrate under our eyes like strings under a player, and with all its dreaminess the thing is actually alive before us. Eccentric it is, undoubtedly, but it is of that kind of eccentricity that comes with new beauty, and is subservient to it, seeking nothing for itself alone. The merely eccentric may arrest, but it can never satisfy. In the work of Louis Rhead there is always a satisfying element, always something to return to with pleasure as well as to attract at first sight.

The girl with irises, incongruously called "Flower Seeds," is one of the finest pieces of pure decoration in the gallery, but it lacks the arresting qualities necessary for a poster. It would make a delightful screen or panel, with its strong figure dimly seen reaching out among the purple blossoms and long lance leaves. This is an instance of too little action—a charge often brought against Mr. Rhead's feminine types, and not always with reason. What, for example, could be more full of life and action than the bicycle girl at the other end of the room? She is riding straight down upon us at fifteen miles an hour, and we almost move aside to get clear of her front wheel. No wonder that so vigorous an advertisement has been the object of keen competition among purchasers, and it will be interesting to see what enterprising firm of cycle-makers will ultimately put it on the hoardings. It is said that £50 is a price paid for several of the Artist's latest designs.

By the courtesy of Messrs. Hare, we are enabled to reproduce three of this year's posters, which illustrate Mr. Rhead more in his domestic than his classic vein, though the young lady with the cigarettes might, perhaps, resent the classification. Several landscape and seascape designs which reached the Exhibition somewhat late, arriving from abroad, should also be mentioned, especially a "ploughing" subject, singularly rich and striking in colour.

#### THE FIRE-CLAY INDUSTRY.

FOR centuries the manufacture of fire-clay articles has constituted one of the industries of Leeds. The origin and development of the industry are due to the excellence of the fire-clay found in the coal measures along with the seams of coal. The fire-clay is of a special kind suited to the manufacture of fire-bricks for use by engineers for furnaces and other purposes, and also that of gas retorts. It consists of silica and alumina, chiefly in combination as hydrated silicate of alumina, and is remarkably free from the impurities which interfere with the colour and the refractory qualities of clay. The Wortley or Better Bed clay underlies a great part of the east and south of Leeds, and an analysis (inserted in an article by the late Mr. James Holyrod) of this clay, selected for refractory qualities, gave the numbers:—Silica (containing about 0.9 per cent. of titanic acid), 64.93; alumina, 22.54; oxide of iron, 1.61; lime, 0.19; magnesia, 0.02; alkalis, 0.15; combined water with traces of organic matter, 8.28; moisture, 2.28. The products of the industry may be classified as—(1) refractory, (2) sanitary and constructive, (3) decorative. At one time Leeds was famous for its pottery, but this branch of manufacture was allowed to dwindle, and now the decorative is only a minor branch of the Leeds fire-clay industry. It was about the beginning of the present century that the manufacture of fire-bricks was commenced, and sixty years ago this was still the principal article made. The manufacture of coal-gas led to the production of fire-clay retorts and similar articles in large quantities, and afterwards the advance in sanitary science gave new life to the industry. In 1845 the manufacture of sanitary tubes was begun. Since then the methods of producing these and similar articles have been vastly improved. The introduction of a porcelain enamel glaze has greatly furthered the development of sanitary pottery, and by this process it is now possible to produce a variety of articles for which stoneware and earthenware, as generally understood, would be inapplicable. Glazed bricks now constitute one of the chief

products of the Leeds fire-clay industry, and they fetch a higher price in London and elsewhere than any other kind. Besides their use for decorative purposes, the use of vitrified bricks is extending rapidly for the outside surface of buildings in smoky cities, although, curiously enough, in Leeds, where the bricks can be obtained cheaply, such a use is only



beginning to arise. Terra-cotta, a material long known but generally unskillfully used, has had its good qualities exhibited within the last twenty years by most of the leading Architects, and now it forms a very important feature in the Leeds fire-clay trade. It is now extensively used for building purposes. Besides fire-bricks and terra-cotta, there is a special manufacture of porcelain baths which could not, because of their large size, be made in the ordinary earthenware of Staffordshire. The most striking and novel development of the trade, however, was the revival in 1882 of the Faience Art, left to us from the Italian Renaissance of the fifteenth century. The product is not confined to pottery. It is also used for architectural purposes—both for internal and external decoration. Pottery is still made to a certain extent. Unlike most industries of this country, the fire-clay trade has been affected but little by the marvellous mechanical ingenuity which has been one of the leading characteristics of the Queen's reign. Even now, comparatively little machinery is used, and several of the processes in use date back to the most remote periods. Machines have been constructed to supersede the old method of milling by hand, but they have been unsuccessful. It has been found that machine-made fire-bricks have inferior refractory properties. Of course, in some branches machines are now in successful operation. Since the Queen's accession to the throne the fire-clay industry has developed from an insignificant to an important industry. In 1837 there were, roughly speaking, only about 200 hands employed; in 1897 the number has been increased to nearly 3000. Within the last few years the industry has not grown to any very important extent, hostile tariffs having greatly curtailed the export business.

At a cost of nearly £25,000 a block of warehouses is about to be built in High Street, E., according to the designs of Mr. Charles Dunch, Architect, St. Clement's House, Clement's Lane.

PENDING the rebuilding of the South Kensington Museum, the directors will abstain from making further purchases for their various collections. A sum of over £11,000, a grant in aid towards such purposes, appears in the votes of the present year. This and successive grants will presumably be allowed to accumulate to the credit of the Museum.



## In Istria and Dalmatia with a Camera.

(Concluded.)

By W. LAW BROS.

### IV.—SPALATO.

FOR the Artist and archæologist I cannot conceive a keener sensation of delight than that experienced on entering the harbour of Spalato on a fine summer evening, and seeing the long grey walls of the palace of Diocletian gilded by the low western sun, and the wonderful mass of shipping with sails of all hues, and often painted with picturesque designs, as a foreground to complete the picture, and in the far distance the huge mountains of the Dinaric Alps, still with some snow in irregular patches in sheltered spots.

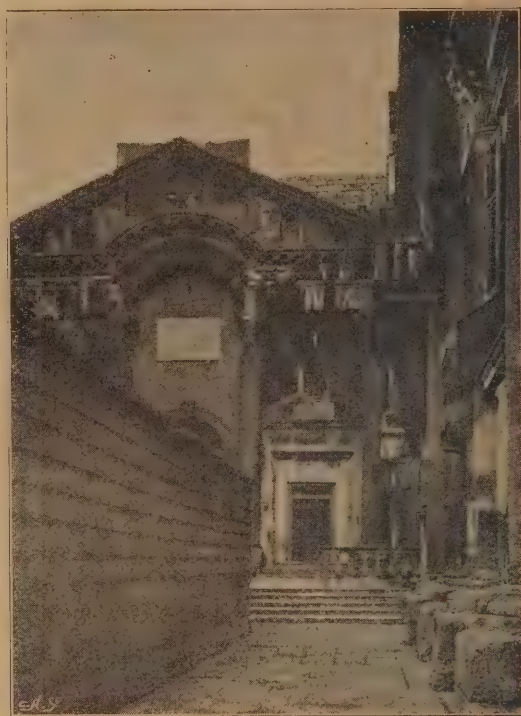
It is dark by the time you have landed, and your first impression of the narrow lanes which have grown up within the four walls of the Roman palace are of huge masses of masonry dimly lighted by a few feeble and flickering gas lamps which yield "no light, but rather darkness visible." But perhaps this gloom gives better than any light the first vague impressions of the colossal remains by which you are surrounded. In Zara and Sebenico

of the inhabitants took refuge within the walls of the palace, which successfully withstood the assaults of the barbarians, and here, inside the palace walls, grew up the present town of Spalato.

A daylight walk reveals the huge masses of Roman masonry, which loomed so huge and shapeless in the dark, as you pass into the peristyle of the palace, now the Grande Place of the town. Here is a perfect front and two wings of Diocletian's work, and marvellous work it is, after sixteen centuries of neglect. But look at the construction. The cornice of the pediment leaps across the central intercolumniation in the form of an arch. You have in fact a building in which the pretence of trabeated construction is abandoned, and in which for the first time the semi-circular arch takes the lead, and the pediment is acknowledged to be a subordinate feature. Look at the wings of the building and see the arches rising directly from the capitals of columns.

The sheds shown in the accompanying illustrations are erected round what was, but alas! is no more, a superb Romanesque tower on a Roman substructure; but its place is now occupied with an enormous scaffolding, within which is slowly rising a nineteenth century

Romanesque tower, spick and span, and the ground inside the sheds is littered about with sculptured stones, some of Diocletian's work, others of later times. The old tower only now remains in old drawings and photographs. Surely some more conservative surgery would have been possible rather than the utter destruction of an old, and the substitution of what we can only call a modern forgery. Surely the nineteenth century should produce nineteenth-century work, and not confine itself to imitations of twelfth or thirteenth century work, long after



DIOCLETIAN'S PALACE, SPALATO.



DIOCLETIAN'S PALACE, SPALATO.

the water power of the rivers has been utilised, and the streets are brilliantly lighted by electricity, but here, at Spalato, you are in an older world, and such new-fangled notions are not to be tolerated. It is best to retire to your hotel and read up your guide-book and prepare plans for the morrow.

The history of Spalato is deeply interesting. Diocletian, the son of slave parents, rose by his energy and capacity to the position of governor to the Roman colony of Salona, and afterwards assumed the imperial purple, making his headquarters in the town which he had governed. On the sea coast, five miles from Salona, he built (A.D. 284-303), perhaps, the grandest habitation ever yet constructed, covering between nine and ten acres, according to English measurement, and to this palace he retired, and here he died in the same year which produced the reversal of his traditional policy of persecuting the Christians and the promulgation of the edict of toleration by Constantine, to be followed a very few years later by the conversion of that Emperor to the new faith.

A very few years after his death, his palace was utilised, in part at all events, as a clothing factory for the Roman troops, and so it probably remained till the disruption of the Roman Empire, and the terrible year 639 saw the invasion of the Avars and the utter destruction of the Roman city of Salona. A few

the spirit of those centuries has departed!

Rather than the horrible restorations, under which name modern Architects have wrought more mischief than has ever been done by Goths and Vandals, Huns and Avars, let us reverently preserve all that can be possibly preserved; and where we must re-build, let it be in work of our own time, without any pretence of a mere copy.

These reflections are forced upon you on entering what is now the Cathedral—a round building, some 45ft. in diameter. Was this the intended tomb of its founder? Its

position and construction seem to indicate this object, and we think that most authorities consider such to be the case, although tradition gives it no other designation than a Temple of Jupiter, and some authorities have looked upon the Temple of Æsculapius, which still stands symmetrically on the opposite side of the peristyle, as possibly the tomb. This is used now as a baptistery. It is a curious example of the irony of fate that, whichever of these two views may be the correct one, the tomb of the great persecutor of the Christian religion should now hold an important position in the offices of that religion, either as Cathedral or Baptistery.

Squeezing your way among scaffold poles and hoardings, which half reveal and half conceal the Roman work, you see a red granite Egyptian sphinx, mounting guard at the entrance of the tomb, Temple or Cathedral; possibly there is, or has been, a second, and the pair may have been brought here in honour of exploits of the Dalmatian troops in Egypt; but while among the ruins one may speculate freely on what might have been, it is, perhaps, wiser to record what is. The interior of the Cathedral is shown in the illus-



REAR OF DIOCLETIAN'S PALACE, SPALATO.



tration. The walls are indeed Roman, but the carvings are modern. The originals are in the museum. The authorities did not consider that these old, weather-worn, and decayed stones, in their original position, would have had far more interest and value than the present substitutes, which are, however, very pretty and probably good servile copies of their predecessors. Three out of the four city gates are still in existence, and show the same Romanesque, rather than Roman design, which I have already noted, and only the limits of space prevent mention showing more evidences of this same development of style. I cannot, however, forbear inserting a view from the roof of the Cathedral, showing the rear of the main entrance of the Palace, and the huge arches turned with tiles, and the bonding courses of the same material, together with the buildings which the degenerate successors of the Romans have thought fit to erect against them.

Before leaving, you should pay a hurried visit to the howling wilderness which once formed the flourishing city of Salona. Of its former magnificence you can form an opinion only from the scattered remains of its amphitheatre and its baths, its Temples, basilicas and aqueduct, all of which scattered remains are strewn about. Some small amount of excavation has been carried out, but the Austrian Government is not wealthy, and troops and ironclads are required more urgently than mere archaeology, and such things receive scant attention.

I have selected from my photographs two which show, first a necropolis, where the stone sarcophagi are literally to be found by the hundred, some entire, some broken, some with covers, and some without, of all sizes and dates. Many bear early Christian emblems, which show that faith to have been strongly held here. Some few, with very elaborate designs, have been removed to the museum at Spalato, but many more remain here neglected and deserted, amid rank grass and weeds, with which Nature is kindly labouring, slowly but certainly, to efface all traces of the ravages of man.

Another view is of the remains of a Christian basilica. Its rows of stately columns show what a superb building it must have been in its time of prosperity, but now few ruins are more hopelessly deserted and forlorn. It is hard to form a guess at its date even. Diocletian would never have allowed the Christians to erect a basilica in his time, and in his favourite town of Salona, and the sect must have become very wealthy and powerful to have built on such a scale. On the other hand, the town was utterly destroyed in 639, consequently these ruins cannot be later, and are probably not much earlier, than this date.

Hard by the ruins is a small albergo, the vine-covered porch of which is supported by a Roman column, its base in the air, on the right hand, and on the left by two Roman fragments with superb composite capitals—one reversed forms a base, while the other retains its proper position. Above is a magnificent head of Medusa. Over the other door, beside the sign of the Austrian tobacco regie, is the bust of an Emperor, and above, a portion of a richly carved column surmounted by other busts. Further examination reveals inscriptions, altars, fragments of cornices and capitals, which tell a tale of the wealth of materials at hand when this little wine-shop was erected. It is perhaps a fitting picture to conclude this series of Dalmatian sketches.

Thousands of Englishmen visit every year the cities of Italy. How few of them seek the opposite coast of the Adriatic! And yet, perhaps, those who have read these rough notes and seen the photographs will agree with me that there are few coasts in Europe which should have more attractions to the lover of Arts, History, or Literature, than that of Dalmatia.

The foundation-stone of a new chancel and vestry, costing £800, to Stockingford Church, near Nuneaton, has been laid.

## NOTES ON CONCRETE & CEMENTS.\*

(Continued from page 300.)

By JOHN JAMES HENDERSON, DUNDEE.

IN street pavements and railway platforms concrete has found a more general adaptation than in almost any other direction. It is



REPUTED TOMB OF DIOCLETIAN. NOW THE CATHEDRAL, SPALATO.

often laid *in situ*, but sometimes as slabs. The Victoria Stone Company and Imperial Stone Company of London manufacture slabs which are found more convenient in London as having to be frequently lifted and relaid; while the Granolithic is more frequently manufactured in its place in alternate sections. Messrs. Doulton have recently put on the market a tile shaped like the letter L, for use in building transformer chambers or manholes in streets, with a backing of concrete, of which the tiles form the lagging. All these various examples of the use of concrete have one common feature in that they are designed, more or less, to resemble the stone or concrete formed in the great laboratory of Nature, the mechanically formed arenaceous stones less or more closely compacted according to the size of the grains, the proportion of cementitious matter, and the pressure to which they have been subjected. This pressure is one of the main causes why the lower beds of a quarry are stronger than those above, and the more nearly we can imitate Nature in the quality, method, and manner of our composition of concrete, the greater success will attend our efforts. There

\* A paper read before the Edinburgh Architectural Society.

is an example of the use of concrete in the railway bridge over the Dochart on the line from Killin Junction to Loch Tay, built about nine years ago; five arches are constructed, but so little care has been exercised that the marks of the lagging boards are easily discerned. Each arch was thrown in one day, and centring was used as in an ordinary arch. An attempt has been made to give it a monumental expression by a battlemented cornice, but its failure is conspicuous by the rough surface of the wooden moulds showing on the concrete blocks and the corners and mouldings chipping off. These roughnesses afford foothold for vegetable germs which may eventually bring about disintegration. There are upwards of 200 blocks in this cornice, and five different moulds would be required, so that a very little extra outlay for brass moulds, or for lining the wooden ones with zinc, would have greatly enhanced the monumental appearance and vastly increased the durability. Four years ago a bridge was built over the Danube, where the centring boards were covered with strong packing paper well soaked in linseed oil and with planed wedge fillets nailed on the soffit to give the appearance of ashlar courses on soffit, and the face boards planed and foiled and fitted with similar fillets to imitate voussoirs. Examining the structure of stones under the microscope is an interesting study, and you may draw a comparison between one loosely put together, though regular in formation, such as the housemaid would use for polishing the hearthstone or doorstep, and others equally regular but more closely compressed, and therefore suitable for use in buildings of longer or shorter endurance. In these two points of compression and reduction of aggregate, considerable progress has been made. In the first specimens of Victoria stone laid down in Westminster some twenty years ago, large-sized stones were allowed to be used, with the natural result that the more

easily abraded portions wore away quickly, leaving the harder nuggets protruding, much to the discomfort of the pedestrian. This is now almost wholly cured by the use of aggregate not much larger than hemp seed, making the artificial slabs far superior to the best natural stone flagging, as even then it is not always possible to obtain equally hard material. All these slabs and pipes are made, as I have already said, under compression, sometimes applied by a hammer or beaten in the hands



NECROPOLIS, SALONA.

of the moulder, in other instances by mechanical power. In the case of the Imperial stone there is also a trembling motion imparted to the frame in which the slabs are made so as to



consolidate the materials, attaining the same end by shaking as was attained in the case of the Welsh dam by hand-placing and beating—that is, to make the pieces of aggregate jam themselves together in the smallest possible space. It is not now so finical or unnecessary as it seemed a few years ago to be specially careful over the choice of an aggregate suitable for the intended work. Sand plays the most important part, and, according as it is selected from the bed of a river or from the geological deposits in land pits, the resultant strength of the concrete will be less or more.



RUINS OF BASILICA, SALONA.

Pit sand is preferred by some because it possesses greater angularity of surface than that which has been subjected to the rounding action of the current of a stream. From recent experiments it is ascertained that with fine sand more cement is required than with coarse sand to obtain the same quality of mortar, because within certain limits the coarser sand gives smaller interstices requiring to be filled with cement. Monsieur Feret, the Director of the Laboratory of Roads and Bridges at Paris, in 1893 demonstrated that for any large and important undertaking the architect or engineer should specially investigate the

#### QUALITY OF THE SAND

at his disposal, so as to ensure the most economical proportions; and, further, that the proportions should be settled by the relative weight of the materials instead of by the measure. Some of the artificial stone companies prepare their own sand by selecting the stone and crushing it to the requisite size. The question of cost, either of crushing or carriage, may sometimes prevent the Architect or engineer selecting the very best sand, but I venture to claim and assert that no question or objection whatever should prevent him insisting on the sand and all other aggregate being thoroughly washed. It is scarcely within the bounds of possibility to obtain a sand so clean as that on being washed it will not throw off some clay or loamy sediment. Take a sample of any sand from a builder's yard and put it among water, stirring it up so as to test its impurity. The Victoria Stone Company wash the crushed granite in a Matthews washing machine, expressly to remove the dust generated in the process of crushing, because this dust, though partaking of the nature of stone, is non-adhesive, and prevents the adhesion of the cement to the stone. It is worthy of notice that every stone entering into the composition of the Welsh monolithic dam has been washed from a hosepipe under a pressure of 140 feet, while the rock crushed into sand and gravel was also subjected to the same thorough scrubbing. If you even take a sample of sand obtained by crushing stoneware pipes or fireclay retorts and put it in water, you will demonstrate for yourselves

the necessity of washing even such a material after crushing. Messrs. Robinson, who manufacture a cement from alabaster, say in their circular that, unless the user is prepared to thoroughly wash the sand, they would prefer that he should not use their cement. Next in order comes gravel. If it is small (say about the size of pigeons' eggs), it will in ordinary cases be used as it comes to hand, and this may give fairly satisfactory results where one can be confident that no strain will come upon the work other than a direct downward thrust or compression.

But one can never be positively certain that a compressive strain may not occasionally be changed into one of tension or torsion, and in such circumstances the smooth surfaces of the pebbles offer no grip for the cement. Some years ago there was a failure in the walls of the dock at Arbroath, and part of the concrete foundation was taken out. I had an opportunity of inspecting some of the blocks as they lay on the quay, and in these blocks the pebbles stood out like knuckles, leaving on the other blocks the corresponding matrices or moulds, clearly showing that the strength of the block was not aided or

increased by the presence of the gravel, and exemplifying at the same time the incorrect idea of a matrix and the insufficient homogeneity of the mass. If the gravel is large and crushed by a stone crusher, it then forms an aggregate of great value because of the angular points and roughened surfaces which it presents. Then stones or quarry refuse are good aggregates, and according to the quality of the stone so will be the strength of the work. Granite mixed with a due proportion of other kinds of a less smooth texture will give the best results in pavements or railway platforms. Probably from the want of mixture, along with rot being open to the cleansing action of the rain, the covered-in platforms of railway stations are sometimes dangerously slippery, fine sand has to be sprinkled over them. From some experiments of my own, made a few years ago preparatory to laying the platform of a bridge, I formed the conclusion that, for breaking strain and tensile strain, limestone is superior to granite as an aggregate. In both the stone and the cement broke equally across, but the granite showed a more glassy-like fracture. Then, as a means of

#### UTILISING WASTE PRODUCTS,

broken pottery and disused gas retorts form one of the very best aggregates, particularly in the construction of fireproof work, as this aggregate, having been tested as by fire, is

really fireproof. Some so-called fireproof work would miserably fail if put to the test, because its component materials have not been passed through the trial by fire previous to use. Another waste product which has long been an eyesore and a nuisance is the slag refuse from ironworks, but it is now being largely used as an aggregate. Messrs. Jones, of Middlesbrough, compound both slabs and bricks with cement and slag. In Dundee we have several examples of stone balustrade cornices being repaired with fireclay balusters; but you are well aware that such articles in fireclay cannot always be obtained of exactly one height and without any twisting, whereas, if such articles were made of concrete, of cement, and any waste product in iron or brass moulds and under pressure, absolute exactness of shape and dimension would be obtained. See specimen of pipe for smoothness. Before leaving this part of the subject I would like to urge on the younger members especially to be extremely careful with the

#### SPECIFICATION OF CONCRETE,

to see that the right proportions are specified, and to see that the contractor complies with the conditions; as, for example, you may specify cement, sand, and broken stone in certain proportions, and he may think he is doing you a good turn by putting in some gravel among the sand, whereas he is frustrating your good intentions. It is even more important still to steer clear of voids or air spaces in concrete, and a very practical way of solving this is to fill a measure with the broken stone you are using, shake it well down, and fill up the measure with water. The quantity of water will represent the quantity of sand and cement required. Repeat the experiment in the same way with the sand, and the resultant quantity of water will be the quantity of cement required. Four-fifths at least of all the concrete work of the present day is compounded with Portland cement for the matrix. The word matrix may have obtained its general use from the idea of the stones or aggregate being placed in the soft cement mortar as in a mould or matrix; but this idea comes very far short of conveying to the mind the true purpose, which is to form a homogeneous monolithic mass, in which the lime or cement performs the function of a binding or cementing agent, causing the particles of the aggregate to adhere firmly to each other. Sometimes other cements are



A WAYSIDE INN, SALONA.

used, such as Medina and Roman; they are much quicker setting, and therefore more suitable for jointing ashlar in tidal work, but not so suitable for ordinary concreting. Occasionally ordinary lime or hydraulic lime is used, but, on a comparison of strength in its ratio to bulk, Portland is by far the most convenient and economical. It was first made



by Aspdin in 1824, and so named by him from its resemblance to Portland stone. Chalk and clay are the component parts. From 70 to 80 per cent. of the chalk and 20 to 30 per cent. of the clay are mixed with a quantity of water into a thick paste or slurry, as it is called by the workmen, run into tanks, allowed to settle, the surplus water run off, then the paste is taken out and dried either in air or by help of steam. When sufficiently dried it is burned in kilns at a high temperature, after the manner of burning limestone. After being sufficiently calcined it becomes clinker, and when withdrawn from the kiln is allowed to cool, ground to an almost impalpable powder, packed in casks or bags, and put on the market. Within the lines of this brief description there is room for a most extended lecture, which would be more useful to manufacturers than to the present company. Yet a few remarks are due to the importance of the cement which enters so largely into the composition of all concrete.

## CEMENTS.

As is well known, there is *good* concrete and *bad* concrete. In the case of bad concrete 60 per cent. are caused by bad cement, 25 by bad aggregates, and 15 by bad manipulation. It is therefore important to know when the cement is good, and how to prove its goodness. When too much clay is used in the compound, a light-weight cement is produced, rather quick setting, and liable to crumble on exposure. When too little clay (equivalent to an overdose of lime) is found in the mixture, it will stand a high degree of temperature in calcining, but the resulting cement will be liable to blow, blister, or swell in the work from the air slaking of particles of lime. The basis of cement is carbonate of lime, and the best samples from 74 to 77 per cent. of this chemical. Formerly the intimate mixture of the components was effected by the aid of a very large quantity of water, which had to be all dried off again, but now the mixture is effected by grinding with a very small quantity of water, from 35 to 40 per cent. of the whole mass or twenty-two to twenty-four parts of water added to every 100 parts of the dry materials, thus shortening the drying process, and improving the intimate incorporation of the two materials. In some of the German manufactories the chalk and clay are ground and washed separately before calcining, so as the more readily to ensure the mathematical adjustment of their proportions and the separation of any foreign deleterious substances. In the burning, the portion at the bottom is apt to be overburnt and that at the top insufficiently burned, and in the best manufactories these are separated on their removal from the kiln. The grinding of the clinker is the next important step, the fact having been clearly demonstrated by repeated experiments that the finer the cement is ground the greater its strength, and the greater the quantity of sand which it will carry. From very few manufactories is the cement now sent out without being sifted and the residue or coarse particles put again through the grinding mill. Before being used, the cement must be cooled down by spreading out over a wooden floor to air, slake the coarser particles, and prevent its too quickly setting. A very moderate specification for cement is that it should weigh not less than 108 lb. per bushel and not more than 116 lb.; that it be of such fineness as wholly to pass through a sieve of 2500 meshes to the square inch; that not more than 10 per cent. of residue should remain in a sieve of 3600 meshes to the square inch; and that briquettes of neat cement after immersion in water for seven days should bear a tensile strain of at least 360 lb. per square inch; but too often a good cement is killed by dirty sand or bad aggregate. Consequently a desire sprung up to have a nearer approximation to the actual facts by mixing certain proportions of sand in the cement briquettes—usually one to three; but the sand had to be reduced to a standard, so that part is taken which passes through a sieve of 400 meshes to the square inch, but does not pass through the 900. This testing with sand has been in use in Germany for many years, but more recently adopted

in Britain. The German manufacturers use one particular sand for testing. It is not possible for the same to be done here in every case; but with care in choosing a sand which shows under the microscope that it is of an angular formation and not rounded, and which a chemical examination shows to be free of any deleterious chemical compound, a tensile strain of 250 lb. to the square inch should be obtained. Anything less should not be accepted. From this 250 at seven days the strength should increase very rapidly up to twenty-eight days, and then more slowly, so that in any large undertaking briquettes should be made in sufficient number to have two tests at each period of one, two, three, and four weeks. In 1894 Messrs. Dyckerhoff published the result of their experiments, to the effect that a cement which would leave a residue of 10 per cent. on a 2500 mesh would show a tensile strength of 42 per cent. greater than the same cement from which the coarser particles had been removed by a 32,200 mesh, but that the latter—that is, the finer cement—when mixed with standard sand three to one would show 41 per cent. greater than the coarse cement (these all at seven days), and 64 in the case of one of cement to five of sand at the end of twenty-five weeks. This result has recently been confirmed by a severe storm which arose between the majority of cement manufacturers of London and one firm who thought to improve their cement by the addition of ground ragstone. It is about two years since this happened, and last November Mr Butler gave to the Society of Engineers the results of a long series of experiments showing that the extremely fine particles of neat cement by themselves are not so strong as a cement containing coarser particles of clinker, which form, so to speak, a perfect aggregate and nucleus of crystallisation, and the presence of small particles of inert material afford more nuclei of crystallisation and thus enable the briquettes under test to show a higher tensile power; but when standard sand is added to the briquettes then a lower tensile strength results, which might be expected, because, if two particles of sand or aggregate have between them a particle of an inert substance instead of an active cementitious particle of cement, the weakening of the mass must result. Dr. Michaelis, of Berlin, in his report to the London Chamber of Commerce brought out the same results. At the risk of repeating myself, I ask you to notice that the same argument holds good for the washing of all sand and aggregate just before use, because the crushing of the stone and the abrasion of the sand causes the formation of dust which is not cementitious and which envelops the particles of sand or aggregate and so prevents the active cementing agent binding the particles together. Having therefore attained some excellence in the manufacture of cement, let us turn our attention to securing good sand and good aggregate, not merely in slabs, bricks, pipes, or other articles made in the workshop, but in the ordinary work of foundations, street pavements, and house walls. Why should we think to save some cost on the price of the cement when we have to pay carriage of the coarser particles from London to Edinburgh which could be got more cheaply nearer home? And how annoying it is to see good cement killed by the carelessness of workmen making up the cement on the street or on the clay ground, allowing chips of wood, or straw, or reeds which have been brought in with the sand, or any other ingredient, quite promiscuous like to be incorporated with the cement. One difficulty which prevents progress being made quickly is the want of a national museum or public gallery for testing various samples at various ages. Of course the manufacturers preserve their own records, but these are not accessible to the student, and cannot be compared one with another. Perhaps in this Jubilee year some beginning in this direction might be made by one of the learned societies or by one of the rich municipalities of the empire. I would like to raise my voice in warning against that phrase so often seen in flaring advertisements: "No skilled labour required." That phrase has wrought more

mischievous than can be calculated. There is no work, however humble or simple it may look, but requires skill, and the proper mixing of concrete requires skill of no ordinary kind.

## WEST RIDING COUNTY BUILDINGS.

THE West Riding County Council has applied to the Local Government Board for leave to borrow about £125,000. Of this amount it is proposed to spend upwards of £80,850 on the building of a new hospital for the treatment of acute cases of insanity—the new building to be on land adjoining the existing West Riding Asylum at Wakefield—and £43,500 on the completion, fitting-up, and furnishing of the new County Council Offices at Wakefield. To secure evidence in connection with the application to the Local Government Board to borrow this sum of money, Colonel John Ord Hasted, R.E., visited Wakefield a few days ago. The Inspector considered the case of the proposed loan of £43,500 for the fitting, furnishing, and completion of the new County Council Offices. In the Architect's original estimate, including land, quantities, fees, &c., the cost of the building, it was stated, was set down at £68,424. In this the sum of £63,974 represented the building proper. The lowest tender, however, that was received for the carrying out of the original design was as high as £80,384, or £16,410 in excess of the Architects' estimate. The General Purposes Committee that had the matter under consideration endeavoured to secure such alterations in the premises as to bring the tender within the estimate, but eventually it recommended to the Council the acceptance of the original tender of £80,384, subject to the omission of certain items for electric light, and in respect of caretaker's house, amounting to £3560. Messrs. Armitage and Hodgson's tender to the amount of £76,824 was then accepted. Since the tender was accepted several additions have from time to time been made—the principal items being for raising the ceiling of the council chamber, the instalment of electric wire, inter-telephonic communication, stone carving, fibrous plaster, heightening of the tower, accommodation for boiler, and other additions, resulting in increasing the original estimate of £76,824 to £108,543. A loan of £60,000 having already been approved by the Local Government Board, the object of the inquiry was for leave to borrow £43,500 more.—The Inspector, after hearing the case in support of the County Council, observed that £12,500 seemed to be for furniture, and that it was not usual to allow so long a period as thirty years for the repayment of loans under that head.—It was stated in reply that the fittings and furniture would be of as permanent a character as the building, and it was proposed to ask for a period of thirty years in regard to the whole of the loan.—The Inspector: Much of the expenditure seems to have been caused by excess of ornamentation and decoration.—Mr. Hankinson: And by the heightening of the tower, of the Council Chamber, boiler rooms, for which land had to be purchased, and other important alterations.—The case of the application for the power to borrow £80,850 for asylum purposes was separately dealt with. This application, it was stated, was to borrow £80,850 on account of the erection of the new acute asylum, £2520 being for the purchase of additional land adjoining the existing asylum estate at Wakefield. The amount of the contracts already let represented about £69,000. Other works not yet contracted for were estimated to cost £11,617. These would be let presently, and there was an amount allowed for contingencies amounting to £298, making a total of £80,860. Mr. Vickers Edwards, county surveyor, having produced the plans in connection with the building, the inquiry closed with an intimation that a further application would be made in regard to the cost of fitting and furnishing the building.

It is intended to erect a new Church at Pentre, near Flint, on a site given by Mr. J. K. Huntly, of Highfield Hall.



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
June 30th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THERE is a proverb that "any stick is good enough to beat a dog," and it would appear, judging from the numerous flimsy pretexts which are put forward for the purpose of collecting subscriptions, that any excuse is good enough for the purpose of restoring a Church. The rector and churchwardens of Whitchurch, otherwise Little Stanmore, near Edgware, are appealing for funds for repairing the Church and providing a new organ chamber to the Parish Church, on the ground that the organ is that upon which the immortal Handel during the years 1718-21 habitually played. The musical critic of the Daily News (who is likely to be an authority on the subject) asserts that the present Whitchurch organ cannot possibly be Handel's, and that Handel has been shown, on the authority of Mr. W. H. Cummings, not to have visited Canons (the Duke of Chandos's seat) until he went there in 1720 to produce his oratorio of "Esther." The organ at Canons upon which Handel played, he being organist to the Duke of Chandos, is now at Gosport, having been purchased in 1714, when, on the death of the Duke, the house at Canons was pulled down. The case of the organ at Whitchurch is ascribed to Grinling Gibbons. The placing of organs in chambers in small Churches is generally condemned by musicians, and the addition of an organ chamber to an ancient building is to be deprecated, as it destroys the authentic character of the plan, and generally results in the obliteration of some interesting feature and the introduction of unnecessary new work. In the case of a Norman village Church, the addition of an organ chamber is sufficient in many cases to disfigure it past recognition, and an example of the mischievous effect of such an addition may be seen at the pretty Church of Kingsbury, near Hendon, Middlesex. Whitchurch Church appears to have been rebuilt at the beginning of the last century.

MR. WYKE BAYLISS, the President of the Royal Society of British Artists, who has received one of the Jubilee honours, has waited somewhat long for recognition in his position as President of the R.B.A.'s. There is probably no Artist in London who has given more generous encouragement to young painters than Mr. Bayliss. He is always discovering new talent, and the doors of the Suffolk Street Galleries are ever open to admit it. As a painter, Mr. Bayliss is a one-subject man; he never wearies of the beauty of Church interiors, and there are few Cathedrals, either British or foreign, which he has not painted; and in all his pictures he gets a spirit of reverence and devotion which immediately stamps the work as coming from his hand.

At the third conference of the Clergy and Artists' Association held in the Jerusalem Chamber, Westminster, Canon Gore, in his opening address, remarked that a proposal to start a new association for any purpose under the sun aroused an instinctive antagonism in the human heart at the end of the nineteenth

century. For there were already so many societies. The question was whether there was any adequate justification for this Clergy and Artists' Association, and for maintaining and developing it. If they went about the country and went into many Churches, they would see that the period was one of Church restoration, and the restoration was of a very decent order. But they must see a great deal of Church decoration which caused them to ask the question, "How much a yard was it?" and to make no other inquiry. There was the least possible of the individuality of the Artist about it, for when people wanted to have a Church decorated there were places to which they could go and find out the cost, and the transaction was business-like. Anything else was indefinite, and it was thought that only great institutions like St. Paul's could employ an Artist directly to exercise his personal skill and power. It was because they were dissatisfied with this state of things that this Association had come into existence. Its object was to bring together those who had the material for ecclesiastical decoration, and those who had the personal gifts.—A paper was read by Mr. Edward E. Prior, on "Church Building Present and Future."

Now that the patents have been secured, Mr. W. H. Preece has given us particulars of Marconi's wireless telegraph. It is based on the principle of sending waves through the luminiferous ether by means of electric sparks. The sparking takes place between metal balls which are connected to an induction coil, after a method devised by Professor Righi, following the classical experiments of Heinrich Herz. The electric waves set up in the ether by the spark as ripples are produced by dropping a stone into a pond, travel with the speed of light, and can be reflected or projected in the manner of light.

THE Dean of St. Paul's writes:—"St. Paul's has been so much in evidence during the last few days that I am anxious to bring the following under the notice of your readers. Through the liberality of four City companies the half domes at the corners of the great dome will be filled with mosaics, we hope before the end of the year. This and other work that is in progress will exhaust the funds at our disposal. We are very anxious to carry on what has been so well begun whilst we can have the invaluable help of Mr. Richmond. There are two things which press. The one is the space between the whispering gallery and the bottom of the windows in the dome. To cover this with mosaics will cost not less than £10,000. The other is to decorate the roof of the aisles of the choir, where there are six small shallow domes, with a place for the arms of any donor who would kindly give £1000 for the completion of one of them. We are anxious to make arrangements with Mr. Richmond, so that there may be no stoppage in the work. The money will not be wanted until next year, so that a promise to be fulfilled next year would suffice; but, as we cannot venture to proceed without the certainty of knowing whence the requisite funds are to come, I lay this before your readers in the hope that some of them may be moved to help us to proceed with this most desirable work, in which case I would ask them to communicate their intention to me."

MR. ALEXANDER R. BINNIE, Engineer of the London County Council, who has received the honour of knighthood, was pupil and assistant to the late Mr. J. F. Bateman. In early life he was engaged on railway construction in England and Wales, and he entered the Public Works Department of India in 1868. After distinguished services there, he became engineer to the Bradford Corporation, and during his period of service there he laid out and designed a very large extension of the waterworks. His lectures on Waterworks Construction have been published by the Government. Mr. John Wolfe Barry, C.B., F.R.S., President of the Institute of Civil Engineers, whose name was also amongst those receiving the honour of knighthood, is the youngest son of

the late Sir Charles Barry, R.A., and was born in 1836; educated at Trinity College, Glenalmond, and King's College, London. He represented Great Britain on the International Technical Commission on the Suez Canal, and was engineer of the Tower Bridge, 1894, of the Barry Docks, and other important engineering works.

MESSRS. MAPPIN AND WEBB have on view at their Oxford Street house the gold casket which was presented to the Queen on the occasion of her recent visit to Sheffield. The casket, which Messrs. Mappin and Webb designed and manufactured, is a beautiful example of the goldsmith's art. In general form it is oblong, conceived with distinct regard to the style of the Sheffield Town Hall, of the opening of which it is to be a record. The base is about 14in. by 10in., and the casket rising on this has five panels on the obverse and five on the reverse, while the ends bear, one the arms, crest, and motto of Her Majesty, and the other the arms, crest, and motto of the City of Sheffield. The lid is a rich, bold, oblong dome, with a figure of Britannia standing in the centre, the Trident in one hand and the Union Shield in the other. At each corner of the casket, but standing well out from it, are four statuettes representing the four divisions of the globe to which Sheffield trade penetrates. These are the main features of the design; but its details are also full of interest. The panels of the body of the casket, for example, are very beautiful, being largely emblematic of the industry of Sheffield, and the elaboration of the lid is also most effective. The gold key, likewise, is in harmony with the style of the Town Hall in its column and embellishments, and the whole work is certainly a very worthy memento of the act which Her Majesty performed a month ago.

THE total expenditure upon the restoration of the west front of Rochester Cathedral, and upon other works connected therewith, has been £7358. Besides this, between £600 and £700 has been spent in restoring the crypt, which is one of the finest in England. The old Norman work has been preserved, and the southernmost aisle has been partitioned off into a series of vestries. Of the amount last named, £500 was contributed by the Dean as the result of his lecturing tour in the United States. It is now proposed to launch a scheme of restoration by the side of which the previous works will be dwarfed into insignificance. It is desired to restore two of the roofs, which were spoilt by being lowered in times gone by, and to build a new tower and spire in place of "the present deformity," as the Dean terms the existing tower. The estimated cost is £20,000.

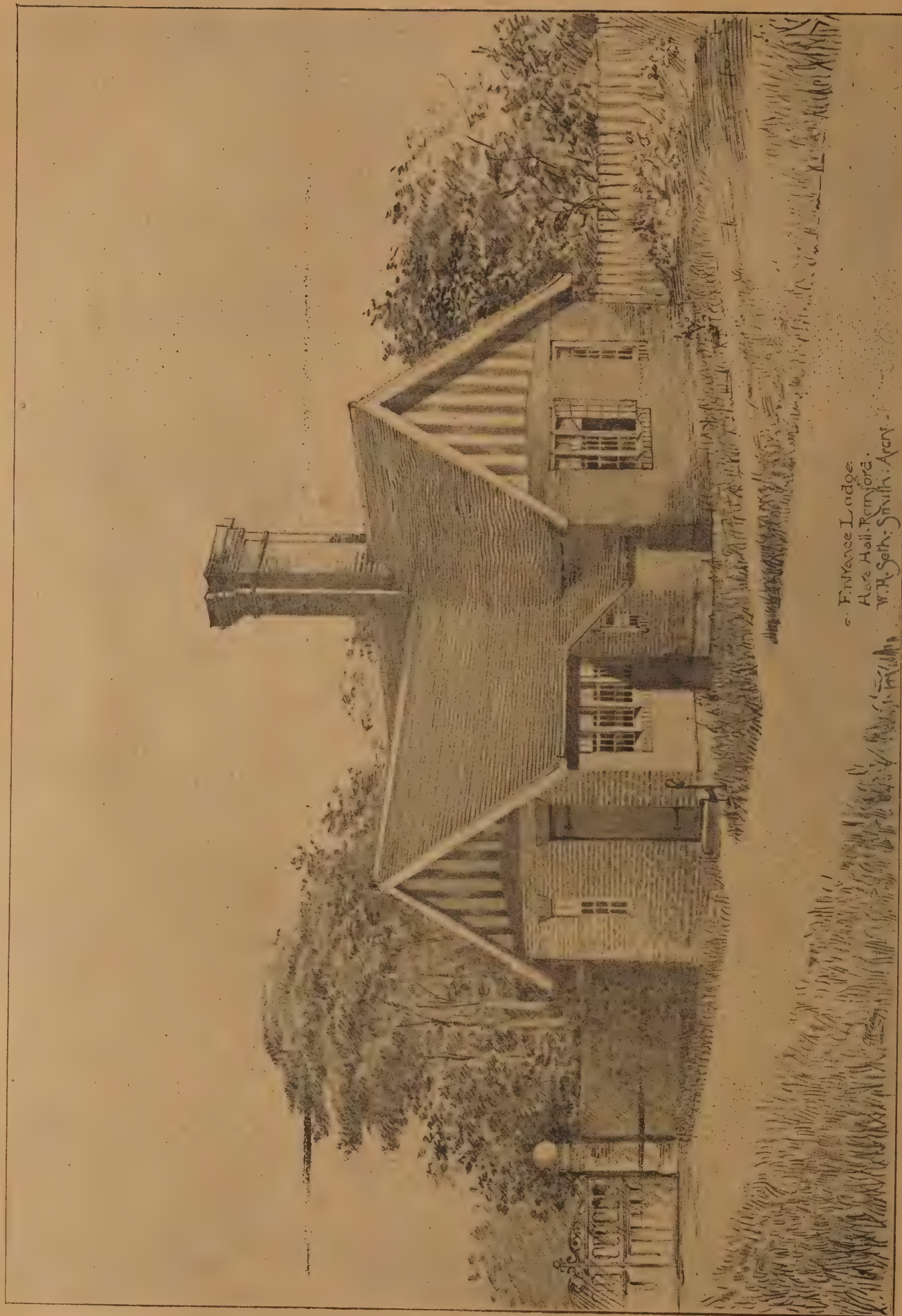
JOHN GIBSON, R.A., who was a native of Conway, but a large portion of whose career in Art was passed in Liverpool, was the sculptor of the marble statue which marks the tomb of William Huskisson in St. James's Cemetery, and a bronze replica of the effigy holds a place in front of the Revenue Buildings, facing South Castle Street. Perhaps the authorities may feel inclined to direct the cleaning of this fine work as well.

MR. A. G. TEMPLE, Director of the Guildhall Gallery, is preparing for Messrs. Chapman and Hall a work on "The Art of Painting in the Queen's Reign." The sub-title, "A Glance at some of the Painters and Paintings of the Period," explains the plan which the author has set before him, to give a *résumé* of the progress of British painting in the last sixty years. Biographical details of the Artists are not more freely given than is necessary, attention being directed to their works. Representative examples of the leading painters are reproduced—many for the first time—to the number of sixty or seventy. Among them are Landseer's "Monarch of the Glen," David Cox's "Vale of Clwyd," Millais' "Ferdinand and Ariel," "Chill October," and "Fringe of the Moor," Holman Hunt's "Light of the World" and "Christians and Druids," and others by Stanfield, Mulready, Turner, Watts, Frith, Hook, Noel Paton, Madox Brown, Rossetti, and Leighton.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





Entrance Lodge,  
Hare Hall, Romford.

W. H. Seth-Smith: Arc.



HOUSE AT ESHER, SURREY. W. H. SETH-SMITH, ARCHITECT.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



We are able now to say definitely what Lord Onslow proposes with regard to the Works Department of the London County Council. It is that "as the Council is divided on the question of continuing the Works Department," the report of Sir Arthur Arnold's Special Committee should not be proceeded with; but that the General Purposes Committee should be directed to report as to the best means of carrying on the work "with as little loss as possible" until after the election in March next. The meaning of this ingenious resolution is to kill the Works Department and the policy of direct employment, without incurring the odium of killing them. Apparently Lord Onslow wants to leave the Progressives saddled with the blame of all the apparent "losses" which his own policy has produced, and to avoid the responsibility of any constructive proposal. Sir Arthur Arnold's Inquiry was Lord Onslow's own creation. It has made a report, the main effect of which is wholly favourable to the Progressives. To ignore this important verdict is an insult to the Special Committee, and is a continuance for party purposes of a disastrous state of uncertainty.

WITH reference to the proposal to re-build Gowthwaite Hall, Bradford, Mr. Thackeray Turner, Secretary of the Society for the Protection of Ancient Buildings, writes:—"I am afraid the old building materials of Gowthwaite Hall, if erected on another site, even in strict conformity with the original plans, would altogether fail to appeal to our feelings in the way the present house does. Besides the loss of that identity of locality which in so inexplicable a way affects our minds, and the sacrifice of great portions of the original materials which could never be re-used, we must take into account the effect which the selection and arrangement of materials have on our sense of propriety. Thus, in a house erected when oak was plentiful, but the labour of working it great, we see no incongruity in a rudely axe-fashioned beam of enormous strength being employed to support a very small weight, although a similar arrangement in a modern erection would grossly offend our sense of proportion and beauty. Without venturing too far on the debatable question how far these and other reasons may account for the fact, I can unhesitatingly state that an ancient building, thus re-erected, possesses scarcely more interest than an Architectural plan. It is therefore for Yorkshiremen to decide whether Gowthwaite Hall shall remain intact on its present site, with all its historic and artistic interest on its head, or whether all but a fraction of its associations shall be lost to posterity. No middle course is possible."

THE members of the Yorkshire Archaeological Society recently visited Markenfield Hall and Ripon Minster. At Markenfield Hall the ancient banquet hall was first inspected. This, with one or two unimportant alterations, stands precisely as it did at the beginning of the fourteenth century. Indeed, Markenfield Hall is the finest example of a thirteenth or fourteenth century manor house in the northern counties. In the hall the hon. secretary, Mr. William Brown, of Trenholme, Northallerton, gave a brief and interesting sketch of Markenfield Hall and its owners. The earliest mention of the house appears to have been in Domesday Book. Not until early in the thirteenth century did it come into possession of the Markenfield family. In 1316 the then owner and founder of the family fortified it, digging around it the moat which still remains. The ancient chapel and the solar (or Lord's retiring room) were visited. The old buttery in the basement, which remains just the same as in 1300, was also worth a visit. During the stay at the Hall, Mr. C. C. Hodges, of Hexham, described the Architectural features of the building. Ripon Minster was next visited, the society being received by the Dean (the Hon. W. H. Fremantle), who gave an interesting sketch of the building. Mr. Hodges described its Architectural features, and the visitors then explored the Minster, inspected the mural tablets and effigies, the carving of the stalls of

the Canons, and admired the beautiful east and west windows. The Anglo-Saxon crypt, sole relic of the Church built by St. Wilfrid, was inspected, being lit for the nonce by candles, that the narrow steps, worn by the feet of countless penitents, might not be responsible for any accidents. The Norman crypt, constructed with the main body of the Church, by Roger, the great building Archbishop of York (1154-1181), was likewise visited. A move was made to the chapel of the Hospital of St. Mary Magdalen. This building, which is now disused, is one of the most venerable in Ripon. It owes its erection to Thurstan, an Archbishop of York, and amongst the objects of interest may be mentioned a fine old oak Perpendicular chancel screen and an ancient plate chest.

It is computed that during Her Majesty's reign upwards of £150,000 has been expended in Church building and restoration in north-east Warwickshire. In Nuneaton the old mother Church has been greatly improved since 1837. In the newer portion of the town, a Church has been built on the ruins of the old abbey. Chilvers Coton Church has been greatly altered since the days when "George Eliot" was a worshipper there. It has been enlarged, restored, beautified, re-seated, and the old entrance re-opened. A movement is now on foot to erect a vestry, and towards this object over £50 was collected at the recent thanksgiving services. Stockingford Church is not like the same place it was a few decades ago, and the sacred building at Anley has been greatly altered by the hand of the restorer. Atherstone Church has improved greatly since the forties, and Meriden Church has come in for a liberal share of attention. In the parish of Foleshill two fine Churches and schools have been built, while the old parish building is much improved and enlarged. The Churches of Corley, Keresley, Astley, Hawkesbury, and Wolvey have been improved, and at Stoke considerable sums have been expended.

MR. BUXTON KNIGHT, best known to the frequenter of the London picture galleries as a regular exhibitor at the New English Art Club, brings forward at the Goupil Gallery a group of pictures and studies in oils and water-colours. There is about this Artist's work, notwithstanding its exaggerations of technique, a certain robust simplicity, a certain sincerity of nature-worship, which go some way towards securing pardon for many sins. Painters of this type are generally seen to greater advantage in *négligé* than in full dress, and Mr. Buxton Knight is no exception to this rule. Such pieces as the Constable-like study of big elm trees, "A Leafy Aisle," and the sunny afternoon scene, "The Windmill near Caterham," are more within his means than works laid out on a more ambitious scale. It is difficult in these last to excuse, even in virtue of a certain colour and atmospheric truth, the heavy, clumsy technique. The main feature of this is such an abuse of impasto, in every part of the canvas alike, that it fails of its true effect, as attained even by Constable, Jules Dupré, and other landscape painters, who have indulged in it certainly beyond the legitimate point.

THE tomb of Alexandre Dumas fils is now completed in the Montmartre Cemetery, and in a day or two the fine recumbent statue of the dramatist by M. de Saint-Marceaux will be removed from the Salon du Champ de Mars to its final destination. There it will rest between four columns of blue Norman granite, which support a massive cenotaph of the same material in the style of that of the Scipios at Rome. Upon the architrave is engraved in letters of gold the name Alexandre Dumas fils, and below on a tablet surrounded by ornamental work of a simple character may be read by way of mortuary inscription a passage from the preface to the "Femme de Claude."

MANY and varied as have been the municipal enterprises of Glasgow in recent years, none has been more remarkable than the

movement for extending the public parks and open spaces of the city. Until a few years ago it was very deficient in that respect, more especially for a town of such a large and dense population. Tollcross Park, the latest addition to the city's property, consists of the grounds, extending to about 84 acres, surrounding the fine mansion of Tollcross, built by David Bryce, of Edinburgh. A feuing plan was suggested to meet the ever-growing demand for houses in the district; but the Corporation stepped in, and for £30,000 purchased one of the most picturesque spots in the neighbourhood of Glasgow for the use of the public.

MESSES. CHRISTIE, MANSON, AND WOODS recently sold at their rooms, King Street, St. James's Square, the collections of modern pictures belonging to the late Mr. J. L. Leathart, Gateshead-on-Tyne, and the late Sir Henry Edwards, of Berkeley Square, W. Some excellent prices were realised, the best items being as follows:—The Merciful Knight, by Sir E. Burne-Jones, 680 guineas; Sybil, by Lord Leighton, F.R.A., 600 guineas; The Frigidarium, by Lord Leighton, 650 guineas; A Winter Scene, by W. Muller, 480 guineas; An Ancient Custom, by E. Long, R.A., 400 guineas; Baiters, by Colin Hunter, 270 guineas; Spring, by J. C. Hook, R.A. 175 guineas; Battledore, by Albert Moore, 150 guineas; Shuttlecock, the companion picture, 140 guineas; The Musician, by A. Moore, 150 guineas; King David, by Lord Leighton, 130 guineas; Modern Cyprus, by E. Long, R.A., 120 guineas; The Entombment of Christ, by Ford Madox Brown, 120 guineas. The sale realised about £7000.

A MEETING was held at the house of the late Lord Leighton, No. 2, Holland Park Road, a few days ago, in order that the delegates who had been appointed by the Vestry of Kensington, the Library Commissioners, and the Royal Drawing Society should confer with the committee of the Leighton House Fund as to the best measures to be taken in order to meet the conditions necessary before the generous offer made by Lord Leighton's sisters—to present his house with the unique Arabian Court and its garden to the nation—can be accepted. Mr. Lionel Cust said that a collection of Lord Leighton's sketches already hanging on the walls of the house had been secured. Resolutions were passed to the effect that it was most desirable that the offer of the sisters of the late Lord Leighton should be accepted, recommending that the house should be vested in some local corporate body for use as an Art library and museum, and appointing a sub-committee to consider the matter and report to a subsequent meeting of delegates.

AT Norwich Consistory Court, Mr. Chancellor Blofield granted a faculty for the restoration of the Church of Shernbourne, near Sandringham. This is a small, flint-built structure, erected in the Early English style, and is stated to have been the second church founded in East Anglia by St. Felix. Its ancient font is one of the finest examples in the county. The fabric was in a very dilapidated condition when, some few years since, the Prince of Wales purchased an estate in the neighbourhood of which the parish forms a part. One of his first acts of ownership was to look to the condition of the little Church in which the parishioners had for centuries been accustomed to worship, and it is due to this thoughtful consideration that the ancient and interesting building is about to undergo the improvement it so much needs. Plans have been prepared by Mr. H. J. Green, the Diocesan Architect, by which the chancel and south aisle are to be rebuilt, new roofs provided, the Church re-seated, and the general repairs of the fabric carried out satisfactorily. The estimated cost of this extensive restoration of a sanctuary which provides sitting accommodation for about seventy people is £1500.

THE London Polytechnic Council, consisting of representatives of the City Parochial Foundation, the City and Guilds of London Insti-



tute, and the Technical Education Board of the London County Council, has unanimously passed a resolution declaring that the objects of the proposed Bill for the registration of plumbers command support, but that the

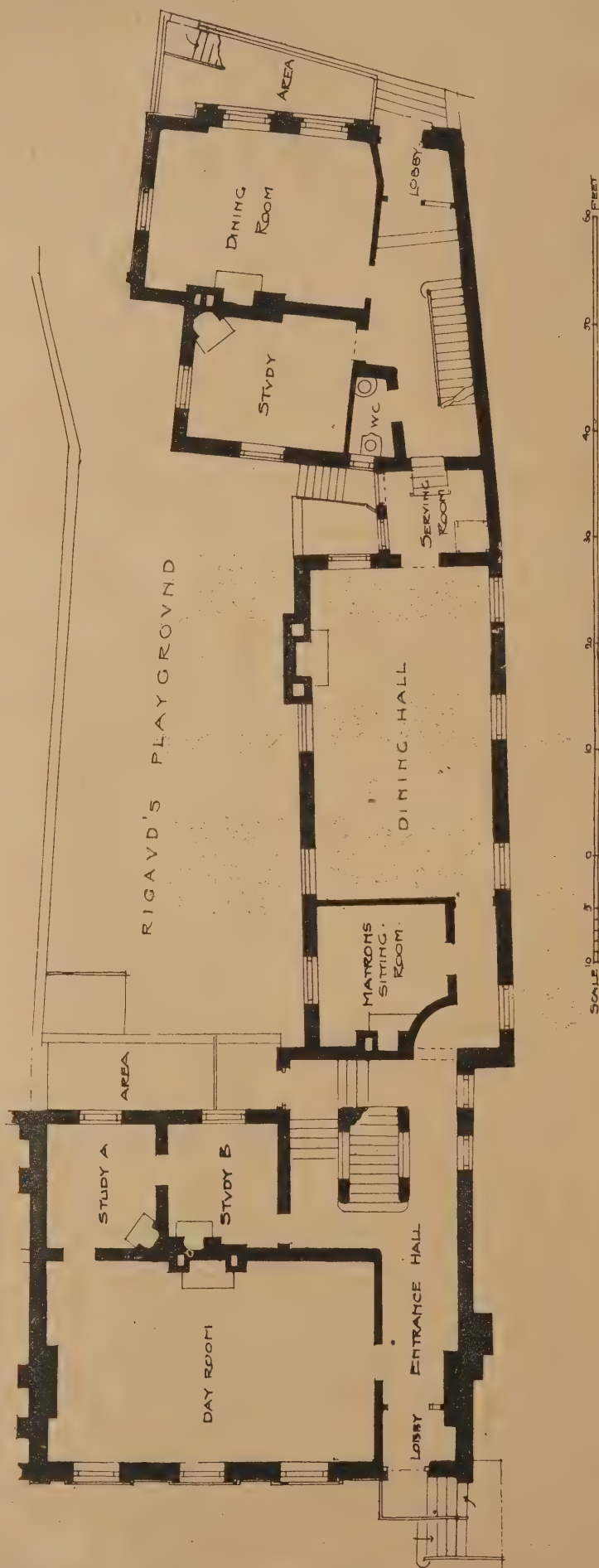
measure requires considerable amendment, including the substitution of some more representative body for the Plumbers' Company to carry out the objects of the Bill. The Executive Committee of the National Association

for the promotion of Technical and Secondary Education has unanimously adopted a resolution generally approving the principle of registration, and expressing the desirability that the General Council under the Bill should be required to place on the register workmen who have passed the examination of competent public authorities approved by the Local Government Board, and that the executive body to carry out the Act should be a committee of members of the General Council.

A SMALL collection of antique and Italian cinque cento bronzes, medals, and other objects of Art, the property of Sir Edgar Boehm, and porcelain and decorative objects of the late Mr. J. J. Farquharson, of Langton House, Blandford, was sold last week. The more interesting lots were as follows:—A very fine Italian bronze group, representing a seated satyr grasping a serpent which is biting the mouth of a tortoise, 4in. high, 51 guineas; a very finely modelled statuette of a rhinoceros, 58 guineas; bust of a lady, with a garland of flowers, a large Roman mosaic, 11in. by 17in., in chased ormolu frame, with inscription in Latin, 145 guineas; a set of sixteen old Dresden figures of monkey musicians, with conductor in costume, 200 guineas; an old Sèvres oviform vase, gros-bleu and œuil-de-perdrix ground, painted with birds and foliage in colours on white ground in two shaped medallions, 12in. high, 180 guineas; a pair of small old Sèvres seaux, each painted with birds and foliage in two shaped medallions, on gros-bleu ground, 120 guineas; a small ecuelle, cover and stand, painted with birds and foliage in six medallions in gilt scroll borders on rose-du-Barri ground, 60 guineas; the Barberini vase, No. 5 of the first 50 copies executed by Josiah Wedgwood by permission of the Duchess of Portland, £78; a Louis XIV. barometer, by Carcany, in cartel case of ebony, inlaid with panels by Boulle, and mounted with a large terminal figure of Cupid, 68in. high, 50 guineas; a Louis XVI. marqueterie secretaire, inlaid with a chemist's laboratory in circular medallion, and trophies of scientific apparatus and instruments, surmounted by a fleur-de-pêche marble slab, 52in. high by 70in. wide, 230 guineas.

AN Exhibition of home Arts and Crafts was held at Bury last week. Original oil paintings formed a very interesting collection, including pictures painted by Miss Ella Rolfe. One represented a view of Christchurch Park, Ipswich; another represented a house in Derby Road, Ipswich. Other pictures were also much admired. Miss Dolly Henderson was awarded the first prize for the painting of an "Old Man's Head." Miss Daisy Cooke gained second. In the class for oil paintings (copy), Mrs. J. Bell, who exhibited a picture of a cart horse, took first prize; Mrs. R. Burrell was second. In the class for water colours (original) Miss A. Payne secured chief honour with her picture "Violin and Books"; Miss E. Burrell (Fornham St. Martin) was second. In the class for water colours (copy) Miss A. M. Simpson exhibited pretty "Cornflowers," which justly took the first prize; Miss Lawrence, with "Guelder Roses," gained second prize. Amongst decorative paintings, fans, china, &c., Miss Manfield (Ixworth Thorpe), with "Afternoon Tea Set," gained first prize; Miss N. Betts showed an oil painting, which secured second prize. Miss G. C. Paine showed a painted velvet cushion, which gained third prize.

THE sculptured stones over the doorway of the High School, Edinburgh, erected more than 300 years ago, on ground to the south of the Cowgate, after having been long missing, were recently discovered. They were known to have been removed to the present High School, but a search for them had proved fruitless, and it was feared they had been broken up. Mr. Falconer found them laid away with their faces to the wall in one of the school presses. The stones, which are in fine preservation, have now been let into the outside wall of the hall of the present school over the north-west doorway, so that they again surmount one of the entrances. They have



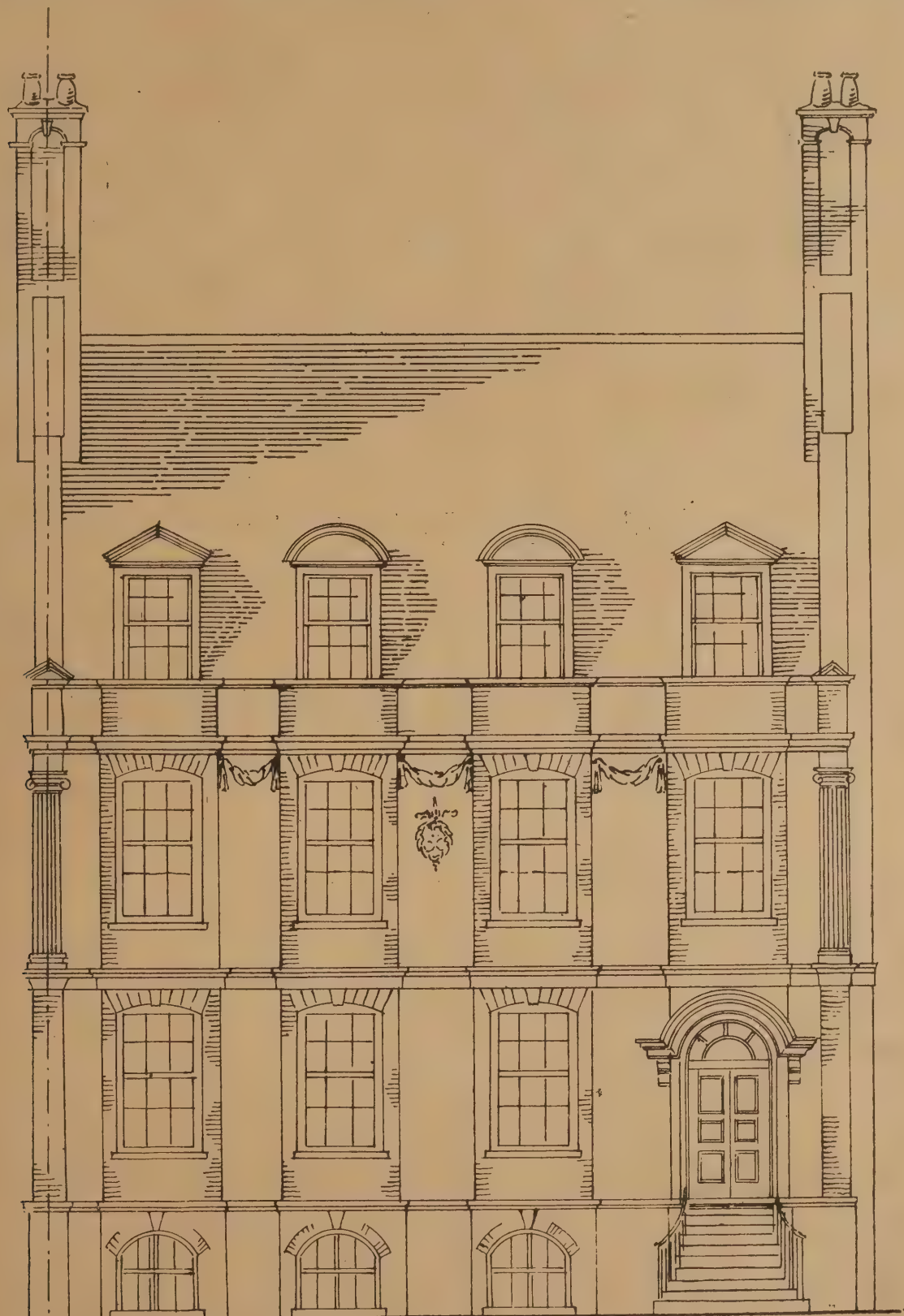
GROUND PLAN OF BOARDING-HOUSE, WESTMINSTER SCHOOLS. T. G. JACKSON, R.A., ARCHITECT.



been placed in their present position under the superintendence of Mr. Henry F. Kerr, Architect. The building of which the stones at one time formed part was begun by the Town Council of Edinburgh in 1577, during the boyhood of James VI., the Earl of Morton then being Regent. They thus form an interesting

the arms of the city, the triple-towered castle, but without supporters. On the one side there is the letter J., and on the other S., probably for James—Sextus. Beneath the arms is the motto "Musis respublica floret," with the date 1578. The stones measure nearly 5ft. in height, by about 3ft. in breadth.

engaged in excavating the great mounds of Nuffar, in Northern Babylonia, the site of the ancient city of Nippur, the sacred city of Mul-lil or the "Older Bel" of the Semites. The history of the expedition which, since 1888, has worked upon this site is a remarkable one; and its great work has been so quietly done



NEW BOARDING HOUSE, WESTMINSTER SCHOOLS. T. G. JACKSON, R.A. ARCHITECT.

relic of Edinburgh in the days of the old Scottish Monarchy. The stones are two in number, the under square, the upper forming a triangular pediment, and the whole being surmounted with a deeply cut border. In the pediment there appears the Scottish crown, and under it J. R. 6, with a fine display of thistle at each side. The under stone bears

To have unearthed the ruins of the oldest city in the world, the foundations of which were laid some six or seven thousand years before the Christian era, is a reward of which an explorer might indeed be proud. Such good fortune seems to have fallen to the lot of Mr. Haynes, who for nearly five years has been in charge of the American expedition

that it has attracted but little attention except among students of Assyriology. The work was undertaken by the University of Pennsylvania, the funds, which have amounted to about 70,000 dollars, being provided by a small committee interested in the work. The expeditions of 1888-90 partook rather of a prospecting survey, and were under the direction of Dr



Peters. The trial trenches produced a harvest of about 10,000 tablets and inscribed objects, among them several records of Sagon I., and his son, Naram-Sin, whose date B.C. 3800 was by many regarded as the starting-point of Babylonian history. Troubles among the Arabs and the usual difficulties with the Porte delayed the work for three years. In 1893 the explorations were renewed under the charge of Mr. J. H. Haynes, and they have been carried on continuously ever since, and have produced results such as were never dreamt of even by the most ardent advocate of Babylonian explorations, and the history of civilisation has been carried back to an antiquity never thought of.

In an article dealing with the effects of the Norman Conquest, a contemporary says:—"One feature which the 'coming of the Normans' bestowed on the Church of England has remained, however, all through the eventful centuries. That is, the number of mighty Norman Churches. They are with us still, in all their changeless solemn beauty, bearing their voiceless testimony to the long and splendid story of the Church of England, so indissolubly bound up with the life and well-being of the nation. When we speak of the 'coming of the Normans,' and of the momentous changes which the one great battle and the conquest which followed brought upon the English people and their Church, few realise how far-reaching in their effects many of these changes really were; but when we point to our great Cathedrals, to our lordly Abbeys, all of them due to the new spirit infused into the hearts of Churchmen by that wonderful race of conquerors, the appeal at once goes home, and the greatness of the Norman and his work is recognised by the mass of our people. As men gaze on these vast piles, some of them beautiful and strong as in those far-back days when William the Conqueror and Matilda his Queen took counsel with their wise friend Lanfranc, they naturally and wonderingly ask 'Whence came the gold needful for all these stupendous and enduring works?' We may reply with very little hesitation, that the prelates and the abbots to whose loving care and far-seeing genius we owe these glorious Abbey-Churches were assisted by a deep feeling of remorse which took possession of the Conqueror and his Queen, and many another of his knightly comrades; remorse for the deeds of blood and violence which, alas! accompanied the Norman conquest—remorse for the widespread misery which their greed of gain and lust of power had brought upon hapless England. These Norman Cathedrals and Abbeys were Cathedrals and Abbeys of expiation."

THE question of Church organs and their position still causes much interest. "Septuagenarian," in a letter to the Times, says:—"Architects are the natural enemies of the organ. There should be a set of metal diapasons in every Cathedral, the lowest of which should measure 32ft. from the mouth, but the Architect fears to dwarf the arches and puts his veto upon them. Thus the heavy reed pipes are ungoverned and produce unpleasant, unmusical, and harsh vibrations. The business of the Architect is to put away the organ somewhere—anywhere out of the Church. Some ornamental pipes may peep out here and there, but that is not enough for the expression of the instrument. Of one thing I am certain—notwithstanding all the improvements introduced into the mechanism of the organ, the modern instrument is no more to be compared with the production of the great organ-builders of the Georgian era than a new fiddle with a Stradivarius violin! Now there is, in my humble opinion, no reason why the latter should not be forthcoming to-day as well as the former. There is wood to be found in London to match the Stradivarius material—the model is well known. Just the same care in the selection of wood for organ pipes, and patient preparation, was a feature of the organ-building of a century or two ago. Now too much of the timber laid down for organ work is seasoned by machinery, and the important element of

time is not sufficiently considered. It is a popular error to suppose that age improves the tone of musical instruments. With regard to the metal used in organ-building, the use of zinc in the large pedal pipes has killed the grand old organ tone. Zinc is cheap, light, and handy. A tube of zinc of a given capacity will produce the same note as if it were made of pure Cornish tin and virgin silver lead, as it should be. But a hungry, grinding tone will pervade the whole instrument from the zinc base, while a full, rich, mellow sound will result from the latter. Again, the increased variety of stops, or, more properly speaking, registers, has made the modern organ a far more costly instrument, if the old effects are to be maintained. I fear that modern builders are so bent on the production of orchestral effects that they 'scamp' the necessary amount of expensive metal and wood of time-enhanced value to obtain the real organ tone. It is a fact that an old rebuilt gallery organ is of far superior tone to any modern instrument. The reason of this is solely because there is good material in the old pipes, especially the large pedal pipes. I deeply regret the decadence of really good organ music since the Gothic revival of the Victorian age. An organ built in 1837 by an eminent builder regardless of cost was a genuine instrument, though, even then, not, perhaps, reflecting so well the personality of the maker as one erected in the eighteenth century, nor yet that so thoroughly as a seventeenth century instrument. But I deplore the very much too patent fact that I know not where a really fine new diapason organ is now to be got for love or money! In the Austrian Tyrol there are some lead mines very rich in silver-lead ores. If the clergy under the fostering care of the Bishop of Chester would see that such lead with pure Cornish tin is used in generous quantities for all flue-pipes, with carefully selected old time-seasoned wood, we may yet remove from the longest reign the slur that organ building has become a lost art."

LIVERPOOL is richer in statuary than most persons know of. The reburnishing of Marochetti's effigies of the Queen and the Prince Consort, on the plateau of St. George's Hall, has been completed, and now Birch's statue of the Earl of Beaconsfield, which also occupies a commanding position there, is being touched up. Be the hope reiterated that that other and finer work of Art by Birch, the statue of General Earle, will be subjected to a similar process. It is understood that the equestrian statue of George III. which stands in Monument Place is, in colloquial phrase, to be "done up."

AFTER many postponements, the scheme for joining Great Britain and Ireland seems at last to be within measurable distance of realisation. The tunnel once decided upon, the various schemes, of which there are five, would have to be carefully considered. If the selection were a mere matter of convenience, much could be urged in favour of a tunnel between Holyhead and Kingstown, but the great depth of the water, to say nothing of the distance, presents insuperable obstacles. The nearest points of the two countries are the Mull of Cantyre and Tor Point, County Antrim, a distance of only thirteen miles. But Tor Point is such a desolate, out-of-the-way spot, and to reach the end of Cantyre would involve such a long journey northward, that the advantages of so short a tunnel would be quite neutralised. Notwithstanding these drawbacks the route has attracted considerable attention. A tunnel between Cantyre and Tor Point would cost about £6,000,000, with an additional million for the gradients. The largeness of this estimate is due to the uneven surface of the bottom. The routes of the other schemes congregate about Portpatrick, on the coast of Wigtownshire. The shortest would connect Portpatrick and Donaghadee Island, a distance of twenty-two miles. The bottom here is extremely level, and in this respect has great advantages over Cantyre, where the declivities are very deep, though, on the other hand, the great depth of water (600ft.) four miles from the Irish coast, increasing

to 900ft. on the Scotch side, would greatly add to the expense. The deeper the tunnel the greater the cost of gradients. As depth seems to be the most important consideration, a good deal can be said for a tunnel between Magee Island—which is north of Whitehead—and Wierston Hill, Wigtown, north of Stranraer. By making a detour to avoid a deep hole, a mean depth of no more than 500ft. could be secured. The curve, however, would increase the length to twenty-six and a half miles. The longest of all the proposed tunnels would be one from Larne to Stranraer, a distance of thirty miles. As deep pools would add to the cost of tunnelling, a novel suggestion has been put forward which would abolish tunnelling altogether. A bridge inclosed in a continuous cylinder, sunk some 50ft. below the surface, and kept in its position by anchors and chains, would no doubt be extremely ingenious, but the estimate (£25,000,000) is too large a sum to risk on what might, after all, prove a failure. Taking all the routes, the one between Larne and Stranraer seems open to the fewest objections. The bottom is not so level as that between Portpatrick and Donaghadee, but by keeping north of Beauford Dyke the depth would not exceed 500ft. As tunnelling operations invariably exceed the estimated expenditure, the cost of any of the schemes we have dealt with would probably run into £12,000,000, a small sum when the advantages to be gained are considered.

A STATUE of the Duke of Norfolk is to be erected in Sheffield to commemorate his services as Mayor.

MR. G. T. Lynham, assistant burgh surveyor, Aberdeen, has been unanimously elected surveyor of Burton-on-Trent.

AT Horsham the permanent memorial of the Queen's reign takes the form of an ornamental drinking fountain, to be erected in the Carfax.

ST. COLUMBA'S, the new Presbyterian Church of England at the Smithdown Road gate of Sefton Park, Liverpool, is approaching completion, and will be opened early next month.

ON Friday, at Scarborough, was laid the foundation stone of the new marine drive and promenade round the Castle Hill, to connect the two bays.

A NEW Wesleyan Mission Hall and Sunday school erected in Jennings Street, Hull, was opened last week. It has cost £2900, and the central hall will accommodate 600 persons.

THE permanent Jubilee commemoration at Cardiff will be the building of a seamen's hospital at a cost of from £30,000 to £40,000, towards which Lord Bute has contributed £5000, and a site at Bute Docks.

AT Morecambe the foundation-stone of the new promenade from East View to Bare, a distance of a mile, and which is to be called the Victoria Esplanade, was laid last week by Mr. C. J. Clark, of Crosshills.

PROFESSOR HERKOMER has finished the portrait in oils of Mr. R. D. M. Littler, Q.C., C.B., which he was commissioned to paint by the Middlesex County Council. It is at present on view at the Artist's studio, and will shortly adorn the walls of the Sessions House, Westminster.

THE Master and Fellows of St. John's College, Cambridge, have presented the Rev. George Smith, rector of Great and Little Horstead, Herts, to the living of Houghton Conquest, near Amptill, which is worth about £600 a year, the rectory being a picturesque moated house, which was built by Dr. Zachary Gray, the editor of "Hudibras."

THE Street Syndicate, Limited, having asked the St. Pancras Vestry for the concession of appropriate sites in that parish whereon the syndicate might erect illuminated kiosks for the sale of newspapers, flowers, &c., the vestry has declined to grant the application. It did so on the recommendation of the Highways Committee, "which is strongly of opinion that it is not advisable to entertain the application, because it is considered inexpedient to allow the syndicate to have possession of any portion of the public way; and, moreover, the development of the scheme would probably interfere with the industry of many poor itinerant vendors and shopkeepers."



## DISINFECTION.\*

## PHYSICAL, CHEMICAL, AND MECHANICAL.

(Continued from page lxxix.)

By W. NOBLE TWELVETREES.

LYONS.

PROBABLY the best known apparatus is Washington Lyons' Steam Disinfector patented in 1880. The patentee, in his specification, claims the combination and arrangement of an inner and outer chamber, the former charge during operation with high pressure steam, the latter with steam preferably of higher pressure to prevent condensation. The usual form of the apparatus is oval in section, and doors are provided at either end for the better separation of infected and disinfected goods. During disinfection the articles are placed in a cage of wire netting with a strong iron framework fitted on wheels, so as to be readily removed. The boiler supplying steam is kept distinct, except in locomotive types, and gases exhausted from the chamber are caused to pass through the boiler furnace. As now constructed, the apparatus is fitted with a vacuum-producing apparatus, patented by Alliot and Patin in 1888. The objects of this auxiliary appliance are to increase the rapidity of penetration, and to give greater facility for efficient drying, by the re-evaporation of moisture in a partial vacuum. The drying operation is further aided by a current of air, preferably heated by steam pipes. Disinfection and drying occupy about forty-two minutes, during which period the vacuum apparatus, hot air, and steam are frequently used, in order to secure better penetration of steam by removing air from the pores of the articles. There is no doubt that the Lyons' Apparatus is thoroughly efficient, and as it is made in various sizes, and may be used either as a high or low pressure machine. Or as a current steam disinfector, it fulfils all reasonable requirements.

GODDARD'S.

The Nottingham Steam Disinfecting Apparatus was formerly well-known as Goddard's patent. The validity of this patent was, however, questioned by Mr. Lyons. Litigation ensued with two important results, one being the usual advantageous augmentation to legal banking accounts, the other a decision favourable to Mr. Lyons. The apparatus is now, therefore, made pursuant to a license granted by Mr. Washington Lyons. In construction the disinfector consists of an inner chamber and jacket both of rectangular section. Outside the jacket is a hot air space formed by the brickwork in which the apparatus is seated. Heat is supplied by a furnace, and the jacket, being half-filled with water, forms the boiler. The apparatus is furnished with means of heating air, and an exhaustor for causing circulation of the heated air as required. The doors at each end of the chamber are hollow, and connected to form part of the boiler. The method of working is as follows:—The fire is lighted, the chamber filled and the doors secured. Steam when raised blows off at 20lb., the safety-valve being sufficiently large to prevent increase of pressure. The exhaustor is started, causing a current of hot air to pass through the inner chamber. Steam is admitted until it blows off at the safety-valve. Treatment by steam continues for twenty or thirty minutes, the exhaustor being then opened, allowing steam to escape. Hot air is then introduced to remove steam and moisture remaining. The temperature of air is regulated by means of a thermometer and cold air valve. The apparatus is equally adapted for use as a pressure or current steam disinfector, and its simplicity renders it very serviceable where unskilled labour is chiefly available, and in institutions where steam services cannot be conveniently brought for disinfecting purposes. The apparatus is made in sizes to suit all requirements. The efficiency of high-pressure machines may be regarded as undoubted, but

the outlay necessary may sometimes tend to prohibit or discourage their general employment, especially in parishes and institutions with limited finances.

THRESH.

This disadvantage has been realised and successfully combated by Dr. Thresh, Medical Officer of Health for the County of Essex. His apparatus is operated by means of a continuous current of steam passing through the chamber during the process of disinfection. The steam-valve is so constructed that either the direct exit to the flue, or the indirect exit through the chamber, is open to the boiler. In either case the boiler is open to the atmosphere. The Equifex is another apparatus now made in this country, and intended for use with steam at a pressure of 10lb. per square inch. It is also made, but not recommended, for use with steam at 3lb. pressure, and for current steam at atmospheric pressure. Amongst Continental machines, one of the best known is Schimmel's apparatus, largely used in Germany and to a limited extent in England. The larger types of Schimmel's disinfector are very similar in general arrangement to the Equifex, being circular or oval in section, and fitted with one or two doors as required. Low-pressure steam is employed and obtained from a separate boiler. In the lower portion of the chamber, which is non-jacketed, is situated a double coil of gilled pipes heated by steam. The articles are placed inside, on a suitable carriage, after the interior has been warmed for about thirty minutes. The doors being closed, the articles are warmed for another period of thirty minutes. Steam is then admitted to the interior, and disinfection continued for thirty minutes. After disinfection, heated air is passed through the apparatus for about a quarter of an hour, and the clothes removed. Thursfield's disinfector, used chiefly in Austria, was originally designed for disinfection by the combined effect of hot air and steam. The steam was generated in a separate open boiler, whose steam outlet was connected in such manner with an apparatus for heating air, or with the chimney, so that hot air alone, or mixed with products of combustion, would be drawn into the chamber along with the steam. Reck's disinfector, made in Copenhagen, is one deserving attention. The apparatus is circular or rectangular in section, with doors at each end, has no jacket, and is worked with low-pressure steam. No provision is made for drying. The machine has a cold-shower apparatus for removing vapour after disinfection, but this appears to have no effect on the quantity of moisture contained in the articles. America, the land of patents, has produced nothing novel in the form of disinfectors, the Lyon Apparatus and a local type, similar to the Equifex, being chiefly in use.

WASHING AND DISINFECTING.

In addition to these, the Americans make use of steam washing and disinfecting machines, which have also been made for many years in this country. As this form of apparatus fulfils all conditions necessary for true disinfection, it may be here briefly described. A stationary cylinder, preferably of steel plate, having a closely-fitting hinged door, is mounted on supports. Inside is a tubular or perforated metal cage, to which a rotary motion may be imparted by suitable gearing. Valves are furnished for the admission and removal of water and steam, and the machine should be fitted with safety valve, vacuum valve, steam and water gauges. The better types of this appliance are capable of withstanding 40lb. to 50lb. steam pressure per square inch, although it is not really necessary to use more than 20lb. pressure in ordinary cases. The act of washing having been performed, the articles are boiled by steam, and the water being then removed, steam is again admitted to complete the destruction of any organisms surviving. Before opening the door, steam should be condensed by a spray of cold water. The articles may then be removed for finishing in the ordinary manner. This form of apparatus is employed with great advantage in hospitals and workhouses to guard against accidental

contagion and to purify the clothing of tramps and others.

DISINFECTING STATIONS.

Having now reviewed the leading forms of apparatus, the arrangement of the disinfecting station may advantageously be considered. It is important that every precaution should be taken to guard against re-infection, which may easily occur if infected goods are not rigidly isolated from disinfected articles in the disinfecting station or room. The building should be isolated, if practicable, and provision made for the free access of light and air. The interior walls should be covered with white glazed brick or tiles, the ceiling with cement, and the floor of impervious material. It is desirable for all corners to be rounded, and the floors properly drained. Tanks containing liquid disinfectant, and hose-pipes for cleaning the interior, are necessary. One room should be provided for infected articles, and another, with separate entrance, for disinfected articles, the disinfector being built in the dividing wall. The doors of the apparatus should be made so that only one can be opened at a time. Two attendants are necessary for properly working the apparatus, and the attendant on the infected side ought not to communicate with the disinfected side, except by telephone or some means of signalling. All air used for drying purposes should be brought direct from outside, and all gases escaping from the chamber should pass through the boiler furnace, if possible. Articles received for treatment are preferably placed on slate benches, no wood being used, and it is important to include a lavatory basin for use of the attendant on the infected side. A suit of overalls should also be furnished for the attendant, which may be disinfected after the completion of work.

INCINERATION.

The modes of disinfection so far described are intended to destroy germs contained in articles, and without injury to the material. It happens, however, that in many hospitals dangerous material has to be disposed of, which is not of sufficient value for treatment in the ordinary manner, and, if buried, will be preserved to form future danger to public health. The best mode of disposal is afforded by a cremator or incinerator, constructed in such a way as to destroy the material and also to completely consume the vapours given off. The most largely used apparatus of this kind are Dr. Sergeant's Incinerator and Mason's Patent Cremator. Similar appliances, but intended for larger quantities of refuse, are well-known as refuse and dust destructors, constructed in one or more cells. There should be an entire absence of smoke, smell, and dust. Combustion must be perfect, both as regards refuse and gases given during destruction. In addition to their advantages from a sanitary point of view, destructors afford a very economical means of raising steam for various municipal purposes.

CHEMICAL DISINFECTION.

The use of chemical agents for disinfection, as already stated, dates from the remotest ages, and is still popular. Too much reliance must not be placed on this form of disinfection, for, notwithstanding their powerful appeals to the olfactory nerves, it is probable that, as usually employed, chemical disinfectants have little or no effect on micro-organisms. As antiseptics, chemicals are of the greatest value in surgery, for though they may not kill the germs, development is checked to a marked degree. Again, chemicals have the power of oxidising poisonous bacterial products. To kill the organisms themselves, especially those existing in air, is a more difficult task, for they possess vitality far higher than that of man, and are also protected by an envelope of dried albuminous matter. No man could endure an atmosphere which would suffice to kill these forms of microbes. Only chlorine, bromine, and iodine will penetrate their skins and oxidise the contents of their cells. Amongst chemical substances used in solutions, bichloride of mercury is considered the most powerful. In solutions of one part to 10,000, it is an effective disinfectant as regards some forms

\* A paper read before the members of the Civil and Mechanical Engineers Society.



of bacteria. Carbolic acid is considered by Klein to be of doubtless efficacy as a disinfectant, though useful in surgery. Izal, one of the coal-tar products, has been proved by Klein to possess remarkable bacterial effects. A solution of 1 in 200 kills germs of diptheria, typhoid, cholera, erisipelas, and scarlatina in five minutes. Essential oils are useful for purifying air and act as insecticides. Eucalyptus oil is anti-malarial; "Sanitas" disinfectant, in 1 or 2 per cent. solutions, oxidises most organisms, and is considered more efficient than carbolic acid and creosol. Chemical disinfection cannot be effectively employed, being manifestly unsuitable for textile fabrics, whilst in drains chemicals would require to be used in enormous and practically impossible quantities to produce any thing approaching complete sterilisation of the liquid. Fumigations are considered of little value, owing to their want of penetration, and they are described by eminent authorities as "illusory specifics giving a false sense of security."

#### MECHANICAL DISINFECTION.

Turning from these unfavourable criticisms, it is pleasant to find more satisfactory results are obtained from mechanical modes of disinfection. Charcoal, in its various forms, is of service as an absorbent and deodorant. Peat has considerable power of absorbing moist and noxious exhalations, and exercises a true disinfecting action on cholera germs. Filtration, both natural and artificial, is practised, far more widely than any other means, for the benefit of mankind. This most important function is largely performed by natural filtration in the soil, and renders spring water almost sterile. It is not, however, possible to depend wholly on spring water, and artificial filtration is therefore necessary. The efficiency of sand filters is instanced by the laboratory air filter before mentioned, and Dr. Frankland, in a report on Thames water, states that 98 per cent. of the organisms are removed by sand filtration. A striking example of the necessity for filtration was afforded in 1892, during an epidemic of cholera at Hamburg. The water supply was then unfiltered, and the death rate averaged 1250 per 100,000, whilst in the adjoining town of Altona, possessing a filtered water supply, the rate was only 221 per 100,000. Filtering operations are materially aided by the use of settling reservoirs, in which water is freed from injurious germs by deposition, by the oxidising effect of light (extending downwards as far as 10ft.), and by the destruction of harmful germs by the inoffensive species, the latter thriving best in water. So powerful is the action of water bacteria that Mr. Scott-Moncrieff has patented a process involving the cultivation and employment of these varieties to prey upon and destroy the harmful types in rivers and streams. Besides filtration, another purifying process of great utility is water softening, which not only deposits carbonate of lime, but carries down also organic and other impurities. At Hampton this process has been found to reduce the number of germs in Thames water from 1435 to 177 per cubic centimetre. Dr. E. Frankland, in a report to the Rivers Commission, recommends that water companies should be compelled to lay down water softening plant before being allowed to raise further capital. One of the most reliable forms of water softening plant is the Porter-Clark Apparatus. Dr. Percy Frankland found the effect of this was to reduce the number of germs in water by ninety-nine per cent. However useful filtration and deposition may be, there are always some germs left to reproduce the species, and, even if all were removed, their poisonous products would not be intercepted by filtration. The absolute sterilisation of water supplies for towns is a question which has been considered, and a proposal was made by Baron Tyndall to provide a sterilised water supply for Paris. Ozone was the agent suggested for the destruction of all microbes and organic impurities. The Equifex Water Steriliser is already used in hospitals, sterilisation being effected by heat, and the water afterwards filtered to restore its natural characteristics. Whether this process would be practicable on a large scale remains to be

ascertained. Certainly, in a matter of so much importance to the welfare and health of the community, no effort or expense should be spared to attain so desirable an end as the free and abundant supply of absolutely pure water. Disinfection, in the widest sense of the term, involves the subjugation of all injurious organisms, not merely by the limited process of destroying small numbers in public institutions, but by the universal creation of hygienic conditions. Our cities, towns, and villages, with their streets, slums, and alleys, must be thoroughly cleansed. Our people must practice cleanliness in their homes. They must have ample supplies of pure water, fresh air, and light. Drainage, sewage, and refuge of all kinds must be universally subjected to proper treatment. Isolation in all cases of contagious disease should be insisted on, and facilities for bathing and personal cleanliness should be still further extended throughout the length and breadth of the land. When these things are done the evil presence of disease will no longer hover near our homes.

#### SALE OF THE ASHBURNHAM LIBRARY.

THE eight days' sale of the first portion of the magnificent collection of books, the property of the Earl of Ashburnham, commenced at Messrs Sotheby's on Friday, and attracted a large number of book collectors and booksellers. This library was mainly and, so far as regards the more rare and valuable books, exclusively formed by the late Bertram, fourth Earl of Ashburnham, who was born in 1797, and died in 1878. The world-wide reputation of the earl's matchless collection of MSS. has somewhat eclipsed his achievements in other directions, and it has even been supposed that his purchases of printed books were merely incidents in a pursuit of which MSS. were the principal objects. This, however, was far from being the case, since he only possessed a very few MSS. up to the year 1847, when he inaugurated a new departure by acquiring nearly 2000 *en bloc* for Libri. As a matter of fact, he was constantly buying books from the year 1814, when as a boy at Westminster School he purchased a copy of the "Secrets of Albertus Magnus" for 1s. 6d. (this was sold for £2 8s.) at Ginger's well-known shop in Great College Street, down to the end of the year 1877, six months before his death. He was not an "omnivorous collector." But he took care that on the lines he drew out for himself as a collector he would have the rarest editions that could be obtained, and as far as was possible the most perfect copies. Hence we find several copies of rare books, purchased one after the other in the endeavour to obtain one perfect copy. The collecting of Bibles and Testaments in various languages (but especially English), Missals, Horæ, Breviaries, Offices, Prayers (public and private), and other early religious service books was his strong point. But here, also, he confined himself to the rarest editions he could obtain, or to copies of more common editions having some historical or family interest attached to them. Although not a searcher after bindings (as bindings), he yet managed to procure some singularly fine historic and artistic specimens. Outside his special liking for early religious books, his tastes were as broad as the rarity of the books introduced to his notice, and were very largely connected with the earliest editions of the first English writers and works from the earliest English presses. So we have his probably unique collection of the editions of Dame Juliana Barnes's Book of St. Albans, his series of early editions of Chaucer, the comparatively large number of specimens of the presses of Caxton, Wynkyn de Worde, Pynson, Julian Notary, Letton and Machlinia, Thomas Godfrey; the first printers at St. Albans, Oxford, and Ipswich, and many other English printers before the death of Queen Elizabeth. If there is one species of rare book which the late earl preferred to another it was copies printed on vellum, of which he procured an unusual number.

## Professional Items.

ABERDEEN.—The magistrates of Aberdeen have had under consideration plans of the proposed alteration on Her Majesty's Theatre. The plans provide for the abolition of the shops on the ground floor, thus permitting better access to the pit and stalls. It was resolved to obtain a report from the Burgh Surveyor before finally deciding on the plans, which were considered very satisfactory.

BELFAST.—The foundation-stone of the new Church of St. Vincent de Paul, Ligoniel, Belfast, was laid in its place in the north pier of the chancel arch on the 21st inst. The new Church will seat about 1300 persons. The nave walls are now about ready for roofing, and when completed the fine Gothic building, with its rock-faced ashlar work, will present an imposing appearance. It stands on a splendid site, and faces the road. The building consists of nave and aisles, the general dimensions being 100ft. by 50ft. and 50ft. from floor to ridge. There are five bays on each side of the nave, and a projecting semi-octagonal apse, with which is connected a large sacristy, and a commodious meeting room on the first floor above the latter. The floor is raised about 17ft. over the level of the footway, and massive columns of Aberdeen granite with dressings of Scotch-sandstone support the ornamental roof. Close to the sacred edifice will be erected new schools and a presbytery, plans for which have already been prepared. The contractors are Messrs. Courtney and Co., Shaftesbury Avenue, and the Architect Mr. J. J. McDonnell, Chichester Street, Belfast.

BETHNAL GREEN.—The whole of the wrought iron gates, railings, grilles, &c., fitted at the new Mortuary and Coroner's Court, Bethnal Green—under the London County Council—have been supplied and fixed by Thomas Brawn and Co., of Birmingham.

BRADFORD.—The corner stone of the new girls' and infants' schools in connection with St. Mary's Church, which are being erected at Stott Hill, was laid recently. The new schools are being erected from designs by Mr. Edward Simpson, Architect, of Bradford, and will be similar in the style of Gothic adopted to the other Catholic schools in the town. They will have accommodation for about 1200 children. The cost of the schools is estimated at about £6000, towards which a substantial sum is already in hand. The basement of the building will contain recreation rooms for the Young Men's Society, the ground floor will contain a schoolroom about 110ft. long and about 45ft. wide, and the first floor will be divided into class rooms. A wing of the building will provide cooking accommodation, rooms for manual training, &c. The contracts have been let to the following firms: Masons, Messrs. Wray and Co.; joiner, Mr. W. H. Pick; plumbers, Messrs. Wearden and Roscoe; plasterers, Messrs. Bland and Son; slaters, Messrs. Thornton Bros.

CLEETHORPES.—A permanent memorial of the Diamond Jubilee is being erected in the form of a fountain near the junction of Sea Road and Alexandra Road, close to the entrance to the Victor Gardens, which were opened by the late Prince Albert Victor of Wales. The fountain, when completed, will be a dome-covered structure, surmounted by a lamp.

DUBLIN.—The entrance to St. James's Church has been much improved by the erection of a railing in place of the ruined houses which occupied the front of the street. The new pulpit and reading desk of Caen stone, marble, and alabaster, erected by Messrs. Harrison and Son, Brunswick Street, is now completed. The upper part of the chancel has been laid in handsome mosaic by Messrs. Edwards, of Ruabon, and brass Communion rails put up by a Dublin firm, as well as painting and other improvements effected.



**DRIGHLINGTON.**—The memorial-stones of new Sunday schools connected with the Wesleyan Church at Drighlington were laid recently. The building, which is to consist of a central hall with seven class-rooms and caretaker's house, is estimated to cost £1500, and has been designed by Mr. Walter Hanstock, of Batley. It is to be built by Messrs. George Holdsworth, of Gildersome.

**GLOSSOP.**—Four memorial-stones of a proposed new Wesleyan Reform Chapel for Glossop were recently laid. The new building, which is estimated to cost £2300, is being erected in consequence of the old chapel having been condemned as unsafe. Mr. Charles Fielding, Glossop, is the contractor for the new building, and Mr. J. Lindsay, of Hyde, the Architect.

**KILDWICK.**—At a recent parish meeting Mr. Peterson, Architect, Bradford, reported upon a recent examination of the Church. He stated that three bays of the choir were 6in. out of the perpendicular. The centre pillar of the south aisle was considerably damaged, and this fixture was not only insecure in itself and dangerous to the public, but was also an eyesore. He considered that the north and south arcades should be rebuilt, and that the roof of the Church should be reslated. He estimated the cost at about £1200. A committee was appointed to deal with the matter.

**LINCOLN.**—The new portion of the Odd-fellows' Hall in Broadgate and Unity Square was opened last week. The building consists of three stories and a basement, and has a frontage to Unity Square of about 66ft. and 31ft. to Broadgate. On the ground floor there are five offices, and there is also an entrance independent of the main entrance to the hall. On the first floor there is a connection between the old and new portions of the hall, and three large lodge-rooms. The second floor contains three committee-rooms, and a house for the caretaker with other accommodation. The outside is built of local red brick with stone dressing, and the style of Architecture is of the English Renaissance. The builders were Messrs. Marshall and Harrison, Lincoln, and the total cost is about £1400. The Architects were Messrs. Mortimer and Son, Lincoln.

**LUNDY ISLAND.**—The consecration of the new Church on Lundy Island took place a few days ago. Mr. John Norton, the Architect, has designed an edifice at once ornate and substantial enough to stand as long as will the grey granite rock itself upon whose headland it has been erected. The style is very Early Decorated, the same as was the former Church, which, built in the late years of Edward I.'s reign, is now nothing but mouldering foundations. The new Church is small. Seating accommodation for 160 worshippers has been provided. The measurements inside are as follow:—Nave, 50ft. by 28ft.; chancel, 25ft. by 25ft.; and vestry, 14ft. by 16ft. The tower is 65ft. high. The various roofs are of steep pitch, and covered in by split stone slabs from the Ledbury (Gloucestershire) Quarries, an oolite reputed to have almost perpetual lasting powers for roofing. Under these stones is a double lining of felt upon the inner roof. The ridges are of red terra cotta, and the cornice angles of tower and turret are defined by projecting carved gargoyles. The eastern window is kept well up, so as not to cut into the reredos. The building is of finely axed granite, the island's own light grey variety, quarried and exceedingly well masoned on the spot, with dressings from the ancient Douling Quarries in Somersetshire. In a niche is a larger statue of St. Helena, by Mr. Harry Hems, of Exeter.

**MIDDLESBROUGH.**—The necessity of increased accommodation at Trinity Presbyterian Church has long been felt. It was therefore decided to occupy the whole of the available land at the side of the Church for this purpose, and the matter was put into the hands of Mr. W. G. Roberts, Architect, Albert Road, Middlesbrough. The memorial-stone of the new buildings was laid a few days ago.

On the ground floor from the entrance hall in Corporation Road a doorway leads into a room 55ft. by 26ft., and so arranged that it will be possible to divide it into three class-rooms by movable sliding partitions from floor to ceiling. At the end of this room there will be another class-room, with a separate entrance from Elm Street. The lecture hall will be 55ft. by 27ft., with a platform at the end. There is a retiring room at the rear of the hall on first floor, 31ft. by 17ft., available for dividing in two. A separate staircase leads to these rooms. The ground floor rooms are 15ft. high, while the lecture hall is 23ft. 6in. to the ceiling level, and is covered with an open timber roof. The elevation into Corporation Road will be faced throughout with first quality Normanby red pressed bricks, relieved with stone dressings. The elevation into Elm Street will be faced with Linthorpe red pressed bricks, relieved with Normanby brick arches and eaves courses. The total cost of the building and furnishing is estimated at about £1400. Messrs. Perks and Son, of Stockton-on-Tees, are the contractors.

**NOTTINGHAM.**—The work on the Nottingham section of the Manchester, Sheffield, and Lincolnshire Railway Company's extension to London proceeds with marked facility, and several new departures have recently been entered upon. The concrete foundations of the engine sheds at Annesley are now practically finished, while the brickwork and pits upon which the structure will be erected are now being proceeded with. The engine shed for the goods yard at Nottingham is also in hand, the concrete foundations being completed, and the brickwork of this, the goods warehouse, and other buildings is in course of construction. At the site of the Central Station, Nottingham, the work progresses very rapidly indeed, bearing in mind the great obstacles the engineers and contractors have had to face. The permanent way on the up line is now practically completed between Annesley and Haydn Road Station, with the exception of about three-quarters of a mile through the rock cutting at Hucknall Torkard. With respect to the Great Northern Company's extension, the work is making very satisfactory progress on the section in the vicinity of London Road, and the bridge there over the canal is already fixed. The contractors will be prepared to start on that piece of the extension from the line to Grantham which is to skirt Meadow Lane very shortly.

**PITLOCHRY.**—The new post office building at Pitlochry is of good design, and has a frontage of 130ft. The ground flat will consist of business premises, of which the principal will be the new post office, which occupies a position in the centre. The accommodation will consist of public office, telegraph-room, sorting-room, waiting-room, and other necessary space. The upper floors of the building will consist of dwelling-houses, while cellars will be situated in the basement. The plans were prepared by Mr. John Leonard, Architect, Pitlochry. The total cost will be upwards of £5000.

**ROTHERHAM.**—At a special meeting of the Rotherham Town Council, held to consider the minutes of the Gas Committee meeting of the 12th inst., a report by Mr. Winstanley, consulting engineer, relative to the extension of the gasworks to enable the Council to meet the requirements of the coming winter, was received. The engineer said other extensions were necessary, but, having so short a time at their disposal, their first care was to provide sufficient gas-producing power to meet the demands of the public next winter. He therefore deferred the extension of the purifiers, station meter, &c. Mr. Winstanley went on to explain the various necessary works in order to produce 500,000 cubic feet of gas per day of twenty-four hours. The estimate of cost was £8000. He suggested that the contractor should be responsible for the completion of two beds of retorts, capable of a production of 160,000 cubic feet of gas per twenty-four hours, and by the 31st of October next. The report was adopted.

**ROTHERSAY.**—The new non-infectious hospital at Rothersey, built at a cost of £3000, was formally opened on the 21st inst. by the Marquis of Bute. Mr. J. Russell Thomson was the Architect.

**SEAFORTH.**—The memorial reredos recently erected in St. Thomas's Church, Seaforth, was unveiled by Mr. Walter H. Wilson. The reredos has been erected at a cost of £300. This latest addition to the Church is an excellent specimen of Church Architectural work. The designer was Mr. C. E. Deacon, and the carvers Messrs. Earp and Hobbs, of London. The reredos is composed of Derbyshire alabaster, and measures in height 13ft. by 9ft. 6in. in width. The centre position is occupied by a representation of the Crucifixion, and separated from this on each side by a wide panel are representations of Christ as the Good Shepherd and as the Light of the World.

**WALSALL.**—Mr. Rienzi Walton recently held an inquiry, on behalf of the Local Government Board, at Walsall, with respect to an application by the Town Council to borrow £6000 to purchase a site for municipal buildings. The Town Clerk said the present Guildhall had been erected in 1866, at a cost of £6660, the whole of which had now been repaid. In 1877 the Corporation acquired from the Birmingham Gas Company its plant, which was within the borough, and included their offices in Bridge Street. In these offices the Corporation had to crowd the whole of their official staff. The accommodation was utterly inadequate. The site that the Corporation proposed to purchase contained 4308 square yards, and was close to the County Court in Lichfield Street, one of the best positions in the town.

**WOLSHINGHAM.**—On Saturday last the Parish Church of Wolsingham was consecrated by the Bishop of Durham after renovation and improvements which have been in progress for several months. A new altar and pulpit of oak have been provided, and the nave has been re-seated with oak benches. The floor of the nave, formerly flagged in stone, has been laid with blocks of wood; an efficient heating apparatus of hot water has been introduced; and a baptistery built near the south porch, which secures a number of additional sittings, these being very much needed. The new woodwork is throughout of seasoned Hungarian oak, supplied by Mr. W. Hudson, of Bishop Auckland, from designs by Mr. C. H. Fowler, Architect, of Durham; Mr. Westgarth, of Wolsingham, has executed the masons' work; and the heating apparatus is from Messrs. Dinning and Cooke, of Newcastle. The total cost is between £700 and £800. The chancel was adorned with a marble floor and oak stalls for the clergy and choir two years ago, at a cost of £200.

**BROUGHTY FERRY.** Police Commission has resolved to extend the storage capacity of the gasworks, and to apply for additional borrowing powers to the extent of £15,000. A number of other alterations and improvements are contemplated.

**MR. GEORGE FLETCHER**, head of the Masson Ironworks, Derby, died last week from internal hemorrhage. The deceased gentleman was an engineer, and long enjoyed great distinction as the manufacturer of machinery used on the sugar plantations in the West Indies.

Our Glasgow correspondent states that the Clyde Shipbuilders' Federation will join the Engineering Employers' Federation in resisting on the Clyde the eight hours' movement. The masters are fully prepared for a struggle, urging that a forty-eight hours week would represent a reduction of the working of machines by 12 per cent.

A BILL to confirm a Provisional Order of the Local Government Board, enabling the Corporation of Worcester to compulsorily purchase land for the purpose of widening, opening, enlarging, and otherwise improving the street called the Foregate, has passed the House of Commons Committee stage preparatory to being read a third time.



## Enquiry Department.

### SANITARY INSPECTORS' EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly say in your Enquiry Department what is the character of the exams. for a sanitary inspector's certificate, and also where the exams. take place, and when; and the best way for a provincial to qualify for same, and oblige yours truly,

L. E.

Stoke-upon-Trent, June 21st, 1897.

The character of the sanitary inspectors' exams. is with a view to test the knowledge of the candidate in the general principles of modern sanitation. He is required to write and read well, and have a fair knowledge of arithmetic, including mensuration of solids and superficies. He must also be conversant with Public Health Law, and, although not absolutely essential, should have a knowledge of practical building and construction in some particular branch. There are other matters of detail which one can ascertain from the syllabus issued by the Sanitary Institute, Parkes' Museum, Margaret Street, W. (E. White Wallis, Secretary, to whom letters should be addressed). The examinations are held in London and provinces three or four times a year. The best way to qualify, is to pay a coach a fee to prepare you for the exam.—Ed.

### A STUDENTS' COLUMN.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—As a beginner (i.e., a student) in the profession of Architect and Surveyor, might I suggest that you should open a Students' Column in your admirable paper, containing principally matters of interest and instruction to beginners such as myself? I feel sure that such an innovation would be hailed with delight by the student readers of your paper.—I have the honour to remain, yours truly,

WHITE ROSE.

The question of a Students' Column is under consideration at the present time.—Ed.

### "ANCHOR" CEMENT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—We shall feel much obliged if you can kindly inform us who are the manufacturers of the "Anchor" brand Cement? Thanking you in anticipation of your reply, we are, dear sir, yours truly,

J. T. & CO.

The makers of the "Anchor" brand of Portland Cement are Messrs. Hilton, Anderson, Brooks and Co., of Upper Thames Street, E.C.—Ed.

THE Bishop of London has laid the foundation-stone of the new Parish Church of Emmanuel, West End, Hampstead.

THE organ in the Wesleyan Chapel, Stourbridge, which has been rebuilt by Messrs. Norman Brothers and Beard, London and Norwich, has been recently opened.

THE Queen has just placed a brass tablet in the private chapel at Windsor Castle as a memorial of Sir Henry Ponsonby. It was designed by Mr. Nutt, surveyor to the Dean and Chapter of Windsor.

AT Blantyre Village, where David Livingstone, the African missionary and explorer, was born, there has just been unveiled a memorial tablet, erected in the gable of the tenement there which was Livingstone's home. Messrs. Galbraith and Winton, Glasgow, were the contractors.

MR. JOHN ORD HASTED, R.E., held an inquiry at the Leeds Town Hall recently on behalf of the Local Government Board relative to an application from the Leeds Corporation to borrow £60,000 for works connected with the relaying of the pavement in the streets lying between Kirkstall and Roundhay. The Corporation is asking that the repayment of the money shall extend over a period of thirty years.

## Trade and Craft.

### HEAVY CLAIM BY A CONTRACTOR.

In the Queen's Bench Division Mr. J. H. Campbell applied on behalf of the plaintiff, Mr. John Good, contractor, for an order that the defendants, the Corporation of Dublin, should make further discovery of documents. The action is brought to recover £2469, alleged to be due on a contract entered into with the defendants for the repair of the Green Street Courthouse. The original contract was for £2090, but it contained a clause by which Mr. Good was to carry out any variations or additions to the original plans required by the City Architect and be paid the expenses connected therewith, after it had been ascertained by a fair and equitable survey. The plaintiff claimed £2629 in respect of these variations and additions, bringing the total amount up to £4719 14s. 5d. He had received £2250, and claimed the balance. The Corporation had paid £9000 into Court. The plaintiff had already obtained an order for discovery, but alleged that it had only been partially complied with, certain documents being withheld on the plea of privilege.—The Court granted the application.

### IMPROVEMENTS AT TORRY.

WITHIN recent months very considerable improvements have been carried out at Torry. The important contract of causewaying the Rosemount Viaduct has been completed—Mr. Tawse contractor—and that thoroughfare has now been made one of the best paved streets in the city. From the junction with School-hill to Skene Street the Viaduct has been laid with 4in. cubes on cement concrete, and run up with pitch in the usual way. From Skene Street upward to the junction with Mount Street it is laid with 6 by 4 setts, laid similarly to the nether portion. The spur road leading round from the Viaduct to Union Terrace has been laid with pink (Corrennie) setts. The operations have mainly been directed to certain streets on the south side of Victoria Bridge, where building is actively going on. Victoria Road has now been causewayed from the Bridge up to and including the crossings at Menzies Road. The contractor for Victoria Road, who has completed his work, was Mr. James Leith. The work is well advanced with the macadamising of the adjoining Menzies Road. Mr. Tawse is the contractor.

### ELECTRIC TRACTION AT LEEDS.

The task of applying electricity to the working of the Leeds tramcars has advanced so far that it has been found possible to make an experiment with one of the boilers and engines which have been installed at the generating station in the Calls in the centre of the city. The experiment proved to be very successful. At present only one of the two engines has been installed, but the other is to be fixed up in a few days. The engines have been erected by Messrs. Fowler and Co., of the Steam Plough Works, Leeds. They are of 400 horse power each, and one of them, it is said, is equal to the work to be done, but it is deemed advisable to have a second engine, and this will also be in readiness before next Bank Holiday in August—the date fixed for their completion. It is pleasing to find that so much of the important work in connection with the great change that is being brought about has been skillfully carried out by Leeds firms. While Messrs. Fowler have built the engines, Messrs. Greenwood and Batley have constructed the dynamos. These have already been tested by Professor Hopkinson, the well-known electrical expert, and are ready to be placed in the generating station at any moment. There was at one time some fear that the generating station would not be ready within the specified time, but that fear no longer exists. To expedite the work the engine and boiler have been in course of erection in the station while the ceiling of the station itself was being completed.

### WHO SHOULD MAINTAIN THE SEA-WALL?

In the Court of Appeal an arbitration appeal between the County Council of Kent and the Urban District Council of Sandgate from the judgment of the Divisional Court affirming the award of an arbitrator appointed by the Local Government Board was tried on Friday last. The matters in dispute came before the Court by way of special case, and raised the question whether the District Council of Sandgate or the Kent County Council were liable to pay for the repairs and maintenance of a certain sea-wall known as the Esplanade, and groynes supporting the main road running from Sandgate, past the Marina Villa, up to the bridge over the military canal at Seabrook. The arbitrator awarded that the County Council should pay to the District Council £6000 for its expenses in rebuilding portions of the wall which had been washed away, and erecting necessary groynes. As to another portion, he held that the wall there was not part of the main road, and in respect of an eighth groyne he found to the extent of £1500 in favour of the County Council. From this award the County Council appealed. The Master of the Rolls, in allowing the appeal, said under the Highways Acts it was never intended that the liability imposed on the county to contribute towards the maintenance of "main roads" should include a liability to do so in the case of an esplanade or sea-wall, such as the one which formed the subject of this arbitration. The promenade was built for the benefit of the inhabitants of this watering-place, and as an attraction to visitors, and was not a "highway" for use of the county generally. When the road was made a main road the sea had not encroached to the same extent as now, which rendered the question on whom the liability to repair damage done by storms from time to time a very serious one. In his opinion the local authority had no claim whatever against the County Council or those who happened to be on it, for any contribution towards the expenses that had been incurred in repairs.—Judgment was entered for the County Council with costs.

### DUNDEE MASONS' LABOURERS' WAGES.

A meeting of 'Dundee Masons' Labourers' Union was held last week for the purpose of considering the reply which it was expected would be received from the employers regarding the request made for an increase of half-penny per hour in the operatives wages. Mr. A. Johnston stated that he had received a letter from Mr. W. B. Dickie, Secretary of the Master Builders' Association, to the effect that the employers had not yet had time to meet to consider the claim, but would do so shortly. Mr. Johnston afterwards addressed the meeting, and expressed the hope that their request would be granted, and so avoid any regrettable friction taking place. Their demand should in all fairness be conceded, for it was a just one. While the masons had received three advances, the wages of the labourers had remained stationary.

THE treasurers of the Middlesex Hospital have received from the executors of the late Mr. David Brandon the sum of £10,000, being a payment on account of the residue of his estate, one sixth share of which he had bequeathed to the hospital in addition to a specific bequest of £3000 already received.

In the centre of Bath has just been discovered a fine Roman tessellated pavement 10ft. below the surface. A length of about 6ft. has been laid bare, showing a handsome key border. The dimensions of the whole of it is impossible to estimate without excavation, as it extends under buildings adjoining the old town mansion of the Marquis of Bath.

MR. ORCHARDSON, R.A., has accepted from the Royal Agricultural Society of England a commission to paint a picture of the Queen, the Prince of Wales, the Duke of York, and Prince Edward of York, the three first of whom have held the office of president of the society. The picture will, when completed, be placed in the Council Chamber of the Royal Agricultural Society in Hanover Square.



## SOCIETY MEETINGS.

**Dundee Institute of Architecture, Science, and Art.**—The syllabus of competitions for the session 1897-98 has just been issued. It is as follows:—1. Best freehand sketchbook of Architectural subjects from existing buildings, not less than six pages, in pencil only, not copied from any drawing. 2. Best measured drawings of any Architectural subject, in black and white, and not more than four nor fewer than two sheets, containing plan, elevation, and section to  $\frac{1}{4}$  in. or  $\frac{1}{8}$  in. scale, and detail of a part to  $\frac{1}{16}$ th full size. 3. Best work in modelling or carving of any of the following: (a) Cornice, not exceeding 12 in. by 9 in. by 18 in.; (b) One quarter of centre flower, not exceeding 21 in. by 21 in.; (c) Key stone, not exceeding 18 in. by 12 in.; (d) Lock plate and door handle, not exceeding 21 in. in height. 4. Best outline drawing, from an antique subject in the Dundee Art Museum of casts or from duplicates thereof. Size of work, 22 in. by 14 in., with 4 in. margins

or mounts. 5. Best design in colour for any of the following subjects: (a) Interior decoration of a private library, dining or drawing room; (b) Wall and ceiling paper; (c) Door panel; (d) Tile or parquet floor; (e) Mosaic tympanum. The prize for each competition will be of the value of £2 2s.—At the annual general meeting of the Institute, the principal business was the reception of the annual report and the election of officers for the ensuing session.

**The Architectural Association of Ireland.**—The annual excursion took place recently, Mellifont Abbey and Monasterboice being visited. On arrival at Mellifont Abbey, the party distributed through the remains of this fine old Cistercian abbey; of the Church itself little remains but what suffices to mark the lines of the plan, which is of the usual Cistercian type; but the octagonal baptistry is a building unique in its character in this country; portions of it are in good preservation, the mouldings of its richly-proportioned arcade of round arches being frequently

wonderfully sharp. The detail is of a Transitional type. The chapter-house is in much better condition, and, strange to say, still boasts its vaulted ceiling—not a common thing in Ireland. The detail here is of Early Decorated character, and is very good. A striking thing is that beyond the plan of the Church there is little or nothing left of that type of Architecture generally associated in one's mind with a Cistercian foundation. At Monasterboice the two very fine examples of Celtic crosses were examined with much interest; there are also a few small and quaint tombstones of the last century here. Drogheda, on the return, was reached sufficiently early to give time for a stroll round the historic old town. Amongst the places viewed were the old City Wall, and St. Lawrence Gate, the Constabulary Barracks (an old and rather quaint Georgian building), the new R.C. Church of St. Peter, and the old Abbey.

**Aberdeen Ecclesiological Society.**—The members made an excursion recently to the Church of Arbuthnott. The oldest and

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF

WORKS:  
**DARWEN.**

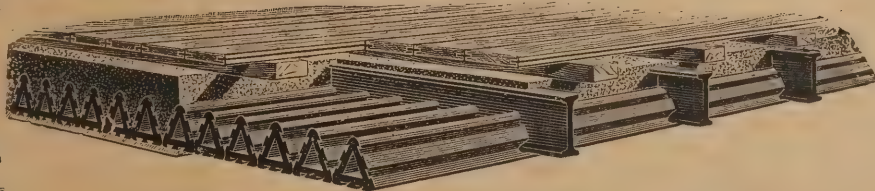


THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
92  
Great Russell St.,  
W.C.

# HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders

CONSTRUCTIONAL STEEL AND IRONWORK.

GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS.**

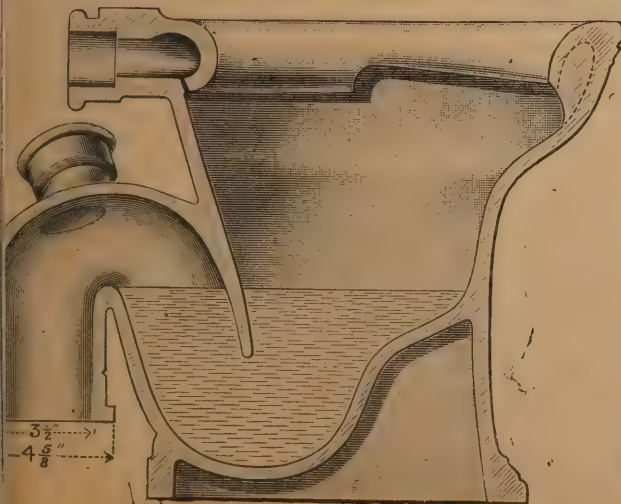
LONDON {Offices: 17, GRACECHURCH STREET, E.C.  
Works: RATCLIFF, E.

MANCHESTER {Offices: 10, MARSDEN STREET.  
Works: WEST GORTON.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



## SHANKS' PATENT "COMPACTUM" WASH-DOWN CLOSET.

LARGE WATER SURFACE, 8 1/2 in. by 6 1/2 in.  
DEEP SEAL IN TRAP, 3 in.

THOROUGHLY FLUSHED WITH TWO GALLONS OF WATER.

PERFECTO SEAT EXTENSION.

PORCELAIN SOLDERED JOINT.

Made in "Vitro-Porcelain," a new body, vitreous throughout, non-absorbent, and non-crazing. The best material for Sanitary Appliances ever introduced.

Prices and Particulars on Application.

SHANKS & Co., Tubal Works, Barrhead, near Glasgow.



most interesting part of the Church is the choir, or chancel, built and consecrated by Bishop de Bernham in 1242, and restored within recent years by Mr. A. Marshall Mackenzie, A.R.S.A., Architect. The nave of the Church, built in 1485, and the celebrated Arbutnott aisle with the priests' chamber above, built in 1505, with their stone towers, were also much admired.

**Society of Engineers.**—An interesting visit was recently made by the members of the Society of Engineers to the London section of the Manchester, Sheffield, and Lincolnshire Railway Works. The works comprise the Metropolitan division of the Manchester, Sheffield, and Lincolnshire Railway extension to London. The trains of the Company will run from the point where the new main line joins the Metropolitan Railway at Quainton Road, over the rails of the latter Company to Harrow, from which place two new main lines for the exclusive use of the Manchester, Sheffield, and Lincolnshire Railway are being constructed by the Metropolitan Railway Company, adjoining its own line, to a point near Finchley Road station, at which place the work is taken up by the Manchester, Sheffield, and Lincolnshire Railway, and is the property of that Company. From Finchley Road station the new line runs southerly by means of covered way, 26ft. 4in. in width, and at some points quite close to the existing line of the Metropolitan, until it reaches the London and North-Western Railway, which is crossed between the Loudoun Road station and the westerly mouth of the Primrose Hill tunnel by a steel girder bridge of three spans, and then runs into covered way again at the northerly side of the Alexandra Road, continuing either in covered way or tunnel until it emerges into a large opening lying between Circus Road and Wellington Place. It again passes by means of covered way, constructed with three arches, one of 40ft. and the other two of 26ft. 4in. each, the whole accommodating seven lines of rails, under Wellington Place, Lord's Cricket Ground, and St. John's Wood Road. All the retaining walls, side walls, and arches of the covered way and tunnel are faced with blue brindle brick, and present a solid and massive appearance. The Regent's Canal is crossed by a large steel bridge, the openings for the passenger main lines being spanned by through girders, while that portion for the goods and coal lines has been made a deck bridge, and

covered with Hobson's steel flooring so that rails can be laid, and points and crossings laid in at any part irrespective of the girders. Just after crossing the canal a separate pair of lines diverge and run west to Grove Road, under which they pass to an extensive coal depot which is in course of construction, and which occupies an area of about twenty acres. The goods warehouse, which will be 385ft. in length by 255ft. in width, and have five floors, is situate on the former site of Alpha Road, and between it and a new road to the south of it, which extends from Grove Road to Park Road, and which will cross over all the lines of way leading into the passenger station. This road will be 60ft. in width, and is being paved with hard wood blocks of "Jarrah" timber. Another new road leaves this at right angles near to the new vicarage and schools of St. Paul's Church, which have had to be rebuilt, and runs alongside the site of the new passenger station and to the Marylebone Road. The passenger station, which will have a frontage of 325ft. on what was formerly the south side of Harewood Square, will contain the booking-office, restaurant, and the usual waiting and other rooms on the ground floor, and general offices for the Company on the first floor, will be of red brick. In front of the office there will be a promenade 100ft. in width and extending the whole length of the frontage, and from this promenade access will be had to the departure and arrival platforms, which, for the present, are limited to a width of 158ft. on the easterly side, the rest of the space to the west being reserved for future extensions. The platforms and cab rank, which latter is entered from the bridge over the lines at the north end of the station, will extend to that bridge, and will have a length of 1000ft., but the roofing will at present only extend northwards for half that distance. The spans of the roof will be two of 50ft., one of 40ft., and a temporary span of 18ft., and will be carried on columns and arched lattice spans running north and south.

In the covered way, tunnels, retaining walls already done, strength and massiveness are the principal characteristics, and there has been no superfluous expenditure upon ornamentation. The works are let under contract with the Company to Mr. J. T. Firbank, M.P. Messrs. Sir Douglas and Francis Fox are the Engineers-in-Chief. In front of the station, and between it and the Marylebone Road, the Grand Central Hotel of the Gordon Hotels Company, and to be worked in connection with the railway, is being erected. It will consist of a building occupying a block of land 313ft. from north to south, and 233ft. in average width from east to west. It is being built on four sides of a central quadrangle, which will be roofed over in the manner of several Continental hotels, and will form a handsome front for the station, to which access will be had by two new wide streets, east and west respectively, of the hotel. Colonel Edis is the Architect of the hotel.

## FLOORING BLOCKS.



Per 100 Blocks out of sizes.	YELLOW.		PITCH PINE
	At Wharf.	ex Ship within one month.	At Wharf.
17 1/2 x 3 x 3	12 3	11 2	16
17 1/2 x 3 x 2	8 9	7 11	11 8
17 1/2 x 3 x 1 1/2	6 9	6 0	9 1



## PRIME DRY OAK & PITCH PINE FLOORING

With Special Joint to conceal Nails—

1 1/2 x 4 1/2 Oak, 50/- Pitch Pine, 24/6 per square.  
1 x 4 1/2 " 42/6 " 21/- "

Above prices include devolting.

## VIGERS BROTHERS, TIMBER MERCHANTS.

Head Office—67, KING WILLIAM STREET, E.C.  
Mills—LOTS ROAD, CHELSEA.  
Telephone No. 601 Avenue.

Reading Cases may be had on application to the Manager. Price 1s. 9d. each.

## SLATES. BRICKS.

VELINHELL, BANGOR, PORTMADOC, GREEN, &c.

GOOD STOCKS ON HAND.

COMMON WIRE CUTS.

Large Quantities. Prompt Delivery.

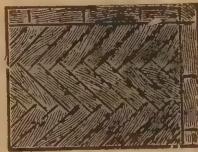
GIBBS BROTHERS, LOUGHBOROUGH.

## THE SMOKELESS FIRE Co. Ltd.,

Sole Proprietors of Marsh's Patents  
FOR THE

## COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.



## WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM

JOINERY WORKS,

Clapham Junction, S.W.

## THE BATH STONE FIRMS LTD.

BATH,

FOR ALL THE PROVED KINDS OF BATH STONE.

FLUATE, for Hardening, Waterproofing, and Preserving Building Materials.

LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.

J. BATCHELAR & CO.,  
48, HAMMERSMITH ROAD, W.

## LIFTS

Hydraulic, Steam, Gas,

Electric, or Hand-Power.

## M.T. MEDWAY & CO.

ALBERT WORKS,

ROLT ST., DEPTFORD, S.E.

SAFETY . . .

. . . ECONOMY . . .

. . . SPEED.



THE THORNTON-PICKARD  
SIMPLEST AND BEST.

CAMERAS AND  
SHUTTERS.

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.





## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ASHFORD (Middlesex).—Accepted for external painting and decorating, &c., the West London District Schools, Ashford, near Staines.—

J. J. Richards, 9, Shannon-grove, Brixton, S.W. £220

DEVONPORT.—For the erection, for the Admiralty, of coffee canteen and reading-room at Devonport:—

Humphreys, Limited ... £500

DORCHESTER.—For additions, &c., "Antelope Hotel." Mr. A. L. T. Tilley, 16, Cornhill, Dorchester, Architect:—

R. Davis and Son, Dorchester ... £2,050

GRESHAM (Norfolk).—For new Board Schools and Master's House, Gresham, Norfolk. Mr. Herbert J. Green, Architect and Diocesan Surveyor, 31, Castle Meadow, Norwich:—

George Riches ... £3,250 0 0	R. Chapman ... £3,087 0 0
J. S. Smith ... 3,214 8 0	Girling & Smith ... 3,035 14 0
R. Davis and Son ... 3,189 0 0	T. H. Blyth, Foulsham* ... 2,800 0 0
R. W. Riches ... 3,115 12 5	*Accepted.
James White ... 3,087 18 6	

HESWALL (Cheshire).—For the construction of a river wall at Heswall, about 180yds. in length, with other works in connection therewith, for the Heswall Hall Estate, Limited, Messrs. Charles H. Beloe and Frank E. Priest, Engineers, 13, Harrington-street, Liverpool:—

F. Colson ... £1,541 2 8	Joseph Price ... £1,044 19 7
C. Braddock ... 1,268 9 2	Villa Mantle Syndicate, Limited, Liverpool* ... 1,020 0 0
Holme and King ... 1,259 6 0	
Peter Gaven ... 1,117 15 0	

HUDDESFIELD.—For the erection of a dwelling-house, New Hey-road, Outlane. Mr. J. Berry, Architect, 9, Queen-street, Huddersfield:—

Masonry.—Hirst, Firth, and Co., Golcar ...	
Joinery.—W. Collins, Sowood ...	
Plumbing.—C. Dyson, Acre-street, Lindley ...	£300
Plastering and Painting.—Seth Collins and Sons, Staniland ...	
Slating.—J. Robinson and Son, Marsh ...	

LAHINCH (Co. Clare).—For the erection of iron buildings for additional bedroom and dining-room accommodation, for the Lahinch Golf Links Hotel Company, Limited, Lahinch, Ireland:—

Humphreys, Limited ... £1,070

LONDON.—For the erection of two shops at High-street, Plumstead, for Mr. J. Austin. Mr. Harold Busbridge, Architect:—

Speckley and Co. ... £2,026	Welch and Sons ... £2,077
Sanford ... 2,234	Proctor ... 1,900
Thomas and Edge ... 2,217	Hart ... 1,849

LONDON.—For repairs to be done at the Licensed Victuallers' Asylum, Asylum-road, Old Kent-road, S.E. Mr. W. F. Potter, Architect:—

R. Hirst ... £340	F. Dawes ... £275
R. J. Young ... 318	W. Croft, Sydenham* ... 180
H. Eames ... 300	*Accepted.

LONDON.—For alteration at the "Lord Stanley" public-house, Camden Town, London, N.W. Mr. Herbert Riches, Architect, 3, Crooked-lane, King William-street, London, E.C.:—

A. Porter ... £725	P. Hart* ... £675
T. Osborn and Sons* ... 722	

LONDON.—Accepted subject to slight modification. "The Hope and Anchor," Camden Town, N.W. Mr. Herbert Riches, Architect, 3, Crooked-lane, King William-street, London, E.C.:—

W. H. Durrant ... £485	Antill and Co. ... £450
—Scott ... 479	P. Hart (accepted) ... 382

LONDON.—For alteration and fittings to shop, High-street, Deptford, S.E. Mr. Herbert Riches, Architect, 3, Crooked-lane, King William-street, London, E.C.:—

Parnall and Co. ... £316	Speckley and Co.* ... £257
S. J. Scott ... 263	*Accepted.

LONDON.—For painting, &c., at the "King's Head," Pimlico, S.W. Mr. Herbert Riches, 3, Crooked-lane, King William-street, London, E.C. Architect:—

T. Osborn and Sons (accepted) ... £90

PORTISHEAD (near Bristol).—Accepted for completing the sewerage scheme. Mr. T. J. Moss Flower, Assoc. M. Inst. C.E., Carlton-chambers, Bristol:—

J. and T. Binns, Horwich ... £10,687 9 10

REDHILL.—For the erection of St. Joseph's Catholic Church at Redhill, Surrey. Mr. A. E. Purdie, Architect. Mr. J. T. Carew, Surveyor:—

W. Holt and Sons ... £6,575	Carrick ... £5,560
W. Bagaley and Sons ... 6,500	D. Debinham ... 5,397
Smith and Sons ... 6,135	F. G. Minter, Westminster* ... 5,200
C. Nightingale & Sons ... 6,092	
J. Longley and Co. ... 5,880	*Accepted.

NEW BRUMBY (via Doncaster).—For supplying 700 tons broken granite, for the Brumby and Fordingham Urban

District Council. Mr. John Spavin, Surveyor, Beauchamp street, New Brumby:—

	Fordingham Station.	Guinness Station.
Enderby and Stoney Stanton	12 4	12 1
Fergusson and Starkey	12 4	12 1
Ellis and Everard	12 6	12 3
Whitwick Company	11 9	11 7
Shap Granite Company	12 4	12 2
Kaltenback and Schmitz	11 0	10 9

Ord and Maddison	12 8
Mount Sorrell	11 6
Jackson Quines Quarries	11 0*

OULTON.—For works of Church restoration. Mr. Herbert J. Green, Architect, 31, Castle-meadow, Norwich:—

J. H. Blyth, Foulsham	£1,330 0 0	Tuddenham & Sons, Aylsham	£1,258 7 6
R. Chapman, Hanworth	1,316 0 0	R. W. Riches, Postwick	1,038 8 10

SOUTHAMPTON.—For tar paving to the playgrounds of three schools, viz., Central District (infants), Ascpart (infants), Northam (three departments), for the Southampton School Board. Mr. John H. Blizard, Surveyor to the Board:—

J. E. Broderick	£687 0 0	E. Bradshaw, Southsea*	£427 5 7
G. Milson	546 16 2		
J. Wainwright & Co.	468 9 7		

\*Accepted, subject to the approval of the Education Department.

STOKE-ON-TRENT.—Accepted for converting No. 61, Liverpool-road, Stoke-on-Trent, into a shop, for Messrs. Jackson's Stores, Limited, of Leeds. Mr. E. Penn, Architect:—

T. R. Yoxall, Stoke Head	£205
STOKE-ON-TRENT.—For alterations to the "Saracen's Head" Inn, Stoke, for Messrs. Worthington and Co., Limited. Mr. E. Penn, Architect:—	
T. R. Yoxall	£605
L. Price	554

STOKE-ON-TRENT.—Accepted for erecting a detached house, James-street, Stoke, for Mr. H. J. Wildin. Mr. E. Penn, Architect:—

T. R. Yoxall, Stoke	£246
STOKE-ON-TRENT.—For additions to Messrs. Geo. Jones and Sons', Limited, Manufactory, Stoke-on-Trent. Mr. E. Penn, Architect:—	
L. Price	£538
Ball and Robinson	476

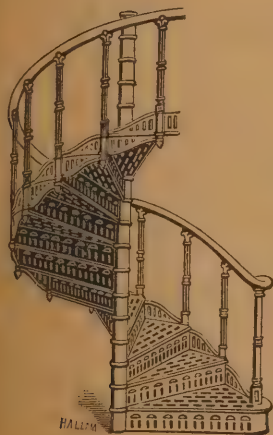
\*Accepted.

**M'NEILL'S FELTS** (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)  
**M'NEILL'S SLAG WOOL** (Silicate Cotton), for Fireproofing and Soundproofing.  
 AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. M'NEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

THE  
**ST. PANCRAS IRON WORK COMPANY,**  
**ENGINEERS & IRONFOUNDERS.**



Manufacturers of  
**IRON STAIRCASES**  
 (Straight and Spiral),

**IRON ROOFS, FOOT BRIDGES,**  
**IRON DOORS,**  
**VERANDAHS, BALCONIES,**  
**PORCHES, GATES & RAILINGS.**

**GENERAL WROUGHT & CAST-IRON WORK.**

LARGE SHOWROOMS AT

**The St. Pancras Iron Works,**  
**PANCRAS ROAD, LONDON, N.W.**  
 (Close to King's Cross, St. Pancras and Euston Stations.)

**BUILDERS' JOURNAL** Reading Cases may be had on application to the Manager, price 1s. 9d.



London Agents: **HENRY WARING**, 130, Queen Victoria Street, E.C.



STRATTON (Dorset).—For alterations, additions, &c., to farm buildings. Mr. A. L. T. Tilley, 16, Cornhill, Dorchester, Architect.—

A. Harvey, Charminster ... £988 3 7

UGANDA.—For the supply and shipment of an iron shed, for the Crown Agents for the Colonies, for the Uganda Railway.—

Humphreys, Limited ... £486

WATERFOOT, ROSSENDALE (Lancs.).—Accepted for new buildings, to be known as "Trickett's Arcade," comprising thirteen shops with livings, offices, workshops, and thirty-six lock-up shops, for Mr. H. W. Trickett, J.P. Mr. S. T. Williams, Architect, St. James-chambers, Waterfoot, near Manchester.—

Ormerod Ashworth, Crawshawbooth, near Manchester ... £9,450

WOKING.—For new drill hall, Walton-road, Woking. Messrs. Pooley and Follett, Architects and Surveyors, 21, John-street, Adelphi, London, W.C.—

Chafen and Newman ... £249 Ingram and Sons ... £439 J. Whitburn ... 440

## COMPETITIONS.

### TO ARCHITECTS.

The Corporation of Bury invite Architects to submit COMPETITIVE PLANS for an ART GALLERY and PUBLIC LIBRARY, to be erected at the corner of Moss-lane and Manchester-road, at a cost not exceeding £16,000.

Premiums of £75, £50, and £25 will be awarded for the designs adjudged of sufficient merit and placed first, second, and third in order respectively.

The Corporation will be advised by a professional referee in the selection of plans.

The premiated plans will become the property of the Corporation.

Lithographed plan of site and copy of conditions may be obtained on application to J. CARTWRIGHT, M.Inst.C.E., Borough Engineer, Bury, on payment of a deposit of One Guinea, which sum will be returned on receipt of competitive drawings.

Drawings to be deposited at the Corporation Offices, Bank-street, Bury, by AUGUST 31st, 1897.

By order,  
JOHN HASLAM,  
Town Clerk.

### LICHFIELD UNION.

#### TO ARCHITECTS.

The Guardians of the Poor of the Lichfield Union are desirous of CONSULTING a duly qualified ARCHITECT with reference to the proposed Extension of their Union Workhouse, with the view of increasing the accommodation therein.

Gentlemen willing to advise are requested to communicate with the undersigned before FRIDAY, JULY 2nd, giving references, terms, &c.

By order of the Board,  
JOHN DERRY,

Union Offices, Lichfield,  
June 18th, 1897. Clerk.

## AUCTION SALES.

CALLOW LAND, LEAVESDEN ROAD, WATFORD, HERTS.

Five minutes' walk from the Junction Railway Station. Highly important Sale of a Freehold Building Estate, situate in the most rapidly increasing and improving locality in Watford.

MESSRS. HUMBERT, SON, and FLINT are instructed by the owner to SELL by AUCTION, at the Queen's Arms, St. Albans-road, adjoining the land, on WEDNESDAY, JUNE 30th, 1897, at FIVE o'clock precisely, 250 PLOTS of valuable and well-placed FREEHOLD BUILDING LAND, adapted for the erection of the most remunerative class of small villa residences and artisans' dwellings, for which in this district, close to the station, the demand appears unprecedented. The land has important frontages to good roads; is sub-divided into convenient plots with sufficient depth to afford small gardens, and will be sold upon liberal terms as to payment, which may be extended over a term of five years, thus affording the smallest capitalist an opportunity to acquire his own freehold.

Plans and conditions, and further particulars, may be obtained of Messrs. SEDGWICK, TURNER and ODDIE, Solicitors, Watford; or of Messrs. HUMBERT, SON, and FLINT, Land Agents, Watford, Herts, and 11, Serle-street, Lincoln's-inn, London, W.C.

### LONDON PLATE-GLASS INSURANCE CO. LTD.

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

MODERATE RATES. PROMPT REPLACEMENTS.

SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited.

Liberal Terms for Business Introduced.

### PORTABLE HOISTING ENGINE, Three

Portables, 18in. Horizontal, four others, Deal Frame, Log and Deal, Joiner's Bench, Moulding Machine, Lathe, Saw-sharpener, Drilling Machine.

POVIS, BALE & Co., Appold Street, London

Price 3s.

## GLOSSARY OF TECHNICAL TERMS

used in Architecture and the Building Trades.

By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

## CIVIL SERVICE TECHNICAL EXAMS.

Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

## SANITARY INSPECTORS' EXAMINATIONS.

An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required. For particulars and testimonials apply CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

## R.I.B.A. EXAMS. PREPARATION

personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

## APPOINTMENTS VACANT.

### THE LONDON (TELEPHONE {Holborn, No. 1011.})

### DRAWING & TRACING OFFICE,

98, Gray's Inn Road, Holborn, W.C.

(Adjoining Holborn Town Hall.)

MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.

Cheques Crossed. The City Bank, Ltd.

Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

WORKING DRAWINGS, TRACINGS,

PERSPECTIVES, SURVEYS,

COMPETITION DRAWINGS,

Black Line PHOTO-COPIES and Blueprints.

Quantities, Specifications LITHOGRAPHED.

MODELS, DIAGRAMS, &c.

TRACING and PRINTING Rooms, HATTON GARDEN,

connected by Private Telephone.

### TO LOCAL SURVEYORS.—ASSISTANCE

in the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL.

### CHELTEMHAM SCHOOL OF SCIENCE

and TECHNICAL SCHOOL.

WANTED, in September, an INSTRUCTOR holding the Certificate of the City and Guilds of London in Carpentry and Joinery, and qualified to earn grants in Building Construction under the S. and A. Department.

A practical Joiner, of some standing, under 30 years of age, with experience in teaching preferred.

Apply, HEADMASTER,

Cheltenham Grammar School.

### BUILDER'S CLERK WANTED.

One with some experience in a Builder's office, prime cost, abstracting accounts, book-keeping (single entry), and general office routine. Hours 7 to 5.—Letter only, stating age, salary, and reference of last and present employer, SHURMUR, Riverside Works, Clapton.

Jubilee Panel in Red and Buff Terra Cotta, commemorative of the 60th Year of Her Majesty's Reign.

### BROWN & DRAB GLAZED BRICKS.

(Largely used for Hospitals, Schools, &c.)

Illustrated List on Application.

**STANLEY BROS. (LTD.) NUNEATON.**

GLAZED SINKS.

SALT GLAZED BRICKS.

WHITE AND COLOURED ENAMELLED BRICKS.

Blue Bricks, Quarries, Copings, Kerbings, Roofing and Ridge Tiles, Fire Bricks, &c.

**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, LUGGARDINS WORKS, WITHINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!

ARCHITECT and SURVEYOR'S ASSISTANT WANTED to take charge. Seaside town. Must be good draughtsman, leveller, and surveyor; competent to measure up work and adjust accounts.—First-class, steady, and punctual men only are invited to communicate by letter to JAMES W. MARTIN, Architect, Clacton-on-Sea.

### ARCHITECT'S ASSISTANT WANTED.

Must be well up in perspective, details, and specifications.—Address, with age, experience, and terms, ARCHITECT, 3, Hyde-gardens, Eastbourne.

### DRAUGHTSMAN WANTED in a Surveyor's office.

State age, salary expected, and past experience fully, D. W., Abbott's, Eastcheap, E.C.

### QUANTITY SURVEYOR (experienced and reliable) WANTED, in the North of England.

Address, stating when at liberty, age, experience, references, and salary required, to ARCHITECT, 449, Glossop-road, Sheffield.

## APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

### YOUNG ARCHITECT, A.R.I.B.A.,

DESIRES to ASSIST others

in the

PREPARATION OF DRAWINGS

at his own office.

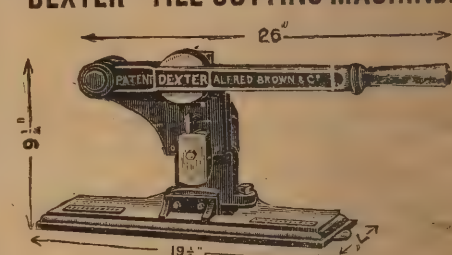
G. SCORER, 28, Newman-street, W.

### ARCHITECT'S ASSISTANT desires ENGAGEMENT.

Quick and neat draughtsman. Perspective and coloured drawings, tracings, details, &c. Good references.—M., 75, Queen's-road, Finsbury Park.

PATENT

### 'DEXTER' TILE-CUTTING MACHINE.



PRICE £3:3:0

Tile-cutting made easy and expeditious to any required shape for Roofing and Upright Tiling. The Machine will cut Staffordshire, Broseley, Terra Cotta, and Glazed Tiles for fitting irregular places, hearths, &c.

### ALFRED BROWN & Co.,

PATENTEES AND MANUFACTURERS,

81, SMALLBROOK ST., BIRMINGHAM.

Terms and further particulars can be had on application.



# Surveying and Sanitary SUPPLEMENT.

JUNE 30TH, 1897.

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.\*

(Continued from page lxxi.)

BY ALEXANDER DREW.

NO. VI. OF SERIES.

WHERE the ties are of round section the diameter is made such that the required area is got throughout the length of the bar, the ends being enlarged (and shaped as has just been described) to form convenient connections there; but should a flat section be used, the ends are very seldom smithed or shaped in any way. Thus when the hole or holes required to form the connections are made at the ends, the bar is at this point considerably weakened; and as the required section must be provided at the weakest point in the tie, it necessarily follows that there is an excess of material throughout the body. This in itself would imply a greater cost, but when allowance is made for the great saving in workmanship, due to the use of such a simple form of tie, it is quite likely that the difference in cost between these two sections may turn out to be very slight, or even in favour of the simple form.

As a ready means of comparing the sections of round and flat ties, or of determining the required scantling for either of these forms, Table V. may prove useful. Here various diameters from  $\frac{3}{8}$  in. to  $1\frac{1}{2}$  in. are noted, their areas are given, and the required width of flat bar, of thickness varying from  $\frac{1}{4}$  in. to 1 in., necessary to give the same sectional area, is also indicated. The explanatory note points out the necessary additional width required to ensure the desired section across the bolt or rivet hole, or at the weakest point; the extra  $\frac{1}{8}$  in. added to the diameter of the bolt or rivet is due to the fact that the hole is always made larger than the bolt or rivet by at least  $\frac{1}{8}$  in., and may be even by the full allowance made. In many cases the thickness of the flat tie is determined by the method of attachment at the ends; thus, if the rafter be of T section  $\frac{1}{2}$  in. thick, it will probably be most convenient to use the same thickness of flat tie, and so dispense with packings or setting at the junction plates.

Before briefly considering the question of connections, a word or two may be said regarding the use of bolts or rivets. When the holes are carefully formed, and the rivets properly put in place, they undoubtedly form the best connection; and this is particularly so in cases where a considerable amount of jarring or irregular straining is likely to take place (such as in railway bridges); but roof framework is very seldom subjected to this

condition, so that for practical purposes bolts are likely to prove as efficient as rivets. On the question of cost, it may be stated generally that where a very large amount of riveting is required, it would probably prove as cheap, or maybe cheaper, than bolting; but where the quantity is small, the expense of providing the appliances, and the bringing on to the site of a special squad of riveters, would make the cost of this very heavy. Of course it will be readily understood that should the roof framework be called upon to support shafting in a workshop, this jarring is likely to be present; in which cases rivets,

double portion of the other; or should an eye be placed inside a jaw, and the pin pass through all, on failure taking place the pin will be cut or shorn in two places; here failure occurs by double shearing. As the total section shorn through is equal to the sectional area of the pin multiplied by the number of times it is cut through (as for single or double shear), the safe strength to resist such failure is equal to the area shorn through multiplied by the safe shearing stress.

There is another manner by which yielding may occur, where the surface of the pin, or the connecting plates, is too little to resist the

Table V-- ROUND & FLAT TIES - Areas & Equiv<sup>t</sup> sections

Dia <sup>r</sup> of Tie	Area (Sq in.)	Width of Equal Flat Bars of the following thicknesses.															
		$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	1			
$\frac{3}{8}$	1104	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{7}{16}$													
$\frac{7}{16}$	1503	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{7}{16}$	$\frac{3}{8}$												
$\frac{1}{2}$	1963	$1\frac{3}{16}$	$\frac{11}{16}$	$\frac{9}{16}$	$\frac{1}{2}$												
$\frac{9}{16}$	2485	1	$1\frac{3}{16}$	$\frac{11}{16}$	$\frac{3}{8}$	$\frac{1}{2}$											
$\frac{5}{8}$	3067	$1\frac{1}{2}$	1	$1\frac{3}{16}$	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{9}{16}$	$\frac{1}{2}$									
$\frac{11}{16}$	3712	$1\frac{1}{2}$	$1\frac{3}{16}$	1	$\frac{7}{8}$	$\frac{3}{4}$	$\frac{11}{16}$	$\frac{5}{8}$	$\frac{9}{16}$								
$\frac{3}{4}$	4417	$1\frac{13}{16}$	$1\frac{7}{16}$	$1\frac{3}{16}$	$1\frac{1}{16}$	$\frac{15}{16}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{11}{16}$	$\frac{5}{8}$							
$\frac{13}{16}$	5184	2	$1\frac{11}{16}$	$1\frac{7}{16}$	$1\frac{1}{16}$	$\frac{15}{16}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{11}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{11}{16}$					
$\frac{7}{8}$	6013	$2\frac{1}{16}$	$1\frac{15}{16}$	$1\frac{5}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{16}$	1	$\frac{7}{8}$	$\frac{13}{16}$	$\frac{3}{4}$						
$\frac{15}{16}$	6902	$2\frac{1}{8}$	2	$1\frac{5}{8}$	$1\frac{5}{16}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$1\frac{1}{16}$	$\frac{15}{16}$	$\frac{7}{8}$	$\frac{13}{16}$					
1	7854	$2\frac{3}{8}$	$2\frac{1}{8}$	2	$1\frac{13}{16}$	$1\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$1\frac{1}{16}$	1	$\frac{15}{16}$	$\frac{7}{8}$				
$1\frac{1}{8}$	9940	4	$3\frac{3}{16}$	$2\frac{1}{2}$	$2\frac{1}{16}$	2	$1\frac{13}{16}$	$1\frac{5}{8}$	$1\frac{1}{2}$	$1\frac{3}{8}$	$1\frac{1}{4}$	$1\frac{3}{16}$	$1\frac{1}{8}$	$1\frac{1}{16}$	1		
$1\frac{1}{4}$	1227	$4\frac{15}{16}$	$3\frac{11}{16}$	$3\frac{5}{16}$	$2\frac{13}{16}$	$2\frac{1}{2}$	$2\frac{3}{8}$	2	$1\frac{13}{16}$	$1\frac{11}{16}$	$1\frac{1}{2}$	$1\frac{7}{16}$	$1\frac{5}{16}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$1\frac{1}{16}$	
$1\frac{3}{8}$	1484	--	$4\frac{3}{4}$	4	$3\frac{7}{8}$	3	$2\frac{1}{2}$	$2\frac{3}{8}$	$2\frac{1}{4}$	2	$1\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{9}{16}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$1\frac{1}{16}$	
$1\frac{1}{2}$	1767	--	$5\frac{1}{2}$	$4\frac{3}{4}$	$4\frac{1}{4}$	$3\frac{3}{4}$	$3\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{3}{8}$	$2\frac{1}{4}$	$2\frac{1}{8}$	$2\frac{1}{16}$	$1\frac{7}{8}$	$1\frac{1}{4}$	$1\frac{1}{8}$	$1\frac{1}{16}$

Note:- All dimensions are nett;  
for Gross Width add  
dia<sup>r</sup> of Bolt +  $\frac{1}{8}$  inch.

or special precaution in the designing of bolt connections is necessary.

A joint, whether bolted or rivetted, may yield in several ways, only two of which it is necessary here to look at. It will be safe to assume that the end of the bar, or the connecting plates themselves, are of sufficient strength, so that any failure will be due to the bolt or rivet itself. If failure takes place by shearing, the two portions of the structure slide over one another, and the pin (that is the bolt or rivet) is shorn, or cut through at right angles to its length. Should the connection be similar to that of one plate placed on top of the other, with a pin passing through both, the failure will be by single shear; but should the one portion of the structure be enclosed within a

pressure to which they are subjected, and where failure occurs by the crushing of the material. Here the bearing area is insufficient. This bearing area is calculated by taking the diameter of the pin, and multiplying this by the thickness, or the depth of the surface against which it acts; this area, multiplied by the safe bearing stress, will of course give the total safe bearing strength. In Table VI. is given the area, shearing strength, and bearing strength for various diameters from  $\frac{3}{8}$  in. to  $1\frac{1}{2}$  in. The shearing strength is calculated on the basis of a maximum safe shearing strength of four tons per square inch, and is given for single shear. Should the joints be arranged such that double shearing must take place, this value will necessarily require to be doubled. The bearing

\* A lecture delivered before the members of the Edinburgh Architectural Association, and exclusively published in the BUILDERS' JOURNAL.



strength given is based on a safe bearing stress of nine tons per square inch, and the values noted in the table are those per  $\frac{1}{2}$  in. in thickness. This will readily allow of the correct strength for any thickness being got at.

The next point which naturally falls to be considered is that of the manner in which the

drawn further in towards the centre, while by turning in the opposite direction the ends are thrust further apart. Such an arrangement is frequently introduced into one or more of the ties in roof trusses, and where the span is large, or where it is very desirable to have a certain amount of adjustment as to the span,

Table VI - SHEARING & BEARING STRENGTHS.

Diag. of Bolt or Rivet	Area (Sq. in.)	Shearing (Single) Tons	Bearing (per $\frac{1}{2}$ in.) Tons	Diag. of Bolt or Rivet	Area (Sq. in.)	Shearing (Single) Tons	Bearing (per $\frac{1}{2}$ in.) Tons
$\frac{3}{8}$	.1104	.44	.42	$\frac{7}{8}$	.6013	2.40	.98
$\frac{1}{2}$	.1503	.60	.49	$\frac{15}{16}$	.6902	2.67	1.05
$\frac{1}{2}$	.1963	.78	.56	1	.7854	3.14	1.12
$\frac{9}{16}$	.2485	.99	.63	$\frac{1}{8}$	.9940	3.98	1.27
$\frac{5}{8}$	.3067	1.23	.70	$\frac{1}{4}$	1.227	4.91	1.41
$\frac{11}{16}$	.3712	1.48	.77	$\frac{3}{8}$	1.484	5.94	1.55
$\frac{3}{4}$	.4417	1.76	.84	$\frac{1}{2}$	1.767	7.07	1.69
$\frac{13}{16}$	.5184	2.07	.91	$\frac{1}{8}$	2.073	8.29	1.83

Note:— The max. safe Shearing Stress is taken at 4 tons per sq. in. of Sectional Area. The Values given are for Single Shear. The max. safe Bearing Stress is taken at 9 tons per sq. in. of Section (diag. x length of Bearing Surface). The values given in Table are per  $\frac{1}{2}$  in. of length of bearing.

several members can be connected together at their meeting points; and here may be met an almost infinite variety, some good, but many bad. Time will only allow of a few examples being illustrated, and very briefly described; but as good and bad forms will be noted, it is hoped that what is here said may prove useful in suggesting other forms, or in enabling the student to separate the good from the bad examples which he is sure to meet with either in his book study or in actual practice.

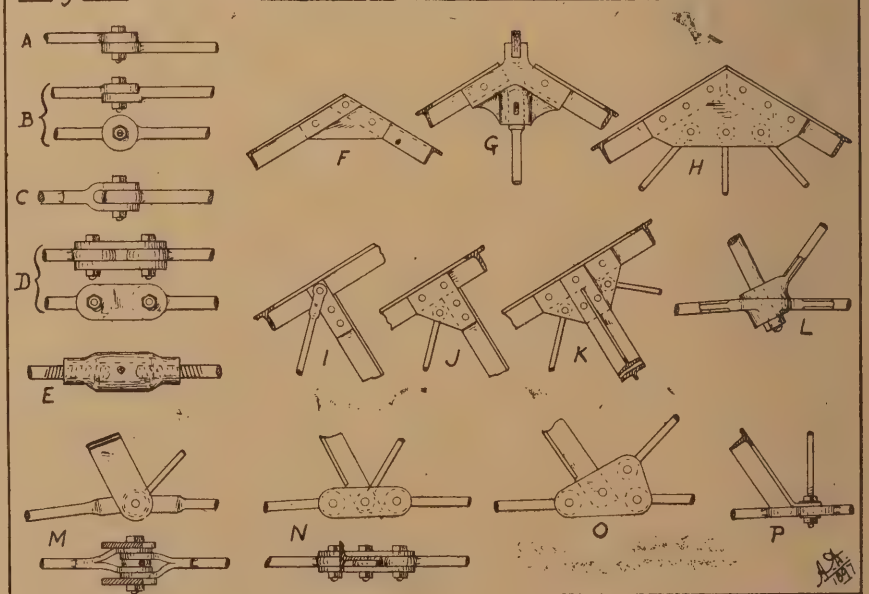
Fig. 31 indicates several forms of joints, chosen for explanation, and, taking these in succession, we will first consider the connection of one tie with another, as this is the simplest joint that is likely to be met with in practice. In (A) the ties are provided with an eye at their ends, and these are simply placed one on the top of the other, and a bolt passed through. Should the strain be considerable, there will be a great tendency to twist, as the ties are not in the same straight line; but for very small roofs, where the strain is very light, such a simple connection is frequently made use of. In (B) an attempt is made to get rid of this twisting tendency by forming what is generally called a "halving," the eyes being set off from the centre of the rod to enable these latter to come in line when the joint is drawn up; but this is likely to give rise to a weak point at the connection of eye and rod, and thus is not to be recommended where the strain is anything great. In (C) one tie is provided with an eye, and the other with a jaw, and when the one is inserted between the other, a very good symmetrical joint is formed; the only objection to this is the cost of forming the jaw, and the welding introduced. This objection is got rid of in (D), where each end is formed into an eye, and the connection is made by means of two light junction-plates and double bolts. In comparing (C) and (D) the cost is likely to be very much the same, for where a saving is made by the cheaper eye being substituted for the jaw, there is at the same time involved the extra cost of two plates and one bolt; the efficiency of the latter joint, however, is more to be relied on if the eyes be "balled" eyes. (E) shows a screw shackle, or, as it is often termed in America, a "turn-buckle," or "sleeve nut"; and as the two screwed ends are formed with right and left hand threads, corresponding, of course, with these in the shackle, a means of adjustment to a certain extent is also provided by this joint; by turning the shackle in the one direction the two ends are

such is to be recommended; but for most roofs of moderate span this is quite unnecessary, and only adds to the cost.

Turning now to the connection of the rafters at the apex, (F) shows one of the simplest forms of these; for very small spans where the rafters are of (L) section the two bars are simply brought together, and a bolt passed through a hole formed at the end of each; it is generally advisable, except in the very smallest of spans, to provide a small crown-plate as shown; this is introduced between the two rafters, and when connected by the three bolts shown, forms a very satisfactory joint. In (G) is illustrated a cast-iron connection;

points, as will be presently seen) is not, I think, to be recommended, particularly for any large or important structure; the material itself is not always reliable, and it is difficult, and in many cases impossible, to detect serious flaws or weaknesses in the casting; while another risk is present in the ease with which these may be injured or broken during erection, or even afterwards, without this fact being brought to notice, and the part replaced. Thus, the notch into which the rafter drops must be somewhat wider than the thickness of the rafter itself, to allow of its ready insertion, and a comparatively little carelessness on the part of the erector in screwing up the bolt too tight may lead to fracture here; the same thing applies equally to the driving of the cotter into its place, while connecting with the king-rod; and there are not a few workmen who might forget to report such an accident, particularly should he be responsible for it. Again, this necessary slackness of the rafter implies the possibility, in fact the likelihood, of continual movement or rattling taking place during high winds, or such like, and such movements may eventually lead to trouble. The most practical method of connection is that shown at (H), and consists of double crown-plates between which the web of the rafter is set, and fixed by bolts or rivets. The ties which meet at this point can be readily connected either by being provided with jaws so that the junction-plates pass between these, or, better still, being provided with eyes and inserted between the junction-plates; in this latter case, these eyes are very likely to be of considerably greater thickness than the web of the rafter, so that some means must be employed to allow of their insertion in place. The simplest way of doing this is by using packing pieces between the rafter and the plates; but where the span is large, and particularly where a considerable number of trusses is required, the better manner of providing for this is to set or joggle these junction-plates; to do this, these plates are heated and set out at the portions where this extra space is required. This joggling is generally done by means of special cast-iron blocks under a press or steam-hammer. Should the number of trusses be small, the cost of providing these special blocks would considerably increase the price of the framework; but where the number of trusses is large, this same cost being spread

Fig. 31.— JOINTS & CONNECTIONS.



slots are formed at either side, into which the ends of the rafters are dropped and connected by a bolt; while a socket is provided into which the end of the king-rod is passed and fixed by a cotter, as illustrated; the sketch also shows how provision may be readily made for carrying a timber ridge-plate. The use of cast-iron in a case such as this (or at other

over the greater number will show very little increase; thus, where price is a great object, it might be advisable to use packing-plates, even though efficiency thereby might be reduced. Of course the size of these junction-plates, and the number of bolts or rivets used to connect the same to the rafters, will vary with the span.



The connection of rafter with strut, or with strut and tie, has already been hinted at in considering the forms of strut ends (see Fig. 30), and only three forms will be here noted. In (I), the T-strut is brought up to the rafter, is connected to the same by a junction-plate on each side, and over these latter is brought the jaws of the diagonal tie, the connection of these to the rafter being made by a single bolt. A somewhat better form is that shown at (J), where the connection plates are made rather larger, and the tie being formed with an eye at end, is inserted between these latter. The last form, that of (K), shows a more important connection (such as that at the centre of the rafter in the type illustrated at Fig. 26, No. 6); the strut is here shown as of double T section. These are placed over the junction-plates, between which are set the ends of the diagonal ties, and all is connected up as shown. This is not a particularly good form of connection, for packings would be required to give sufficient space for the insertion of the ties, and the struts being brought outside these plates would imply a considerable thickness at this point; it would probably form an improvement if the web of the strut was cut away to a greater extent, and the junction-plates brought over these strut-bars, they being allowed to rest on the rafter. The packings would thus be reduced to short pieces at either side, through which the two outer bolts connecting the plates and rafters together would pass; the plates would in such a case be rivetted to the struts, and thus form a more or less solid end to the same.

Passing now to the lower end of the strut and its connection with the main and inclined ties, the first example chosen (L) is probably one of the most unpractical designs that can well be imagined: this is copied from a practical text-book, and is given here as a warning. The strut is of the form shown at 14, Fig. 30, it is round in section, with the end reduced to form the bolt by which the other members are connected together; the main tie is provided with an elaborate enlargement in the form of an eye bevelled below in the manner shown, while the queen-rod has a clumsy bevel-shaped eye, the end of the strut passing through these two.

Such a joint is extremely difficult and very costly to make, the strains are very likely to give rise to considerable twisting tendency, in which case the rigid nature of the whole joint would prevent any attempt at adjustment, the result being some unknown and maybe unsuspected stress which might prove troublesome. It might be claimed by some that such a joint is ornamental, but I would hesitate to admit this. (M), (N), and (O) show three methods by which the same type of connection may be made. At (M) the main ties are provided with jaws, the queen-rod with an eye, and the strut is drawn as of double flat section and comes outside all. The sectional plan shows these jaws as *lop-sided*, the idea being to keep the two jaws identical and allow the queen-tie to come in the centre, but this arrangement is not good. The better plan would be to make the one tie with a narrow jaw, only sufficiently wide to allow of the queen-tie being inserted in it, and the other with a jaw wide enough to come over this. Besides the trouble of making this *lop-jaw*, it must always be borne in mind that an arrangement such as shown is liable to be erected or put together in the wrong manner by the workman, in which case the two ties would be considerably out of line with one another. (N) shows all ties provided with eyes, the strut is of T section with the table notched off, and all is connected together by two junction-plates as shown; sometimes the queen-tie is formed with a jaw between which the strut passes, thus allowing the whole joint to be formed symmetrically; but such nicety is seldom called for, it being quite sufficient in nearly every case to allow the queen-tie and strut to come alongside each other. (O) shows an arrangement very similar to the latter, but the plates are here larger in size, and separate connections are provided for strut and queen-

(To be continued.)

# THE SANITARY INSPECTORS' CONGRESS.

IN delivering his opening address at the annual congress of the Sanitary Inspectors' Association of Scotland held at Aberdeen, Mr. Kenneth Cameron, the newly-elected president, said the advance of sanitary science implied changes in carrying out work which, he admitted, involved hardships, but for these the sanitary officers were not to blame. Opposition had been experienced in regard to infectious and contagious diseases, but as the work of the sanitary inspector became better understood much of the misunderstanding which existed would disappear. He claimed that the work of the sanitary officer had been a factor in reducing the death rate, and said that the agency of the local authorities in providing open spaces, clearing away unhealthy areas, introducing pure water supplies and drainage, and erecting corporation lodging-houses, had been of good service in advancing public health.—Mr. Wm. Mackenzie, sanitary inspector of Ross and Cromarty, read the first paper, which was entitled, "Notes on the Sanitary Conditions existing in the Outer Hebrides, as exemplified in Lewis." At the outset, he referred to the extreme poverty of the inhabitants of Lewis, of whose miserable primitive dwellings he gave a graphic description. The people, notwithstanding their Radical tendency in politics and the deforcements and deer raids in which they figured, were eminently conservative, kind, and hospitable; they lived in the past, refusing to recognise the times in which they lived, and regarding everything modern with suspicion, as an innovation to be abhorred. In consequence, the greatest difficulty was experienced in carrying out sanitation, with the result that practically

## NOTHING HAD BEEN DONE

in the direction of improvement in this respect since the passing of the Public Health Act. He trusted the Congested Districts Board at present proposed in Parliament would give sufficient power to grapple with the subject, for there was no local body financially strong enough to deal with it.—Mr. Glass, Aberdeen, read a paper on the cleansing of towns and cities. He strongly deprecated the system of allowing the refuse collected on the streets to lie at stances in the hope of getting it sold for manure, as such stances became hotbeds of disease germs. The destructor system, as in use in Glasgow, was unsatisfactory, both in respect of cost and of the fact that it did not destroy all the refuse. Seaboard towns should get rid of the refuse by taking it out to sea. He argued that in Aberdeen they could dispose annually of 45,000 tons in this way for £1500, or only 8d. per ton, which was less than was at present being paid for carting, and very much under the cost of destruction by burning.

## LODGING-HOUSE BYE-LAWS.

A paper on healthy dwellings was read by Mr. Braid, Kirkcaldy; and after luncheon Mr. George Macconnachie, assistant lodging-house inspector, Glasgow, read one on "Common Lodging-houses and their Bye-laws." The question was, he said, whether the modern lodging-houses, as now constructed and supervised, or cheap houses, were the better and safer for that portion of the community who might have lost respect for themselves. In his view the modern, well-managed houses were better for those using them, and for the safety of the general public.—An interesting paper on soil bacteriology and its relation to water supplies was read by Mr. John Hunter, public analyst for Mid-Lothian.—Dr. Beveridge, Aberdeen, gave an interesting contribution on the housing of the working classes.—On the motion of the President, it was unanimously resolved that the congress, believing that the housing of the people in the Outer Hebrides and Western Islands is of the worst possible description and detrimental to their health, respectfully brings the subject before the Secretary for Scotland, in the hope that further investigation and inquiry will lead to adequate financial assistance being provided by the Government on their behalf, without which the congress believed the condition of the people could not be materially improved.

# Surveying and Sanitary Notes.

THE Waterworks Committee of the Leeds Corporation recently visited Eccup, for the purpose of inspecting the puddle trench which is now nearing completion, and a trial hole which is situated between the end of the old trench and the building which is known as The Cottage. It was suggested by Mr. Hill, the consulting engineer, that a trial hole should be made at that point, in order that it might be ascertained whether the strata was of the same nature as had been found in the trench, or whether there was any variation which might necessitate the construction of a wing trench. The trial hole has been made down practically to the bottom level of the puddle trench, and the City and Waterworks Engineer (Mr. Hewson) has reported that the strata is of a satisfactory character, and that there is no necessity for the extension of the puddle-trench by a wing-trench. The contractor expects to have the work completed in about three months.

MESSRS. WARREN AND STUART, engineers for the Linlithgow drainage scheme, and Mr. Stevenson, engineer for the trustees of the late Duke of Hamilton, have just issued their observations on the report by Mr. Armstrong, Professor of Engineering, Edinburgh. Messrs. Warren and Stuart state that they note that Professor Armstrong's verdict is practically against the proposal to carry the sewage of the burgh in an outfall sewer to the tidal waters of the river Avon, and there discharge it below the level of low water mark. This proposal they were most inclined to recommend favourably to the Commissioners' consideration when they reported to them on the various available methods of sewage disposal; and while they regret that Professor Armstrong has taken the view of it expressed in his report, they realise that his decision necessitates the abandonment of the scheme for carrying the sewage to the sea. With regard to the lines upon which future legislation as to river pollution prevention is likely to proceed, that is a matter which is entirely problematical. Mr. Stevenson, in his observations on Professor Armstrong's report, states that he is of opinion that the very name of sewage works, to mention nothing more substantial, is sufficient in itself to depreciate the value of the property in their neighbourhood.

THE Water Department, in its report to the Birmingham City Council, submits its accounts and balance-sheet for the year ended the 31st March, 1897. The water-rents for the year show a total increase of 6.58 per cent. over the amount for the previous year. Deducting this, the percentage of increase attributable to natural growth is found to be 4.85. The cost of pumping shows an increase of £1184. A considerable portion of this is attributable to the fact that the total distribution of water during the year has increased from 5794 to 5971 million gallons. But, after making allowance for this, the cost of pumping proportionate to the water distributed has increased. This is principally due to the increase in consumption of water in the higher levels, for the distribution of which water has to be pumped two and three times over; so that, although the cost of pumping per thousand gallons pumped shows a reduction, the cost per thousand gallons distributed shows a slight increase. This is an element in the administration of the Department which, in the nature of things, will tell with accumulating force so long as the supply is given as at present by a pumping system. The total receipts of the Department on revenue account—£202,059—show an increase of £12,189, while the total charges show a reduction of £467, giving an increase of £12,656 in the amount carried to profit and loss account.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
July 2	Halifax—Works, Canal Machine Works	Managers	M. Hall, 29, North-gate, Halifax.
" 2	Leeds—Villa Residences, near Roundhay Park	Committee	W. H. and A. Sugden, Cavendish-street, Keighley.
" 2	Penkridge, Staffs.—Scaffolding, Parish Church	Committee	W. O. Rooper, Congreve, Penkridge.
" 2	Llanwenarth Ultra, Mon.—Shed, &c., Pendycas Farm	Corporation	Royal Oak, Blaenavon-road, Llanwenarth Ultra.
" 3	Alnwick—Cottages, Wagon Way-road	Corporation	Clerk of Works, Alnwick Castle, Alnwick.
" 3	East Harsley—Houses	Guardians	T. W. T. Richardson, 57, High-street, Stockton-on-Tees.
" 3	Ripon—Infirmary	Committee	F. H. Hargrave, Architect, Market-place, Ripon.
" 3	London, E.C.—Repair of Church Tower, &c.	Commissioners	Shoreditch Vicarage, Hoxton-square, E.C.
" 5	Enniskillen, Ireland—Town Hall	School Board	W. Cleland, Town Clerk, Enniskillen.
" 5	Luton—School Buildings	Governors	J. E. Brown and Son, Market Hill, Luton.
" 5	Porth, Wales—Class Rooms, &c., County School	Galvanised Iron Company, Limited	J. Rees, Architect, Pentre, Rhondda Valley.
" 5	Blackwall—Walls and Foundations	Urban District Council	Works, Orchard-place, Blackwall.
" 6	Hampton-on-Thames—Fire Station	Town Council	J. Kemp, Council Offices, Hampton-on-Thames.
" 7	Conway—Market Hall, &c.	Corporation	T. B. Farrington, Municipal Offices, Conway.
" 7	Douglas, Isle of Man—Municipal Buildings, &c.	Asylum Committee	T. H. Nesbitt, Town Hall, Douglas, Isle of Man.
" 7	Ipswich—Additions, &c., to Asylum	T. C. Hassell	E. Buckham, Town Hall, Ipswich.
" 7	Walthamstow—House, Higham Hill	County Borough	G. B. Jerram, Bridge-chambers, Hoe-street, Walthamstow.
" 8	Tring—Gate, &c., Wilstone Cemetery	School Board	W. Huckvale, Architect, Tring.
" 9	Brighton—Alterations, Schools	Wiltshire and Dorset Banking Co.	F. J. C. May, Town Hall, Brighton.
" 12	Odiham—Schools	West Ham Town Council	Calson, Farrow, and Nisbett, 45, Jewry-street, Winchester.
" 12	Boscombe—Bank Premises	London County Council	G. M. Silley, 17, Craven-street, Strand, W.C.
" 13	Ilford, Essex—Foundations of Lunatic Asylum	School Board	L. Angell, Town Hall, Stratford, E.
" 13	London, N.—Reconstructing Highgate Archway	Urban District Council	Engineer's Department, Spring-gardens, S.W.
" 15	Barry, Wales—School Works, Palmerstown-road	Provincial Gas Works Limited	W. H. D. Caple, 1, St. John's-square, Cardiff.
" 19	Baslow—Cottages (Twelve)	W. H. Franklin	V. R. Cockerton, Clerk, Baslow.
" 30	Crowborough—Residence, Workshops, &c.	Corporation	The Engineer, at Works, Crowborough.
No date.	Doncaster—Shop Premises	Corporation	Gelder and Kitchen, Architects, 76, Lowgate, Hull.
"	Leeds—Shops and Empire Palace, Briggate	United Methodist Free Church Trustees	P. Matcham, Architect, 9, Warwick-court, E.C.
"	Chesterfield—Alterations, Memorial Hall	G. Hughes	W. H. Wagstaff, 57, Saltergate, Chesterfield.
"	Burnley—Chapel, Old Hall-street	J. Kenyon and Co., Limited	G. E. Bolshaw, Architect, 189, Lord-street, Southport.
"	Clacton-on-Sea—Villa, Thorogood-road		J. W. Martin, Architect, Station-chambers, Clacton.
"	Todmorden—Alterations to "Friendly Inn," Lydgate		C. Parsons, Architect, Burnley.
"	Morecambe—Ten Houses, Kensington-road		A. Gorton, Architect, 10, Morecambe-street, Morecambe.
"	Baldon, Yorks.—House		Walker and Collinson, Architects, Swan-arcade, Bradford.
"	Burnopfield—Alterations to Business Premises		J. W. Routhwaite, Architect, 13, Mosley-street, Newcastle-on-Tyne.
"	Chesterfield—Additions to Stephenson Memorial Hall		W. H. Wagstaff, C.E., 57, Saltergate.
"	Halton, near Leeds—House		P. Robinson, Architect, 72, Albion-street, Leeds.
"	Harefield, Middlesex—House, High-street		F. W. Marchant, Supply Stores, Harefield, Uxbridge.
"	Fordham, Cambs.—Public Hall and Institute		Gordon and Co., Architects, Finsbury House, E.C.
"	Shipley Fields Mills, near Bradford—Loom Works		Mawson and Hudson, Architects, 2, Exchange-buildings.
"	Goldhanger, Essex—Farm Buildings		C. E. Butcher, Architect, 3, Queen-street, Colchester.
<b>ENGINEERING—</b>			
July 5	Castleblaney, Ireland—Steel Footbridge	Great Northern Railway Co. (Ireland)	Company's Engineer-in-Chief, Amiens-street, Dublin.
" 5	Diss, Norfolk—Bridge	Urban District Council	Surveyor, Roydon-road, Diss.
" 5	London, W.—Steel Boiler	Paddington Vestry	G. Weston, Vestry Hall, Harrow-road, Paddington.
" 6	Darlington—Gasholder Tank (143ft. 3in. diameter)	Corporation	Borough Surveyor, Town Hall, Darlington.
" 6	Darlington—Gasholder Tank (140ft. diameter)	Corporation	Borough Surveyor, Town Hall, Darlington.
" 6	Richmond, Surrey—Pump Cases, &c.	Main Drainage Board	W. Fairley, Main Drainage Works, Mortlake, S.W.
" 6	Stowmarket, Suffolk—Pumping Plant	Rural District Council	J. Taylor, Sons, and Crimp, 27, Great George-street, W.
" 6	Swindon—Tanks and Filters	Urban District Council	Shophand and Redman, Newport-street, Swindon.
" 6	London—Enlarging Gas Holders, Mains, &c.	Metropolitan Asylums Board	Norfolk House, Norfolk-street, W.C.
" 7	Hull—Cooking Apparatus	Corporation	A. E. White, Borough Engineer, Town Hall, Hull.
" 7	London, S.W.—Kitchen Fittings, Western Hospital	Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 7	London—Hot and Cold Water Supplies, Heating, &c.	Asylums Board	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
" 9	Haslingden—Artificial Filter Beds, &c.	Sewerage Board	H. L. Hinnell, 41, Corporation-street, Manchester.
" 9	South Shields—Boiler and Mountings, Pump, &c.	Corporation	Electrical Engineer, West Holborn, South Shields.
" 10	Wilton, near Lakenheath, Suffolk—Bridge	County Council	T. H. B. Heslop, County Surveyor, Norwich.
Aug. 28	Craiova, Roumania—Water Supply	Municipal Council	Mairie, Craiova, Roumania.
<b>IRON AND STEEL—</b>			
July 5	Belfast—Gully Traps, &c. (15 tons)	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
" 5	Canterbury—Fencing, Gates, and Fittings	Town Council	A. H. Campbell, 28, St. Margaret's-street, Canterbury.
" 13	Oldham—Ironwork, &c.	Waterworks Committee	G. H. Hill and Sons, 3, Victoria-street, Westminster.
<b>PAINTING—</b>			
July 3	Wombwell, Yorks.—Painting, &c., Schools	School Board	Offices of the Board, Wombwell.
" 5	Hayton, near Maryport.—Painting, &c., Church	South Metropolitan District School	Rector and Churchwardens, Hayton, Maryport.
" 5	Witham—Painting	St. George's Guardians	Superintendent at School, Witham.
" 7	London, S.E.—Painting, Whitewashing, &c.		C. E. Vaughan, 25, Lowther-arcade, Strand, W.C.
<b>ROADS—</b>			
July 2	Carnforth—Street Works	Urban District Council	J. Atkinson, Surveyor, Carnforth.
" 2	Chesham—Road Works	Urban District Council	A. H. Forbes, Surveyor, Blucher-street, Chesham.
" 2	East Molesey—Making-up	Urban District Council	J. Stevenson, Council Offices, East Molesey.
" 3	Sevenoaks—Street Works	Urban District Council	J. Mann, Surveyor to the Council, Sevenoaks.
" 5	Chingford, Essex—Granite (500 tons)	Urban District Council	H. Bird, Council Offices, 14, The Parade, Chingford.
" 5	Consett, Durham—Kerbing, Channelling, &c.	Urban District Council	W. Ripon, Surveyor, Parliament-street, Consett.
" 5	London, W.C.—Materials	St. Martin's-in-the-Fields Vestry	C. Mason, Surveyor to the Vestry, London, W.C.
" 5	Teddington—Reconstruction of Church-road, &c.	Urban District Council	M. Hainsworth, Surveyor, Elmfield House, Teddington.
" 6	London, E.C.—Wood Paving (4500 superficial yards)	Shoreditch Vestry	J. E. Dixon, Surveyor, Town Hall, Old-street, E.C.
" 6	Middlewich—Macadam, &c.	Urban District Council	R. T. Worth, Town Hall-chambers, Middlewich.
" 6	Reigate—Materials, &c.	Urban District Council	Borough Surveyor, Market Hall, Redhill, Surrey.
" 6	Staines—Materials (400 tons granite, 1000 tons Flint)	Urban District Council	E. J. Barrett, Surveyor, Town Hall, Staines.
" 7	London, S.W.—Asphalte and Wood Paving	Westminster Vestry	G. E. W. Wheeler, Town Hall, Caxton-street, S.W.
" 13	Dover—Granite Spalls (150 tons)	Guardians	E. Carder, Clerk, Union Offices, Dover.
<b>SANITARY—</b>			
July 2	Brighton—Supply of Drain Pipes, 1 year	Council	F. J. C. May, Town Hall, Brighton.
" 2	Durham—Sewers (232 lineal yards)	Rural District Council	G. Gregson, 43, Western-hill, Durham.
" 5	St. Albans—Scavenging	Rural District Council	R. W. Brabant, Clerk, St. Albans.
" 12	Beckenham—Sewer (925 lineal feet)	Urban District Council	J. A. Angell, District Council, Beckenham.
" 12	Holyhead—Sewerage Works	Urban District Council	J. L. Griffith, Clerk, Stanley House, Holyhead.
" 13	Norwich—Sewerage Works	Corporation	A. E. Collings, Guildhall, Norwich.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
July 20	Howth—Presbyterian Church	£20 (merged £10)	Rev. J. Wilson, 4, Rhoda-villas, Howth, Co. Dublin.
" 21	Rugby.—Plans for Municipal Buildings	30, 20 guineas	Urban District Council.
" 31	Bootle—Designs for Technical School	50, 30, 20 guineas	Corporation.
August 31	Bury, Lancs.—Plans for Art Gallery and Public Library	£75, £50, £25	Corporation.
No date.	Boscombe, Bournemouth—Plans for Hospital Enlargement.		Building Committee.
"	London, N.—Competitive Designs for Offices		Tottenham School Board.
"	Huddersfield—Design for Victoria Tower	£21	Tower Committee.
"	Darlington—Altering, &c., the High Row	£20	Corporation.
1898			
Jan. 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.



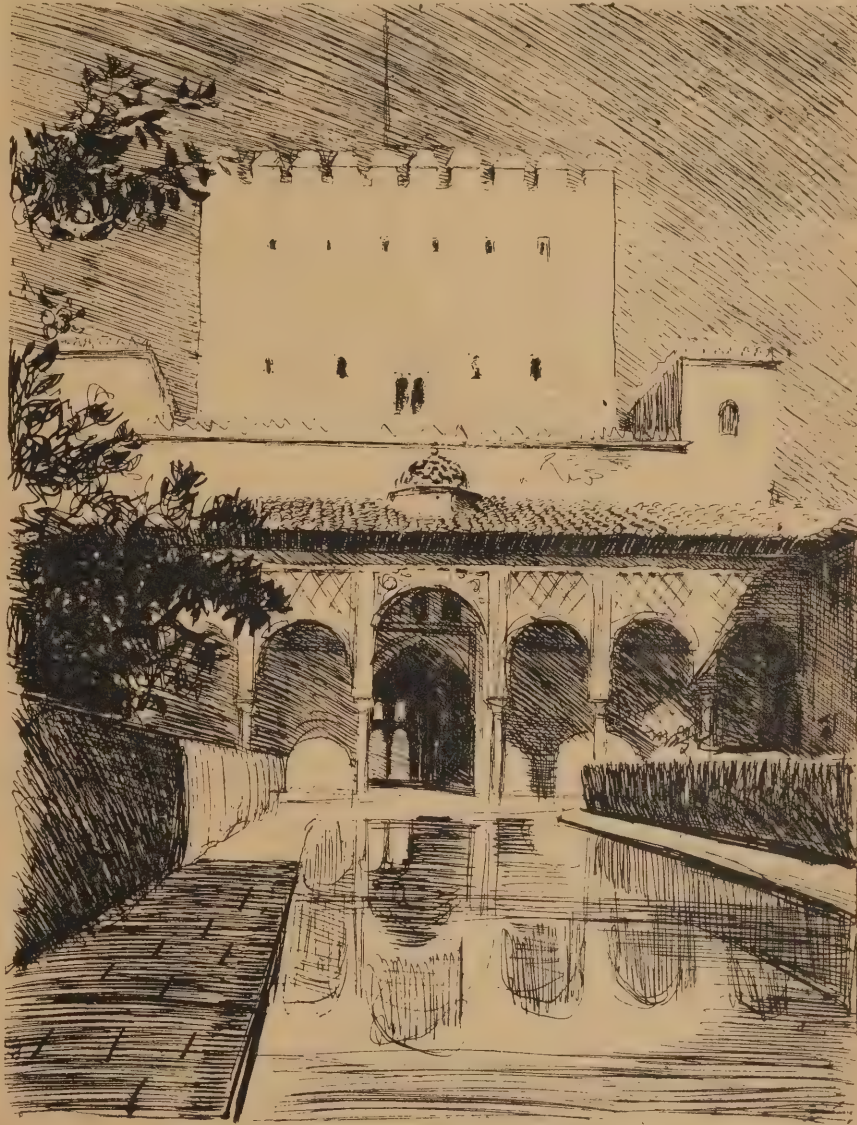


### A Professional Custom.

THE practice of advertising, by professional men, has always been considered undignified and opposed to their best interests. This seems to be understood equally by all professions, some of which impose a restriction on their members in this respect. In the Architectural profession, though the same unwritten law obtains, it does not seem to be enforced with the same stringency. It is by no means an uncommon sight to see on a hoarding a large board notifying that "this magnificent hotel, the largest in Europe, is being built from designs by Mr. Blank, F.R.I.B.A."; or, perhaps, an announcement to the effect that "particulars of commodious and well-lighted offices, to be erected on this site, may be obtained by application to Mr. Dash, A.R.I.B.A." In these days of keen competition, when every man feels obliged to keep himself in evidence if he wants to live, laws against direct and open advertisement lead to a great deal that is cloaked and indirect, but which is probably more undignified and more harmful, both to the advertisers individually, and to the Profession generally. How much time and ingenuity do we not see devoted to this purpose, time necessarily taken from the study, or legitimate practice, of Architecture! Self-advertisement of any description must always be an undignified proceeding, and opposed to the inclinations of any self-respecting man, and we entirely agree with the prevailing sentiment against it. We could wish, however, that the law was kept more in the spirit than in the letter, as we think that the keeping of the letter of the law for the sake of appearances, while the spirit of it is ignored, is an hypocrisy that is fatal to the self-respect of any man. What is so much to be deplored, is the necessity that is felt by all who have not the good fortune to have work thrust in their way, to go out and spend time and energy in finding it. This involves much that does not tend to raise the credit of the Profession. We must say that we think it would be altogether more simple and more dignified to advertise openly and directly in the Press or elsewhere (which could be done without any loss of time or self-respect), rather than to be "hail fellow, well met," with every man who happened to have money or influence, simply for what can be made out of him, and to be continually on the look-out for a chance of pushing oneself to the front. This state of mind is not natural to the Artist, and is detrimental to his character and his work. In the commercial world things are different. There a man advertises his goods not himself. Personally he may be the most retiring of men. In the Art world, however, it is difficult to separate the man from his work; it is only by advertising himself that he can advertise his work, whereas rightly his work should advertise him, and does, although it is not the rule, unfortunately, as some isolated and brilliant exceptions prove. The present system of indirect advertisement tends too much also to prevent the friendless beginner from making a start; not having done anything he cannot advertise it; but to the man who has already got a start it gives every facility for improving the same. The man who is most in need of advertisement cannot get it, while the man who does not want it has it in abundance. The very

men who by the constant practice of this insidious method have attained to good positions, are the first to pillory any unfortunate beginner who is rash enough to resort to open advertisement. To the genuine Artist any advertisement is disagreeable. The more a man knows the less inclined he is to say that he knows; but, at the same time, great knowledge and consummate ability are of no value to society unless their possessor is in a position to make use of them. No man likes to feel that he is wasted. We are aware that a system of direct advertisement is open to grave abuses, but we doubt whether the scandal to the Profession would be greater

the Board, and represents an angel of knowledge in the act of sheltering a boy and girl. It is a beautiful piece of carving, and the central figure in the group stands about 8ft. high. The arms of the city are carved over the principal doorway, and immediately below the civic device are the words, "Liverpool School Board Offices." The carving on the stones over and under the windows is of Renaissance character. Mr. Charles E. Deacon, of Central Buildings, North John Street, is the Architect. The offices, to which a good deal has yet to be done internally, are situated between Sir Thomas Street and Cumberland Street, with buildings abutting against the two sides. It has therefore, we learn, been necessary to resort to internal areas in lieu of



PATIO DE LOS ARRAGANES, WITH TORRE DI COMARES IN BACKGROUND. SKETCH BY A. N. PRENTICE.

than at present. All self-advertisement is to be condemned, but, if we must have it, let us have it open, straightforward, and direct, with no cant or humbug about it. An open evil is never so dangerous as a hidden one, though it may look more unsightly.

### Liverpool School Board Offices.

THE Liverpool School Board Office Building in Sir Thomas Street—which, viewed from the street, appears to be nearly completed—will afford ample accommodation for the committees and officials of the Board. The carving in the front of the building is of an attractive character, the group of figures in the central gable being particularly noticeable. It is designed from the seal of

the possibility of any side light. On the ground floor, with an entrance from Cumberland Street, will be the male and female visitors' department, rooms for interviews, storekeepers' office and out-door pay office, and they will be arranged round a large waiting-room in the central area. On the first floor, surrounding the main staircase and area, will be situated the principal offices, the entrance for which will be in Sir Thomas Street. The board room will be on the second floor; and close by, on the same landing, there will be two committee rooms, with ante rooms and retiring rooms for the use of members. The next floor will be occupied with a conference chamber and retiring rooms for lady members, whilst on the top floor will be situated the examination room and library. The



caretaker's room will be found at the back part on the second landing, and lavatories for the use of the various departments have been built in several places in the establishment. The building in Sir Thomas Street has been faced with Cefu stone, and the construction is fireproof throughout. The central staircase is being constructionally carried up with the building in arched form, of Hopton Wood stone, quarried and dressed by Messrs. Killer, of Middleton-by-Wirksworth. The contractors are Messrs. Thornton and Sons, of Liverpool.

#### EXHIBITION AT THE MUNICIPAL SCHOOL, BIRMINGHAM.

IN the Examination Hall of the Municipal Technical School, Suffolk Street, an Exhibition of students' work was recently opened by the Lord Mayor. The object of the Exhibition, which is the first held in connection with the school, is to demonstrate what is being done by the establishment, more particularly in its workshop departments. Hitherto there has been only an evening school, attended by young workmen learning their trade, and also by some artisans of fairly advanced years, who find that even they are able to increase their skill by the acquisition of more scientific methods in some matters than those they have hitherto followed. The majority, however, are inexperienced learners, spending only a limited number of hours in the workshops, and the exhibition has chiefly to be judged in the light of this circumstance. One cannot, however, fail to be struck by the highly practical character of the instruction and its suitability to impart, not so much a handicraft as the right use of tools and the knowledge of processes. The exhibits are arranged in ten departments, of which one is composed of mechanical drawing, the others being all

##### WORKSHOP EXAMPLES.

First among them is a large stage of work from the plumbers' shop, with specimens ranging from the most simple folding and beating up of sheet-lead gutters, to cistern-plumbing, lead-pipe working, the construction of rain-water pipeheads, with burnt seams, and the working up of sheet-lead to cover a wooden roof finial. The classes in electro-metallurgy and metal colouring make an attractive display of articles in brass, cast-iron, electrotypes, and tinplate, which have undergone decorative processes of electro-deposition or chemical treatment to produce rich bronze effects. This is a department likely to be useful in various industries, and appears to have been carried on with marked success. As we have now arrived at the age of electricity, it is only what might be expected that the electrical-instrument shop and the electrical-jointing shop should take a

##### PROMINENT POSITION.

From the one some neatly-constructed instruments and parts are shown, while from the jointing shop examples of practically all kinds of jointing and splicing of strips, wires, and cables used as electrical conductors may be seen. From the carpentry shop the examples are almost wholly of structural or builders' work, from a small door to an elaborate roof work or a most difficult circular-headed window top upon a circular plan. The classes in pattern-making also produce a good show of neatly built patterns for engineers' and other castings. In the iron and steel shop most of the examples are elementary practice in chipping, filing, with the use of the scribing block, but there is also more advanced work and a number of parts of a lathe which is being made in the shop. The brass shop is doing excellent work in teaching the method of working brass. In sheet-metal work a great variety of examples are shown, and in each case the article is made, not haphazard, but from a scientific drawing to scale, the quality and finish of the work being admirable. The machine drawing and drawings for building construction are also good. In September it is proposed to have day classes in addition to those held in the evening.

## Views and Reviews.

### FIRES AND PUBLIC ENTERTAINMENTS.

The awful catastrophe in the Rue Jean Goujon, Paris, is an event which has appealed to the imagination of the dullest, and which has had the effect of calling attention to the extremely bad arrangements in many of the buildings devoted to the purposes of public entertainment. Mr. Edwin O. Sachs, who is bringing out an exhaustive treatise on theatres, has collected statistics of the fires which have occurred in them; and not only in theatres, but in music-halls, circuses, and such-like buildings. This information he has thought advisable to publish at the present time, with the expressed intention of strengthening the hands of those interested in the improvement of structures in which entertainments are given. He provides a complete list of fires which have occurred during the past hundred years, of which the details are reliable, and also a further list of many which have occurred as far back as the sixteenth century. These statistics are arranged in several suggestive ways, which enable us to draw various interesting inferences. Thus we see by one table, giving the ages of the buildings when burnt, that by far the greater number are destroyed in the first few years of their existence, and that the number decreases as the age increases; so that the life of a building is something like that of a man, the greatest mortality occurring in early youth. Mr. Sachs, by-the-by, gives the average life of this class of building as about twelve years, which is less than we would have expected. Another table shows the causes of the different fires, and proves beyond all doubt that by far the greater number originate on the stage or its accessories; and that of these the greater number are caused by open lights, and defective gas and heating apparatus. Again, we see that directly after the performance is the most dangerous time, most fires occurring at night, and diminishing in frequency during the day till the preparation for the next performance. Such facts as these cannot but be helpful to all engaged in the management of places of public entertainment, showing them when and where the greatest danger occurs. The author, in his preface, draws attention to what he calls the anomaly of the curious indifference on the part of communities to the danger arising from such catastrophes as fire and panic, compared with the attention given to that arising from disease. The indifference of mankind to certain forms of danger is a commonplace of criticism. The inhabitants of Pompeii furnished an historic instance. In certain parts of Central America, as is pointed out by R. L. Stevenson, the inhabitants live in comfort in a region that may at any moment be devastated. What security have many of the mountain villages of Switzerland from destruction by avalanche? Yet the inhabitants are no less lighthearted. How many rivers in the East but periodically overflow their banks, carrying whole villages away with them after each flood. Those of the inhabitants who escape, return and settle down in the same spot, and wait complacently for the next. In this particular instance of danger from fire, how many of us go to bed at night with any clear idea of how we should escape if fire attacked the staircase? The fact is humanity still seems to class fire with storm and earthquake, as something beyond human forethought and control. If it happens, it happens, but the chances are that it will not; and if it does, that we shall not be in it; so why worry about it? But beyond this, there is a difference to the imagination of most men, between death by accident and death by disease. To be overwhelmed by a flood, or by such a catastrophe as the Paris fire, is terrible enough; but to be distorted by cholera or plague, or to be eaten to death by inches by leprosy or other loathsome horrors, is not only terrible, but disgusting and degrading to the dignity of human life. This may, perhaps, partly explain our zeal for sanitary reform—

now that disease has been struck from the list of what the lawyers so piously term, "acts of God"—and our comparative indifference to danger from fire. It should not be forgotten, also, that in most cases of fire, the principal loss of life is due to the consequent panic, and we all flatter ourselves we should not be the first to lose our heads. Although we may minimise the chance of fire, and provide sufficient exit for people who retain their presence of mind and walk quietly out, yet nothing we can do will be of any avail in a case of panic, unless the building is nothing but exits, that is, has no walls, and is not a building at all. Even then the people would crush one another to death over the seats. In preventing fires we certainly help to prevent panic, and it is the bounden duty of all those engaged in the erection or control of our places of public entertainment to do all that reason can suggest, or skill accomplish, to minimise this awful danger; though we think they can hardly look for an enthusiastic support from the public. A people that deliberately and continually rides in hansom cabs is not likely to concern itself much with the dangers of attending the theatres.

"Fires and Public Entertainments." By Edwin O. Sachs, Architect. London: Charles and Edwin Layton, 56, Farringdon Street, 1897.

### "BEAUTY AND ART."

This handy little volume, by Aldam Heaton, ought to get into the hands of all who take an interest in the very wide subject of which it treats so tersely and comprehensively. Especially does it lay claim to the attention of the Architect. The absence of any recognised standard of the beautiful in Art—of any laws which shall decide what is beautiful and what is not—inevitably results in vagaries of artistic conception. There is a suggestiveness about Mr. Heaton's book which tends distinctly to dispel these vagaries. The treatment of each phase of the subject is so sound and thoughtful that the book becomes at once an important and valuable contribution on the great æsthetic question, the practical solution of which is the great problem of every Artist's life—the beautiful in Art. To absolve the idiosyncrasies of Artists and designers, to induce them to accept tradition rather than moonstruck fancy as their guide, is the object Mr. Heaton has in view, and without a doubt he has set about to accomplish his end very wisely. Mr. Aldam Heaton pays a high tribute to the Architectural profession in general. "The most beautiful and enduring things the world possesses," he says, "we owe to their (Architects') education and their patience, their ingenuity and love; and if a man wants to be transformed and elevated—the beast in him to be subdued and the God-like developed—let him trace the history of Architecture and visit her creations from the Parthenon and the French and English Cathedrals to the Houses of Parliament. If I have any fault to find with Architects, it is that they do not go far enough; that they should not stop at wall and cornice and woodwork, but that they should also design the ceiling, the frieze, the dado, the chimney-piece, the grate, the electric fittings, and not leave all these things to dribble into the hands of a set of uneducated shopkeepers whose only interest is £ s. d."

"Beauty and Art." By Aldam Heaton. London. Gs. Wm. Heineman. 1897.

The extensive premises of the Original Brewery Company at Cheltenham have almost been destroyed by fire, the damage being estimated at over £50,000.

At the Court of Bankruptcy, upon the application of Messrs. Pownall and Co., a receiving order has been made under a petition presented against Messrs. James Brothers, trading as builders at 8, Clifton Street, Finsbury. A receiving order has also been made in the case of John Linn, of Gough Street and Canton Street, Poplar, builder and contractor. The liabilities were estimated at under £1000.



## THOUGHT AND ART IN ANCIENT GREECE.

By D. BENNET DOBSON.

THE earliest traces we have of the inhabitants of Greece are said to be the Pelasgians, descendants from the sons of Japheth, about 2347 B.C. The Pelasgians were ultimately divided into several tribes, of which Hellenes is regarded as one.

Greek civilisation is said to have developed of itself, although some authorities hold that they were influenced by Oriental ideas. At any rate, be what it may, it is the case that it was assisted in its original development by Cecrops of Egypt, to whom is ascribed the founding of the city of Athens.

For the art of writing we are indebted to the Phoenicians.

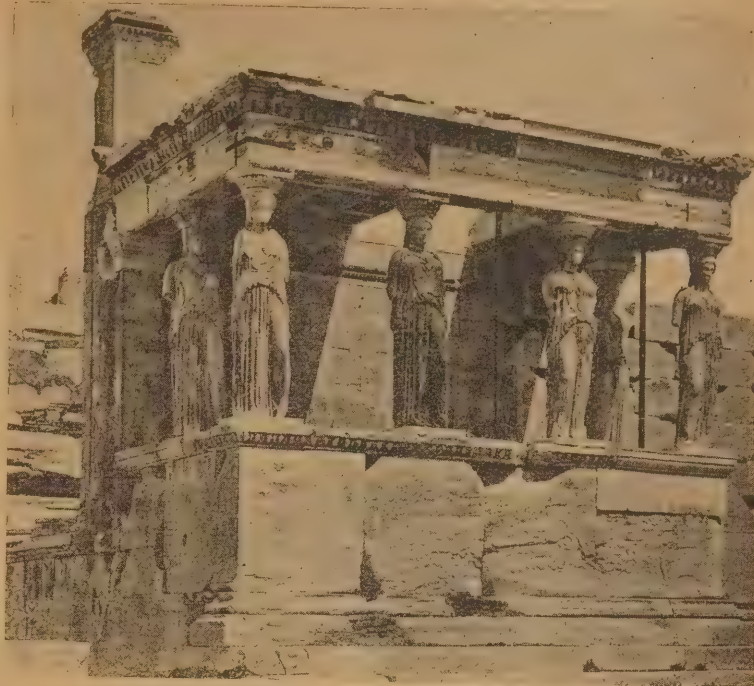
In the Christian era, Theseus, when he came into power after the deliverance of his country, combined the twelve great States of Greece into one political body, and fixed his headquarters at Athens, making it the capital and the seat of learning, which it continued to be, even up to and during the time of the Romans. He likewise created three classes: nobles, common freemen, and slaves. The nobles possessed both magnificent wealth and power, and owned slaves; the freemen cultivated their own land, and the slaves were treated more like hired servants. It was about this time that the Trojan War occurred, in which all the principal heroes took part, the principal one being Ulysses, who is for ever immortalised by the now famous Trojan horse. In this early period civilisation advanced very rapidly. It is said that even the kings and nobles were not averse (in part it was considered essential to their personal development) to take part in the manual Arts. We likewise find that Art itself, as far as it could be said to be represented, was progressing, as shown by the majestic ruins at the gate of Mycenæ, with the sculptured lions over it. We have also poetry and song represented, Homer standing prominently among all the

minor poets who filled Greece at this time, and he is said to have been an Asiatic Greek. The poetry was characterised by a great poetical unity of the great events that occurred during the Heroic Age, about 850 B.C.

Their original ideas of building were no doubt inspired by timber structures, although none have come down to us. They were also greatly influenced by the numerous ideas imported from Asia, as can be shown by the treasury of Atreus at Mycenæ, which has a vault,

the stones of which are corbelled over one another, and likewise the Oriental influence is shown by the Gate of the Lions, which also forms part of the walls. The rudest and we might almost say the first of the Hellenic works of Greece is well shown by the Old Doric Temple at Corinth, which is about 650 B.C., the period I am now dealing with.

This temple is said to have been originally dedicated to the worship of Athena, the goddess of knowledge and wisdom. As it now remains, it has extremely short stumpy columns and bold mouldings, but essentially presenting the main features of the Doric style in its earliest form.



PORTICO OF THE CARYATIDES.

We now proceed to historical times, when Herodotus was born, 484 B.C. He has been termed by authorities as the "Father of History," as it has truly been said that the Greeks, prior to him, did not really possess a history. He was an energetic traveller, and it is said there was scarcely a city in or around Greece that he did not visit, so that he might be able to speak personally about in his histories. He had vast opportunities presented to him, of which he took full advantage.

Herodotus, although a famous historian, was by no means the only one.

The Greeks had arrived during this period to appreciate to a great extent Art and Learning, so that from this time forward we have temples built to the different deities, and on a much finer basis than the Old Temple at Corinth. During this period the Thesium was built, 465 B.C. It stands on a slight elevation, and is to the left on the road from the Piræus, nearly opposite the areopagus on the right. It is the best preserved of all the ancient buildings of Greece, and might almost be mistaken for a modern structure. The name Thesium appears to have been given it but slightly over 300 years ago by a Jesuit, from the fact that the sculptures on the friezes and metopes were taken as representing the exploits of Hercules, but principally of Theseus. It is said by some authorities to have been dedicated to Mars. It stands upon a marble platform raised two steps from the ground, and is 104ft. long by 45ft. wide.

This is the temple already briefly referred to, which was erected in honour of the hero Theseus for his great deeds during the heroic age. Like the other temples to be shortly mentioned, it is built of Pentelic marble. The Doric columns are 19ft. high, but the statues that originally filled the pediments are entirely lost.

Dodwell says that "this elegant building probably furnished the model for the Parthenon, which resembles it in the most essential points, though it is of nearly double the size."

A most particular point about the temple, which goes a great way to prove that the Greeks selected, certainly with very fine discrimination, Egyptian Art and construction, applying it for their own purpose, is the fact that they employed colour to an elaborate extent on the sculptures of this early temple. Their metopes and friezes were completely subjected to the painter's art, no trust apparently being put in relief, so that the light and shade varying continually gave the appearance of life and motion to the groups.

On the extreme right of the acropolis and temple of Theseus we see a portion of the Hill



TOWER OF THE WINDS ATHENS.



of Mars, then the group of buildings with the Temple of Victory and the Propylaea at the entrance to the acropolis.

The rock which rises up in the great plain was fortified at a very early period. Its defences are ascribed to the Pelasgi. In later days it served a sacred purpose, being dedicated principally to Athena, who was the goddess of Athens.

The acropolis was ornamented with graceful structures either on its summit or around its base, so that in Art as in all other things the Greeks turned everything to account. Its recesses and irregularities were shaped into theatres, monuments, and positions for statues and temples. It is entered at its west end by the Propylaea, and before passing through it by the carriage-way, you pass the temple of Wingless Victory on the right.

As we pass on, the temple of Erechtheus is on our left to the north, with the Parthenon opposite on our right. To the south of the acropolis, beneath the Propylaea, is the theatre of Herodes Atticus, of the Roman period; and further east is the theatre of Dionysus, with the ruins of the temple of Aesculapius, and the stoa of Eumenes between them, also lying at the base of the south wall. All these works of Art were brought about by the policy of Pericles, the great Athenian statesman.

This great leader was born about 493 B.C., and doubtless his early training and the cultivation of his artistic faculties fitted him, in addition to his other admirable qualifications, to take part in later days in the artistic adornment of the city of which he became chief statesman.

Fifteen times he was elected General. He proved his superiority both by land and sea, and, when the subjection of the allied States was complete, the tribute they paid went to the Athenian treasury for the artistic adornment of Athens, to make her the most beautiful city that the world had ever seen.

Everywhere temples, theatres, and porticos began to rise. Phidias, who was the first sculptor of his time, stood well by Pericles. The number of statues, however, that existed could scarcely have been the product of his own chisel; but if different hands were at work, as in the Parthenon, the whole is certainly the expression of his ideas. The Parthenon was built about 438 B.C., upon the south side of the hill of Acropolis. Under Pericles the ground had been raised by a vast superstructure, to make it not only on a level of the surrounding ground but actually above it.

The Parthenon was one of the largest temples of Greece. On the site of the present temple stood a more ancient edifice, begun about 480 B.C. but never completed. This early temple was almost the same width, but about 18ft. longer. The present building was finished about 338 B.C., the Architects being Calliocrates and Ictinus; Phidias being the designer. It was divided into two main divisions, the Hekatompedon and the Parthenon proper; the latter facing the west, and the former the east.

In the Parthenon were four columns, 3ft. in diameter, to support the centre walls, and in the Hekatompedon stood the colossal statue of Athena, 39ft. high, made of gold and ivory upon a framework of wood, by the renowned Phidias. The name, Hekatompedon, is said to have been given it owing to its being used for the ancient temple prior to the present one.

Behind the statue was the Naos, and no communication ever existed between this part of the temple and the maiden's temple. Upon the temple were lavished all the artistic resources of Athens when Art was at its greatest. The decorations of this magnificent edifice were of the richest and most perfect design and execution; sixteen years is said to have been the time occupied in its erection. There are supposed to have been here 1100ft. of sculptures, representing upwards of 600 figures.

Regarding the roof, it is said by some authorities to have been of timber, covered with very transparent tiles, similar to our glass tiles, and as these tiles had a very small star on each, the idea was that the light would shine through and make these stars apparent to the worshippers, with the great statue of Athena standing out in the foreground.

Turning to the Propylaea. It was no doubt found that, having now a treasure, i.e., the Parthenon, it was necessary to guard it, hence the erection of the Propylaea, B.C. 432. The idea of the Propylaea seems to be of Egyptian origin. Propylaea differed from pylae in being complex buildings and having distinct pylae. The breadth of the western ascent was, at its summit, 160ft., and Pericles filled this up with a building which consisted of a grand hall and wings on each side, the hall being 60ft. broad. Through the centre of the building ran a carriage-way about 13ft. broad, paved with slabs of marble, notched, to prevent slipping. The portico front and back were Doric and hexastyle, the interior being supported by Ionic columns.

Some authorities say that Revett was wrong in showing these columns with pedestals. This building is also said to have taken the place of an earlier structure.

After this date the temple of Victory was built, 400 B.C. It is situated immediately to the right of the Propylaea. It is said to have been erected to



TEMPLE OF JUPITOR OLYMPIS.

commemorate the victory of the Greeks over the Persians. It is only 27ft. long and 18ft. wide. Its Architecture and sculptures were of the greatest beauty. It has sometimes been termed the Nike Athena, and has been reconstructed by some German Architects. The discovery of the buried fragments took place in 1835 A.D., by Professor Ross, and it was subsequently re-erected with complete success. The temple is Ionic in character, having a portico of four columns at each front. The frieze that ran round the temple contained about thirty-four figures, and represented an assembly of the gods. The British Museum has at present four of these panels. Later than 1835 A.D. some reliefs were found in the neighbourhood which belonged to the temple; they represented winged victories.

On the north side of the acropolis stood the temple now known as the Erechtheum. Before its erection stood the (supposed) Old Temple of Athena, 527 B.C., south of the present building; and prior to that, i.e., between the Mycenaean periods and beginning of Greek history, stood a still more ancient temple.

The present temple was dedicated to Athena Polias (the guardian deity of the city), and to Pandrosus (the goddess of dew). The name of Erechtheus was likewise connected with it. The date is placed at 393 B.C. According to some recent authorities it was divided into four parts. Facing the north was the tetrastyle portico of Athena Polias (or Minerva Polias), from which entered the Hall to the West Cella. On the east was a hexastyle portico, entering into the temple of Erechtheus the East Cella; this was, by the way, 10ft. lower than the West Cella, and had no communication with it. Lastly, on the south, was the temple of Pandroseium, said by some to be the Cecropeum, the portico of the Caryatides, or the maidens. The whole structure was the most sacred temple on the Acropolis.

It is said that in the beginning Poseidon and Athena (brother and sister) had striven for the possession of Athens, and Poseidon had brought forth a spring of salt water, and that Athena had triumphed by producing an olive tree. Here was also a carved image of olive wood of her, more sacred than the subsequent gold and ivory one. Also within the precincts was supposed to live the serpent which the priests fed, and which was sacred to Athena.



MONUMENT OF LYSIKRATES.



It was strange that Phidias should have displaced it by a rival edifice in the shape of the Parthenon, but the increase of population and the refinement and Art had required a larger and more artistic temple.

The Cecropium to which I have alluded to is said to be the portico of the Caryatides. It is mentioned so by Pausanias in his description of Athens; and that this portico was the tomb of Cecrops, the first king of Attica, and father of Pandrosos, which it is said the acropolis was sometimes called after, i.e. Cecropia. It is also mentioned by some authorities that the Erechtheum was possibly the palace of the Cecropidae. It is about 25ft. long and 12ft. deep, and upon the base 6ft. high were the six maidens Caryatides or Canephoroi.

The figures are of singular beauty, admirably set off by the simple clinging folds of their draperies. As you face them, the second from the left was taken away, and is now in the British Museum, but has been replaced by a terra-cotta one, but some say of marble, executed by a Greek Artist.

The Theatre of Dionysus, where these great representations of tragedies took place during the festivals of Dionysus, is supposed to date back about 340 B.C. It was not rediscovered till 1862 A.D., by H. Strack, a German Architect. It has been very often termed the Theatre of Bacchus, and occupies a large semicircular space in the side of the hill that is immediately under the east end of the south wall of the acropolis. Some of the seats are in good preservation, as well as some of the marble chairs. Before 340 B.C. the theatre was in use, but it was very rude, and no stone was in use in it, simply wood. Dr. Dörpfeld has estimated that 12,000 to 15,000 people could have found room at each performance.

Although the theatre was open to the sky, yet it was possible for temporary awnings to be placed over it. The Greek theatre consisted of three parts: the stage, the orchestra, and auditorium. The width of the orchestra is about 78ft., and from front to back, that is from the stage to the seats, it is about 58ft. A great portion of this is formed into a lozenge-shaped figure. It is formed of Hymettian marble, and, no doubt, formed the place for the chorus. The throne of the Priest of Dionysus was more magnificent than the rest, as becoming the chief priest of the festival, and projected a little farther forward than the other four, and, in addition, had feet carved like the claws of a lion. On the arms is a mythical representation typifying the birth of Dionysus, and also by a youthful winged Niké, stooping towards the Zeus' thunderbolts. Under the abacus are other symbolical figures.

It is said that the men were seated separately from the women. The seats are now very much dilapidated, but most of the remaining ones measure 2ft. 8in. broad and 1ft. 2in. high. The stairs which divide the seats are 28in. broad. The upright slabs round the pit seem to have been placed there during the Roman period, when the Romans introduced gladiatorial combats.

So many monuments came ultimately to be built to the victors in the Pan-Hellenic games, that a street was founded in Athens, called the Street of Tripods. They stood so much in the way that almost the only one that escaped destruction was the Choragic monument to Lysicrates. It owed its security to its having been built in the wall of a convent, where it served the various purposes of oratory, closet, and library.

It dates about 335 B.C., and consists, as you see it now, of a circular marble structure, standing upon a square base 21ft. high and 9ft. in diameter. It is the oldest building extant of the Corinthian order, exquisitely wrought, graceful in its proportion, and rich in decoration, so that the fine-grained Pentelic marble is exhibited to perfection. Each are of a single block, the base of the column, the roof, the shafts of the columns and the circular temple is crowned by a tholus or cupola, terminated with an ornament on which was erected the tripod of bronze. Bronze fishes are said to have been placed between the projecting scrolls of the ornament and that on the

tholus. The temple is formed of six panels, with six columns fitted exactly into the grooves made between them. The capital is of the Greek Corinthian order, a perfect miniature example, but the most perfect we have, and is a work of marvellous beauty.

Turning now to the Tower of the Winds, I cannot do better than give you Vitruvius's description of it—Book I., chap. 6:

He says: "But those who are more curious in these matters reckon eight winds; among such was Andronicus Cyrrhestes, who, to exemplify the theory, built at Athens an octagonal marble tower, on each side of which was sculptured a figure representing the wind blowing from the quarter opposite thereto. On the top of the roof of this tower, a brazen Triton, with a rod in his hand, moved on a pivot and pointed to the figure of the quarter in which the wind lay." The Triton has now vanished. The roof is of black marble blocks, wrought into the forms of tiles. There are two entrances, one facing the north-east and the other the north-west. Each has a portico supported by two columns.

Egeus, though altogether on a different plan; no cement is said to have been used in its construction, the blocks being held together by metal cramps. It presents much the same appearance to-day, and stands as formerly, an isolated gateway 59ft. high, with an archway 20ft. It was this gateway which divided the old Greek city from the new Athens of Hadrian, the inscription on either side saying: "This is Athens the old city of Theseus," and the other, "This is the city of Hadrian and not of Theseus."

This arch is said to have formed the approach of the building I have just described to you, i.e., Jupiter Olympus, which was situated almost due east from the acropolis of Athens.

Without exception, almost all the temples of the Greeks were made of white Pentelic marble, those portions forming the foundations below ground being built of limestone of a hard quality. Black marble, with a bluish tinge, was the material sometimes employed for some special temples or monuments, as in the base of lateral walls of the central hall of the Propylæa, above the base being of a white Pentelic kind. The black came from Eleusis.



TEMPLE OF VICTORY.

The figures typifying the winds are all of colossal size. They are all winged, and they characterise the wind very strongly, whose name they represent. The date of the tower is placed at 159 B.C. The capitals are very remarkable in character. They have been commonly assigned to the Corinthian order, though they are deficient in several of its features. The Corinthian acanthus is represented by a one tier above, that being a series of plain water leaves almost Egyptian in their character.

Of the once magnificent Olympeum building, only sixteen columns remain out of 124. The length of this temple was 359ft., and the breadth 173ft., being thus with one exception the largest on the "dipteral" construction.

The Olympeum was "dipteros decastyles," the columns being of the Corinthian order. The original temple, which this one replaced, was of the most ancient of the Athenian structures. Pisistratus about 530 B.C. projected even then a more magnificent structure, but it was left to Hadrian, 130 A.D., to build this work of Art, "displaying the utmost beauty with perhaps the greatest degree of magnificence and grandeur ever attained by the Architectural exertions of the Emperors of the Roman World." The columns are 6½ft. in diameter and 60ft. high.

The Arch of Hadrian dates about 130 A.D. It is said that it was built on the site of a more ancient building, known as the gate of

Timber was used for the roofs of a large number of temples. The Naos of the Parthenon is said to have been covered with framed timber; their positions, whether of wood or marble, coinciding with the marble beams of the peristyle. The tiles of the Parthenon, and of Greek temples generally, were formed of Parian marble. Its weathering properties were not so good as Pentelic, but it was principally used for its transparent qualities. The door jambs of the Parthenon and other temples were cased with bronze, fixed on a wooden framing. These latter are admirably shown by Mr. R. Elsey Smith in his lecture on Greece in the R.I.B.A. transactions for 1890. He also refers to the unfinished nature of the Propylæa Stylobate, and similarly with the walls, where the joints between the stones regularly gape, the top bed being horizontal, while the lower bed of the stone above is bevelled off, it being the original intention to ultimately leave the finished face some distance back from the present face.

Iron was used in nearly all the temples, cramping the (marble) stones together, and run in with lead. Studs of iron were used to keep the stones in place. Brackets of iron were used in the Parthenon to relieve the cornice from the heavy sculpture. No cementing or binding material of any kind was used in connection with the fixing of the stones, reliance being placed solely in the metal



cramps. They were of a T form, and run in with lead, as I have already mentioned.

Referring now to the lighting of Greek temples, much of what is and has been said is a matter possibly of conjecture. Ferguson, in his excellent work, shows how he would do it, and other authorities do the same. It is contended that it could not be by lamplight alone that the beauty of the interiors could be seen, and as light certainly was not introduced through the side walls, nor could in sufficient quantities pass through the doorways, it is contended by some authorities that only from the roof could it be admitted. At the same time it could not have been by a large horizontal opening in the roof, as that would have admitted the rain and snow, as well as the light. The alternative of Ferguson is that of a clerestory, similar internally to that found in all the great Egyptian temples, but adapted, instead, to a sloping roof; the temple of Eleusis was possibly one of the many on this plan, and it is said that shutters were used with the object of admitting or excluding light in the celebrating of the mysteries.

On the other hand, the great temple of Jupiter Olympius at Athens was lighted from a court or hypæthrum.

Although applied to other temples, the Parthenon has been taken principally into account by authorities.

With the temple as a whole, it is considered unreasonable to suppose that the ancients entirely concealed or even materially altered in appearance the general surfaces of the marble, which they made a point of obtaining wherever possible; but the Athenian sun had such a dazzling effect on fresh Pentelic marble that the artistic value of "toning down" the almost pure white of its polished surface cannot be disputed, and the more so when some portions of the Architecture were painted in positive strong colours. The "tone" produced was as slight as the difference between fresh white polished marble and ivory.

The fret and honeysuckle ornaments were painted on the toema, or architrave band, and guttae tablets respectively. As regards the corona, architrave, and columns, it will probably remain a matter of conjecture how far these were painted in flat colour; there are, however, some slight grounds of evidence that a peculiar yellow tinge, upon some parts of the columns, were not simply the yellow said to result from oxidization of iron in the Pentelic marble, but has been applied externally as a tone, though, perhaps, so delicately as merely to reduce the high light of the marble when new, without greatly obscuring its crystalline lustre. There are but very slight remains (if any) of colour on the sculptures. Some authorities assert that the sculpture had a blue back ground, as on the Panthenaic frieze.

In conclusion I would like to say a few words regarding the efforts being made by different nations to enrich the world of Art by means of excavation and study of Greek Art at Athens. The BUILDERS' JOURNAL gave an excellent article on the subject of British support, in July of 1895. At a meeting of British School under the Presidency of the Prince of Wales, it reported that: "We, who are supposed to be the wealthiest nation of the world, can only afford £500, but France gives her School £3120; Germany give hers £2400, and the American School has an income of £2000 a year. . . . The German Government has spent £40,000 at Olympia, and the French Government £29,000 at Delphi, while our Archaeologists have had the greatest difficulty in collecting a few hundred pounds from friends, for the small but extremely fruitful excavations which they have made on various sites." It passes on to say that unless they are properly supported, the excavations would be abandoned. Surely this is not what should be in a nation such as ours. We have been termed a nation of shopkeepers, but the other nations all know the spirit of enthusiasm which marks even our Art. It is surprising that better facilities are not given for students to go to Athens and see Greek Art in its native atmosphere.

The opening of the new General Hospital at Birmingham has been fixed for July 7th.

#### BABYLONIAN EXPLORATION.\*

IN a recent issue we gave brief particulars of the exploration expedition to Babylonia under the direction of Mr. Haynes, chronicling the success which attended the excavation of the great mounds of Nuffar, the site of the ancient city of Nippur. The following details are not uninteresting:—The great mounds of Nuffar are situated on the east bank of the now dry Shat-en-Nil, a great main artery navigation canal which once connected Babylon with the Persian Gulf. The central feature of the ruins is a vast conical mound—called by the Arabs Bint el Amir, "the Amir's daughter," which rises to a height of nearly 29 metres\* above the surrounding plain. This mound marks the site of the great ziggurat or temple stage tower first built by Ur-Gur, or Ur-Bahu, as he was formerly called—about B.C. 2800, and subsequently repaired and added to by later kings. This vast structure was the central point of the explorations by Mr. Haynes. We have long been familiar with another of the great stage towers erected by Ur-Gur at Mugayyar the ancient Ur; but the one at Nippur is the first that has been thoroughly explored. The tower rests on a basis 59m. by 39m., and is built, like most of these Babylonian towers, with the angles to the cardinal points. It appears to have consisted, like that of Ur, of three stages only, not seven, like the later towers at Babylon and Khorsabad. Each stage had a thick coating of plaster, composed of clay mixed with chopped straw; and

#### TO PROTECT THE LOWER STAGE

from the winter rain it was faced with kiln-burnt bricks and a coating of bitumen. The ascent was on the south-east side, and here it would seem Mr. Haynes has made a most important discovery. Two walls of burnt brick, 3.40m. high, 16.32m. long, and 2m. from each other, were built out into the temple courtyard, and this causeway was filled in with crude bricks, and formed a broad roadway leading up to the tower. The whole temple enclosure is surrounded by a massive wall, of which more than thirty courses are still visible. The arrangement of this temple and tower of Ur-Gur bears a most striking resemblance to the early Egyptian pyramids, especially Medum and the stepped pyramid of Sakkara, while the causeway recalls that of the second pyramid of Khafra, which connects it with the so-called temple of the Sphinx. The question often suggested by archaeologists has been, were these stepped pyramids connected with the

#### TEMPLE TOWERS OF CHALDEA,

or borrowed from them? There is now, however, a possibility of reversing this question, in the light of these discoveries at Nippur. The pyramid, we know, was but an elaboration of the Mastaba, and the resemblance between these and the towers at Ur and Nippur is most striking. Dr. Hilprecht and Mr. Haynes maintain, upon very good grounds, that Ur-Gur was the first to build these ziggurats, and there is certainly no trace of such edifices in any of the older cities, those at Tello or Lagash and Abu Habbah, the ancient Sippara, being both later. At no period in early Chaldean history was there so close a contact between Egypt and Chaldea as during the dynasty of Ur-gur Dungi and Gudea of Lagash. These rulers, as we know from their numerous inscriptions found at Tello by M. de Sarzec, were in constant communication with Egypt by sea and through the Sinaitic peninsula. It was from this region that they obtained the hard diorite and porphyry for their statues and door sockets. The statue of Gudea, seated and holding the plan of a temple on his knees, is

#### MOST EGYPTIAN IN CHARACTER,

the attitude resembling that of statues of Khafra and Menkara; moreover, the scale engraved upon the tablet gives the Egyptian and not Chaldean cubit. Indeed, as Mr. Bos-cawen has pointed out, the statue of Gudea,

the Architect, with the plan on his knees, bears a most striking resemblance to the Egyptian figures of Imhotep, the Egyptian god of mathematics, who may be regarded as another form of "Phtah," the "Architect." In the face of this evidence from Nippur, we may have to reconsider the question of Chaldean influence on Egypt, and, indeed, possibly reverse the old theory. The tower rests upon a massive platform of crude brick. Excavations conducted below this revealed the existence of a second pavement of much finer construction, being built of kiln-burnt bricks of great size—the dimensions being 50cm. square, and of great thickness. Nearly the whole of these bricks were inscribed, and bore the stamps of Sargon I. and Naram-Sin, his son, and its date, therefore, is just a thousand years prior to the buildings of Ur-Gur—namely B.C. 3800. From the inscription of both these kings, we know that they both built large portions of an older temple of Mullil, for the bricks bear the inscription, "builder of the Temple of Mullil," and dedicated a number of vases to the temple inscribed with their legends. These

#### BUILDINGS HAVE BEEN ENTIRELY REMOVED,

and the surface of the vast platform levelled for the reception of the edifices of Ur-Gur. Of the old temple there is evidence afforded by a discovery to which we shall shortly refer. Proof, however, of the great buildings of Sargon and his son is afforded by some excavations to the north-west of the temple. Here was a line of mounds which marked a rampart, and Mr. Haynes in 1895 cleared a portion of it and unearthed one of the most extraordinary pieces of masonry ever discovered. The foundation consisted of a solid bed of clay mixed with straw and puddled down, resembling some of the constructions found by Dr. Schliemann at Hissarlik. Upon this foundation and plinth was constructed a solid brick wall, 52ft. in thickness, and rising to an unknown height. The builder of this wall was Naram-Sin, whom so many have regarded as a mythical king. It is probable that this rampart formed also a broad roadway round the city, and it may possibly, as Mr. Haynes suggests, have had a row of chambers in its upper part. A similar wall, but less than half as thick, was found by M. de Sarzec at Tello. Directly to the south-east of the great tower and close to the great rampart, Mr. Haynes discovered a chamber 11m. long, 3.54m. wide, and 2.60m. high. As there was no doorway, it was evidently

#### A VAULT ENTERED FROM ABOVE.

Its floor rested upon the platform of Naram-Sin, and it formed a communication between the two strata. The inscribed bricks proved it to have been built by Ur-Gur. What was its purpose is explained by the discovery of a second chamber of the same kind immediately below. In this second chamber a brick stamp of Sargon was found imbedded, and broken stamps and some few tablets were found in the room. The explanation is now easy. Round the walls ran a narrow shelf, on which some tablets and brick stamps were found. The chambers were the archive chambers of the temple; the smaller one that of Sargon, which had been partly restored by Ur-Gur, while the second was that of the King, built up to the level of his own pavement. It is clear that at some time between the time of Ur-Gur, B.C. 2800, and the rise of the Kassite dynasty, B.C. 2200, the archive chamber had been broken into and large numbers of objects carried away and the rest broken and scattered. There can be little doubt that this disaster took place during the terrible Elamite invasion in B.C. 2285, when all the principal temples were pillaged and their treasures carried to the Elamite capital. We have a proof of this afforded by a small disc of agate found in the ruins, which bears on one side a dedication by Barnaburyas, B.C. 1400, which states that it was taken from "the palace of Susa in the land of Elam." The amount of debris from the pavement of Naram-Sin to the top of the mound is 11m. in height, and this, we know, took close on 4000 years to accumulate. Mr. Haynes, encouraged by the success of his work in the upper stratum, proceeded to

\* In this article the metric system is used, as by Mr. Haynes and Dr. Hilprecht in their reports.



excavate to reach the virgin soil, which he did at the depth of 9.25m., passing through the debris of ruined buildings, accumulations of broken pottery, and fragments of inscribed stone objects and well-constructed drains. These remains prove the existence of at least two temples below the pavement of Naram-Sin, which at the most rapid rate of debris accumulation cannot be assigned to a later date than between six and seven thousand years before the Christian era. This lowest stratum has been much disturbed, and the buildings pillaged; still, sufficient remains to reveal to us earlier phases of Babylonian civilisation than we have ever seen. The first structure discovered was an altar of sun-dried bricks, 4m. by 2.46m. The upper course had a rim of bitumen, and upon the altar was a large deposit of white ashes. Round the altar was a low wall marking the sacred enclosure. Outside of this enclosure were found two

#### IMMENSE VASES OF TERRA COTTA.

These great specimens of early pottery were each 63.5cm. high, and decorated with rope pattern. We have here in this simple, sacred precinct the germ from which sprang the great temples of Chaldaea—the altar, with its temenos, entered only by the priest, and the two great vases for purification, replaced in after-times by the greater and lesser absu, placed before the temples. A somewhat similar construction was discovered at Sippara, but its archaeological value was not recognised. South-east of the altar was found a remarkable structure—a brick platform, 7m. square and 3.38m. high, built of fine unbaked bricks. Round the base of this Mr. Haynes found a quantity of water vents, which indicated a connection with some receptacle below, and on sinking beneath this solid mass he found a drain passing underneath the platform, in the roof of which was the earliest known keystone arch. It is 71cm. high, and has a span 51cm. The bricks are well baked and joined with stiff clay as mortar. Thus the priority of Chaldaea in the use of the keystone arch is clearly established. This structure was over 7m. below the pavement of Ur-Gur and 4.57 below that of Naram-Sin, and, since there were no massive ziggurats or great temples to crumble into ruin, it must have taken

#### MANY CENTURIES TO BUILD

up so great a mass of debris, and an estimate of from 1500 to 2000 years before the time of Sargon does not seem too high. Having described the strata of this remarkable site, it is now time to devote some consideration to the numerous monuments and inscriptions that have been recovered. The harvest has been an ample one. Over 26,000 tablets, as well as numerous inscribed fragments of vases and stela, have been recovered from this site. It is therefore clear we have no lack of material. It must be remembered, as we have already said, that the record chambers of both Sargon and Ur-Gur were sacked by the Elamite invaders of Kudur-Nakhunte in B.C. 2285, and this will account for so few inscribed records being found in the lowest strata. That, however, there had been numerous records of the pre-Sargon period which had been removed to the treasury of Sargon, and subsequently to that of Ur-Gur, is shown by a most important find. Under a pavement of Ur-Ninip, a king of the dynasty of Ur-Gur, were found quantities—some hundreds—of broken vases and other objects that had been votive offerings to the shrines of Mullil from the earliest times. Among these were some

#### OF THE MOST ARCHAIC TYPE,

even more pictorial than those discovered by M. de Sarzec at Tello. Among these was a large stone boulder inscribed with a linear inscription of a king named Lugal-Kigub-Nidudu. Upon this we find a second endorsement by Sargon, written years after in arrow-headed characters. Here we have a manifest proof of the priority of this monarch to Sargon. Among these broken fragments, purposely destroyed, were the fragments of over a hundred vases dedicated by a king named Lugal-zaggi-si to the temple. From these texts Professor Hilprecht, almost at the loss

of his eyesight, has constructed a complete text of 132 lines written in a most archaic character. Fragments of similar vases were found beneath the Sargonic pavement. The most conclusive proof, however, is afforded by the examination of these inscriptions along with the earliest monuments from Tello, where they are found to form a complete historical series relating to affairs of which no mention is found, either in the time of Sargon or after. All of these records relate to a series of primitive wars, and form certainly, whatever their age may be, the oldest historical records known. The earliest of these is the inscription of "Eshagsagana," written in most archaic characters—this monarch is styled "lord of Kengi," that is, Lower Babylonia,

#### "THE LAND OF CHANNELS AND REEDS."

In his time the chief enemy of Babylonia was the city of Kish, the modern El Hymr, whose priest ruler had entered into alliance with some fierce tribes called "the hosts of the Land of the Bow," a people regarding whom we shall have some remarks to make shortly. The first inscription records a war against them by the Babylonian King. It describes how the Babylonians "conquered the King of Kish and his ally," the evil-hearted "horde of the Land of the Bow," spoiled his city and burned his property, carrying away the statue of the King, his bright silver, and the furniture which he dedicated to Mullil. The next inscription in this sequence is one of the King of "hordes of the Bow," who had had his revenge and conquered Babylonia. This inscription is engraved upon the vases which he dedicated to the temple. It begins by an inscription to Mullil,

#### "THE LORD OF THE WORLD,"

from "Lugal-zaggi-si, King of Erech, the son of Ukus, high priest of the Land of the Bow." Thus we see that the conqueror had established himself in the ancient capital of Erech, and from his inscriptions we learn also that he ruled in Ur-Larsa as well as in Nippur. The King then describes his empire as extending from the Lower Sea of the Tigris and Euphrates to the Upper Sea (Mediterranean), and as being granted dominion over all lands from the rising to the setting of the sun, whom he has caused to dwell in peace. How long this foreign dynasty ruled we do not know; it was, however, followed by a dynasty whose capital was Ur or Mughier. In the inscriptions of Lugal-Kigub-Nidudu, found with the above, we learn that he made Erech "the seat of lordship and Ur the seat of sovereignty." The closing episode of this first of wars is supplied by a monument discovered by M. de Sarzec at Tello, the celebrated

#### STELA OF THE VULTURES

now in the Louvre. In this monument erected by the King of Lagash, when a dynasty of kings was established after that of Ur, we have the record illustrated by sculpture of the King, who made a victorious campaign and utterly defeated the "hordes of the Land of the Bow." After this, neither in the campaigns of Sargon or his son, nor in any chronicles of the Babylonian Empire, have we any record of these people. Who were they, then? Professor Hilprecht has put forward in a most dogmatic manner a theory that they are to be identified with the Semitic tribes of North Mesopotamia, and that the "City of the Bow" was Harran. He cites no ancient authority, no pre-Sargonic mention of Harran, but only a statement of Albiruni "that Harran was built

#### "IN THE FORM OF A CRESCENT MOON,"

and that the plan of the ruins resembled a bow. It is surprising to see so brilliant a scholar using so feeble an argument. It is rather to the plains of Central Mesopotamia and the lowlands between the Tigris and the Kurdish mountains that we must look for the home of these nomadic warriors. There, no doubt, was a variety of tribes among them, but their inscriptions are written in Sumerian, and there is only one word with a suspicion of Semitic origin, and on this no argument can be based. It is enough that through the Sumerian they have restored to us the earliest

chapters of the world's history. Indeed, the style of Professor Hilprecht's otherwise excellent memoir is not such as commends itself to scholars. No doubt he is making known the greatest discoveries of modern times, but there is no need to substitute personal dogmatism for scientific facts. It is waste of time to advance on slender basis theories which have to be corrected in subsequent parts. We have been able to give only a brief account of the wonderful work of this campaign, which reflects so much credit on its organisers, and, above all, on Mr. Haynes. For thirty-two months he lived alone among the wildest Arab tribes in Mesopotamia, in an atmosphere of fever, varied with cholera. One determined, but, fortunately, unsuccessful attempt was made upon his life; yet, amid all these surroundings, he lived, and did the work of three men. It is no over-praise to say that Mr. Haynes is justly entitled to take his place in the front rank of explorers along with those who have restored to us the first chapters of the world's history.

### THE LONDON COUNTY COUNCIL AND THE WORKS DEPARTMENT.

#### THE WORKS COMMITTEE DONE AWAY WITH.

AFTER no less than three adjournments of the debate on four successive afternoons, the London County Council has come to a decision on the much-vexed report of the Special Committee on the Works Department, brought up by Sir Arthur Arnold and signed by a majority of its members. In November last the Council resolved that an inquiry should take place into the alleged falsification of the accounts by officers of that branch. The Committee desired Mr. Edwin Waterhouse to be an assessor, and Mr. C. A. Greening was nominated as his colleague. The total amount of the fabricated entries was reported by these experts to be £7229 11s., but they added, "these entries had no reference to any misappropriation of moneys, nor did they conceal any action whereby any employee of the department was pecuniarily advantaged." The Committee rehearsed the facts in connection with the works carried out, and reviewed the labour of other municipalities and corporations. They also examined many experts who stated the objections entertained by the leading contractors to the conditions of the Council's contracts, which prevented the best of them tendering. They stated as their conclusion: "We regard the employment of contractors as beneficial, if considered only as strengthening the resources of the Council for the undertaking of public works." In conclusion they made the following recommendations, with one addition:—

"We recommend:

"(b) That a Works Board be substituted for the Works Committee, such board to be elected forthwith, one member to be nominated by and from each of the following committees: Finance, Asylums, Bridges, Fire Brigade, Highways, Improvements, Main Drainage, Parks, and Housing of the Working Classes; and that in future years the election of members of the board do take place at the meeting of these committees next to March 31.

"(c) That any committee desiring to propose to the Council the carrying out of any works without the intervention of a contractor shall, in the first instance, obtain an estimate from the proper officer, and then refer such estimate to the Works Board for their consideration before reporting to the Council.

"(d) That the Works manager shall, unless in any case otherwise ordered, carry into execution all works which the Council resolves to execute without the intervention of a contractor.

"(e) That when the Council wishes to execute any works without the intervention of a contractor, the plans, specification, and estimate shall, unless otherwise ordered by the Council, be thereupon referred to the Works manager.



"(f) That the Works manager shall be responsible to the Works Board, and the board shall report from time to time to the Council.

"(g) That this report be referred to the General Purposes Committee, and that it be an instruction to that Committee to amend the standing orders in accordance with the foregoing recommendations.

"(h) That it be referred to the General Purposes Committee to make further amendment of the standing orders by the insertion of words coupling the unions of employers, where such exist, with the trades unions, in reference to the rates of wages and hours of labour.

"(i) That it be referred to the General Purposes Committee to make further amendment of the standing orders by omitting provisions giving powers to the clerk of the Council to direct examination of the books of anyone contracting with the Council for the execution of works, other than the time-sheets or books or wages sheets or books."

The additional paragraph (a) was a general declaration in favour of the direct employment of labour by the Council, and it was on this point that at the meeting before the Jubilee recess the votes were equally divided.

Sir A. Arnold decided that he would accept an amendment standing in the name of Mr. E. White, and after an acrimonious discussion, in which the labour members took a prominent part, it was carried without a division. It ran as follows:

"That all works ordered by the Council to be carried out without the intervention of a contractor shall in future be carried out by the manager of the Works Department, who shall be responsible to the Spending Committee in the same way as a contractor would be; and that the Finance Committee shall have control of the finances of the department."

With some other consequential amendments, the report was then passed. The effect of the change is to abolish the Works Committee, and to place the manager in the shoes of the contractor. He will carry out such orders of the so-called Spending Committees—i.e., Fire Brigade, Bridges, Main Drainage, and Asylums—as the Finance Committee may approve. The Works Department remains, but the Finance Committee will have the supervision of its doings, whilst the manager will have a freer hand than before in the purchase of materials and the organisation of his office. How the system will succeed remains to be proved. It is not entirely new, as at least one large job was executed under such conditions before the Works Committee was established. Meanwhile, as both Moderates and Progressives seemed to accept the modification, it is to be hoped that this part of the Council's duty will be conducted on business lines and by common consent. The view seems to prevail that until after the next election, in March, 1898, no arrangement could be made permanent.

IN Biddenham Church, Bedfordshire, a window has been erected to the memory of the late Charles Howard. The subject of the memorial was one of the best known agriculturalists in the Midlands, and his flock of sheep was famed throughout England. The window is the work of Mr. C. E. Kempe.

ST. JOHN'S CHURCH, Nelson, which has been closed for several months for restoration and enlargement, was re-opened last week. The Church improvements include a new chancel, organ chamber, two vestries, and transept. The total cost is £3000, and towards this £2000 has been raised, including £500 from members of the Walton family.

A FIRE broke out between four and five o'clock on Thursday morning on the premises of Messrs. J. F. and G. Harris, timber merchants, Victoria Wharf Saw Mills, Palmer's Road, Green Street, Bethnal Green. Four buildings used as workshops and saw mills, covering an area measuring about 30yds. by 35yds., were destroyed. A very large stack of timber in the yard was also reduced to ashes, and the stables were also involved in the general ruin.

#### ANTIQUARIAN SCOTLAND.

EDZELL CASTLE and the Round Tower at Brechin were inspected recently by the Aberdeen Philosophical Society, on the occasion of its annual excursion. The ruins of Edzell Castle are notable for a series of sculptures upon the garden wall, which is without a parallel in Scotland, and "remains a silent witness both of the taste of Sir David Lindsay, Lord Edzell, who promoted its execution, and of the skill that could be found in Scotland to carry it out in the beginning of the seventeenth century." So much controversy arose among the inspecting party as to the probable nature of the ornamentation of the garden wall, that it seems advisable to transcribe a portion of a detailed description furnished to an early number of *Scottish Notes and Queries*, by Rev. Dr. Gammack: "The ruins of the old Castle are intensely imposing as they lie in solitude on the northern bank of the West Water. The garden enclosure is entered through an antique porch or summer-house, and the flower-beds of former days are replaced by the green sward. The aspect of the three enclosing walls is exceedingly striking for the elaborateness of their decoration. The garden is 173ft. long by 144ft. wide, but while the Castle wall, on the north side,

#### IS WITHOUT ANY ORNAMENT,

the three other walls of the garden have their faces divided into compartments 10ft. to 11ft. wide, separated by what appear to have been square shafts, with caps, bases, and square bands; the band may have been intended to support a statue as the upper member of the shaft. In every second compartment is the uniform design of three rows of small square recesses, arranged chequerwise to represent the fess chequy of the Lindsay arms, while surmounting these are the three seven-rayed stars of the Stirlings of Glenesk. Alternating with the compartments containing the arms are those bearing the sculptures, and having in each, underneath the sculptured panel, a square plain recess that was perhaps intended for flowers or for a coat of arms. Partly projecting above the wall there is also in each compartment a small niche with a carved cushion on which a bust or other ornament might rest. The three sets of figures on the walls represent Astronomy, the Sciences, and the Virtues, and are evidently tokens of the effect that the Renaissance was having even in Scotland. In the designs there is usually a certain amount of pictorial representation in the background as well as in the principal figures. But it is worthy of note that in the same piece of carving there is traceable the presence of different hands, the upper parts being carefully and skilfully executed, while the lower parts are wanting both in proportion and finish."

#### THE SCULPTURES ON THE EAST WALL

represent—Saturn, Jupiter, Mars, the Sun, Venus, Mercury, and the Moon; on the south wall—Caritas (one of the "virtues," displaced from its proper wall a good many years ago), Rhetorica, Dialectica, Arithmetica, Musica, and Geometria; and on the west wall—Spes, Justitia, Fides, Prudentia, Fortitudo, and Temperantia. From Edzell the party drove to Brechin, passing under the Dalhousie Memorial Arch (erected in 1889 to the memory of the last Earl of Dalhousie and his Countess). At Brechin an inspection was made of the Round Tower and the Cathedral, and a visit paid to the grounds of Brechin Castle. Of the round tower, Jervise says: "Whether we are to attribute these erections to Culdeism or not, we have both at Brechin and at Abernethy (near Perth) the only Scotch specimens of the Round Tower. Few things have excited so much controversy as these, not only regarding the history, age, and use of the buildings, but also the fact of their being found only in Ireland and Scotland. They have been ascribed to Eastern worship and Druidical rites, to ante-Christian times, and to a late mediæval age, as well as to Danish artists and to monastic requirements. In all probability they were places for security in times of disorder;

if the space in the several floors was small for the shelter of persons and valuables, the round, smooth outer circumference and the narrow doorway, which was always at a considerable distance above the ground, made resistance the easier, while a bell or a fire at the top would readily spread any alarm." The Cathedral Church of Brechin was founded by King David I., probably about the year 1150, and some of the remains of the Church date from then. The nave and transepts, however, have been "barbarously supplanted by a modern sash-windowed Church." "The west door of the Church," writes Jervise, "although much decayed, still presents some beautiful pieces of carved work, and among these are traces of an almost unique figure in Gothic Architecture, called the reed pattern, the only other example of which, so far as is known, is on the north doorway of Ely Cathedral. The large west window over the doorway, with graceful mullions and flamboyant tracery, is still almost entire; and although little exists of the east end or chancel of the Church, the portion still remaining is a fine specimen of the Early English style of Architecture, being decorated by the bay-leaf and dog's-tooth enrichment."

#### RESTORATION OF ORDSAL HALL.

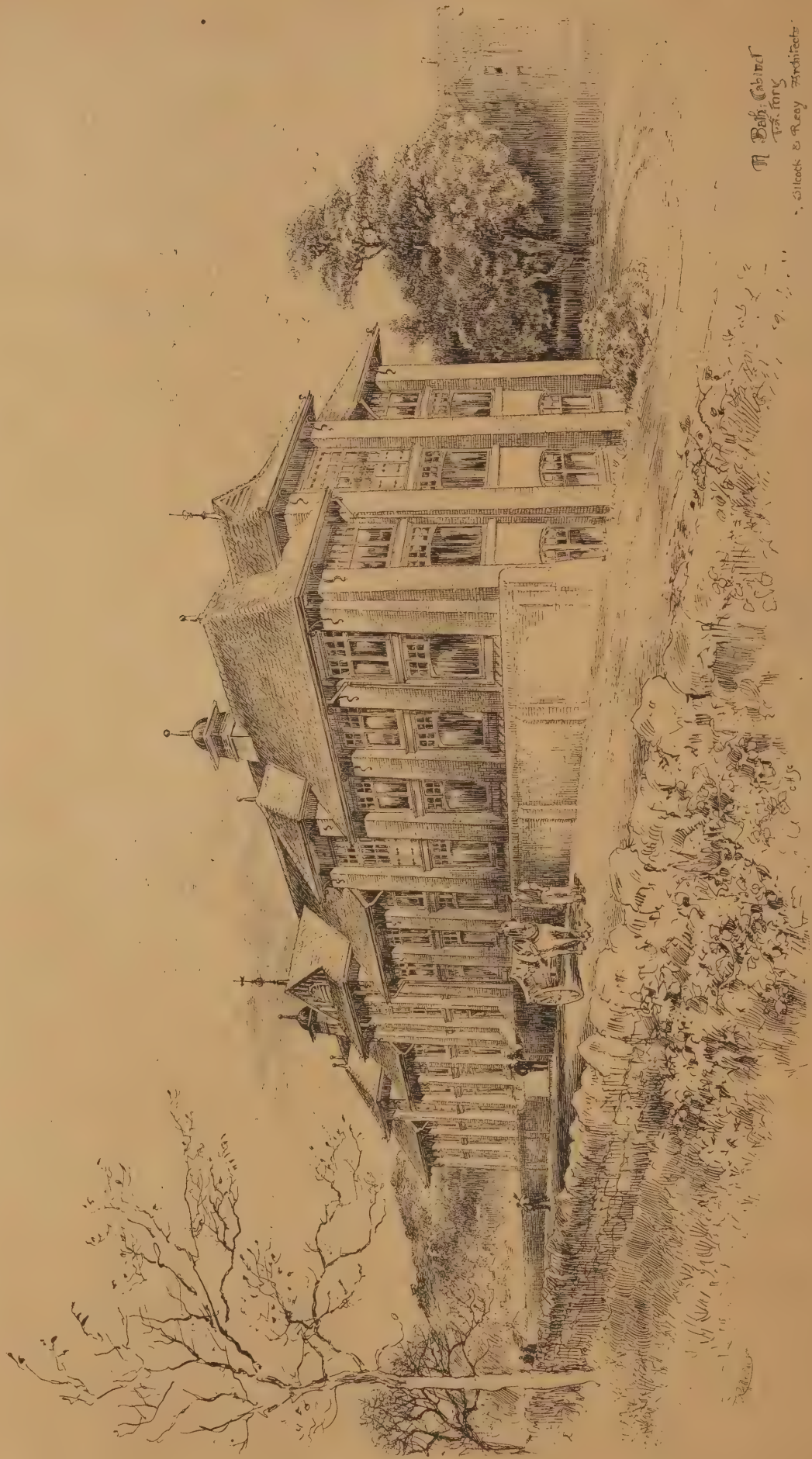
MR. A. DARBYSHIRE, under whose direction the restoration of Ordsal Hall, Manchester, is being carried out, recently described the plan of the works in progress to the members of the Antiquarian Society, who visited the hall. Mr. Darbyshire explained that the restoration is part of a plan which includes the building of a Church close by the hall, and of a parsonage-house. The hall itself when restored will be used for Church mission purposes. The whole cost will be borne by Earl Egerton of Tatton, and altogether it will reach about £10,000. The principal hall, of fourteenth century design, has been made to appear very like what it was several hundreds of years ago. When the work was begun the interior was found to be crusted over with dirt and plaster. Both have been removed, and the fine carved oak beams of the ceiling laid bare. The oaken woodwork of the outer wall has also been renewed, but only where necessary, with beams from timber felled in Tatton Park. The floor of the hall, which must have been relaid in comparatively recent years, was in fairly good condition, and it has not been moved. Had it been unsound a new floor could have been laid about a foot lower. This would have been preferable, as the former "restorers" unfortunately raised the floor, and so obscured the proportions of the oak pillars which support the roof. In former times additions appear to have been made to the hall, both to the east and to the west, by its succeeding owners, according to the design then in vogue. The westward portion, for instance, which was built by Sir A. Radcliffe about the middle of the seventeenth century, is wholly different from the great hall. It will be renewed where necessary, and used as a Church and mission offices. On the east it is supposed that the Oratory stood formerly, and there are some curious old rooms, one of them with the secret chamber which so often figures in novels dealing with life in the Stuart period. This chamber, really a hiding-place in the roof, has been laid bare. It is hoped that the Oratory may, as far as possible, be again made as it was formerly. The Church, to be built to the eastward of the hall, is to be of similar design to the hall, and a quantity of oak timber, taken years ago from the old Church of St. Mary—now replaced by the Cathedral—will be used in its construction.

At the meeting of the Calverley District Council last week, tenders for the sewage works were considered, and that of Mr. J. W. Greaves, of Calverley, was accepted, subject to the execution of the proper contract and security. The work will include the construction of precipitation tanks, the extension of the outfall sewer, and other necessary works.



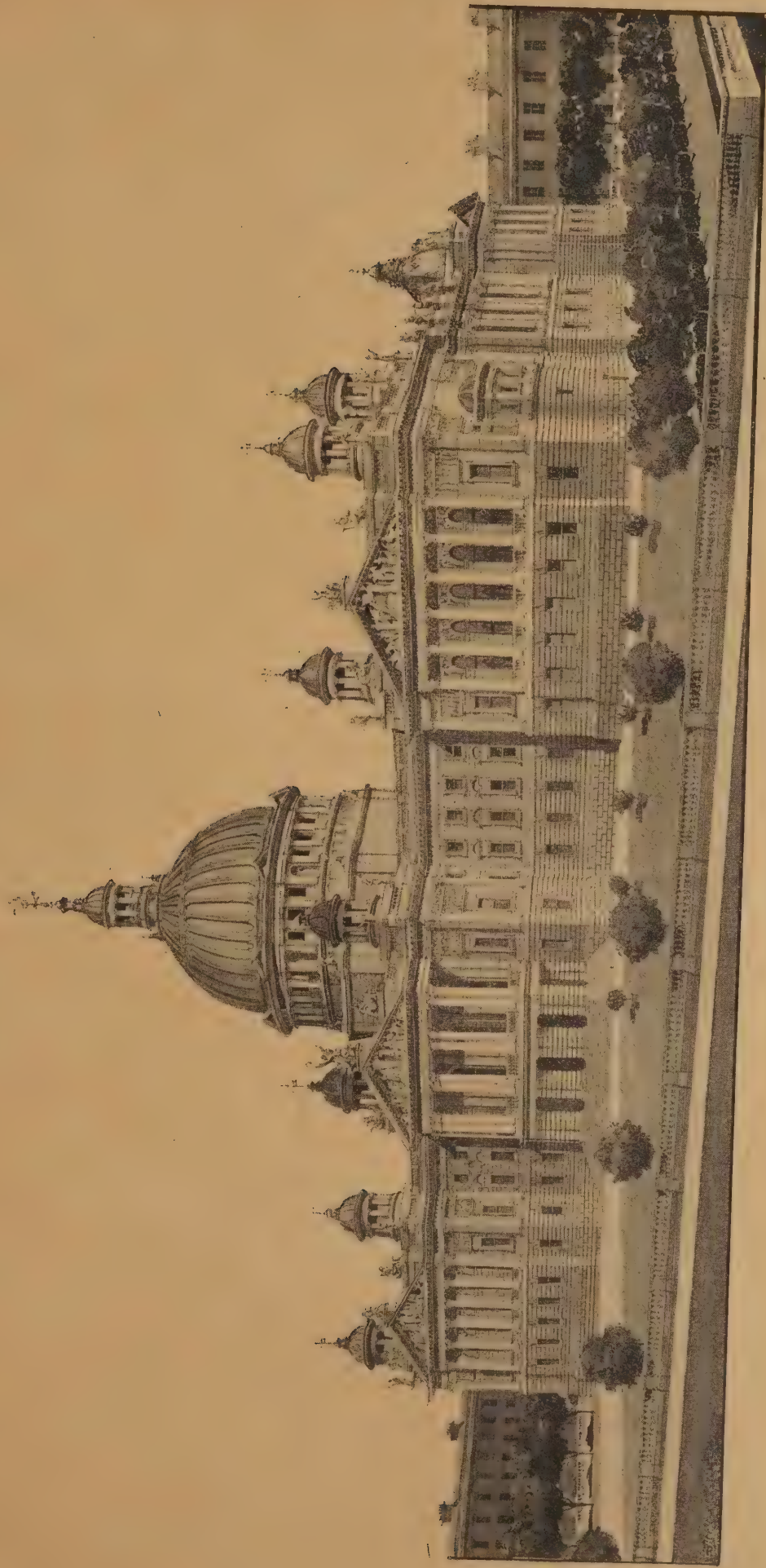
LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





A Bath Cabinet  
Factory  
Silcock & Reay Architects





DESIGN FOR CITY HALL, BELFAST. BY MESSRS. GRAEME-WATT AND TULLOCH.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

July 7th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

IN order to make room for the memorial of Lord Leighton, the Dean and Chapter of St. Paul's Cathedral have decided, in spite of vigorous protests, to remove to the crypt the fine monument erected in the year 1802 to the memory of Commander Burgess, of His Majesty's ship the *Ardent*, who was killed in a daring and successful attempt to break the enemy's line near Camperdown on Oct. 11th, 1797. The monument is situated at the western end of the south aisle, close to the Wellington Chapel. It is the work of Mr. Thomas Banks, R.A., and consists of a sarcophagus suitably ornamented, on the top of which are two large figures. The female form, symbolical of victory, is represented as placing a sword in the hands of the gallant sailor. The figure of the commander is a fine piece of work, and the likeness is said to be extremely good. The Burgess monument was erected in accordance with the unanimous request of the Legislature, and it will be a crying scandal if the Dean and Chapter persist in their avowed intention of relegating to the obscurity of the crypt a monument "raised by a grateful country to one of those heroes who, under the blessing of Providence, have established and maintained her naval supremacy and her exalted rank among nations."

MR. SPIELMANN makes a very sensible suggestion in the *Contemporary Review* regarding the housing of the Wallace collection. There have been no fewer than seven separate schemes proposed, though only two have been reserved for final decision—the acquisition of Hertford House, and the erection of a gallery on the west of and in immediate proximity to the National Gallery. It is this last that Mr. Spielmann advocates. There would be several advantages in combining the collections, not the least important arising from the fact that that of Sir Richard is strong where the National Gallery is weak, and "by arranging the new palace of art beside the old, a complete panorama of the world's art would be presented to the student's eager gaze." Besides, the risk of fire to which the National Gallery is at present exposed from its proximity to St. George's Barracks would be entirely got rid of. Such a building as is proposed would, of course, cost a considerable sum of money, but so would any other scheme. As, however, the Gallery would inclose a collection the value of which has been estimated at about three millions sterling, it is to be hoped that no silly notions of niggardly economy will be allowed to prevail.

ALTHOUGH Gray's Inn is the smallest of the Inns of Court, it is in many respects the most interesting. There is a certain picturesqueness about the old brick houses with their red-tiled roofs that you will rarely meet with elsewhere in London. And the gardens are finer than those of any of the other Inns of Court. The main avenue, with its immemorial elms and shady sycamores, is, doubtless, not much changed since the days of good

Queen Bess. But the peculiar pride and glory of Gray's Inn is its ancient hall. Somewhat insignificant externally, inside it is, perhaps, as striking as any of the sort in England. The roof, dating from the sixteenth century, is a fine example of the Gothic style. The beautifully carved screen which supports the minstrel gallery, as well as the long oak dining tables, is said to be made of wood taken from the ships of the Spanish Armada. Tradition has it also that both screen and tables are gifts of Queen Elizabeth. There is, indeed, something mediæval in the atmosphere of this grand old place, with its air of remoteness from the hurry and bustle of the nineteenth century.

THE completion of the present restoration of the north-west gable of Peterborough Cathedral was marked by an interesting ceremony on Friday afternoon, Dean Ingram, Canon Clayton, and several others being present to witness the placing in position of the cross which terminates the gable. The whole of the cross, with its original base, was lifted into position in one piece. The work has been most satisfactorily carried out, and very few new stones have had to be introduced to take the place of those which were completely ruined by the weather. There are only two new stones in the outside order of the great arch, and with the exception of two small patches the large string course has been replaced intact.

AN interesting Inn—the "King's Arms," Lancaster—intimately associated with Charles Dickens, was recently almost burnt to the ground. It is, perhaps, not generally known that the "King's Arms" is the identical hotel at which Charles Dickens and Wilkie Collins sojourned during a trip they made together in 1857, when they wrote an account of their adventures, soon afterwards published in "Household Words" under the title of "The Lazy Tour of the Two Idle Apprentices." The Inn is described by Dickens as "a genuine old house of a very quaint description, teeming with old carvings, and beams, and panels, and having an excellent old staircase, with a gallery or upper staircase cut off from it by a curious fencework of old oak, or of the old Honduras mahogany wood. It was, and is, and will be, for many a long year to come, a remarkably picturesque house; and a certain grave mystery lurking in the depth of the old mahogany panels, as if they were so many deep pools of dark water—such, indeed, as they had been much among when they were trees—gave it a very mysterious character after nightfall."

A PROPOSAL will shortly come before the London County Council for the construction of a suitable embankment along the whole river frontage of Battersea Park. The existing river wall is of a very slight nature, and a large proportion of it is in an extremely bad condition. The Parks and Open Spaces Committee of the Council, which is making the present proposal, states that the present wall may be described as a mere skin of concrete blocks, generally 9in. in thickness, and in some cases less. For some years past it has been the practice to patch the worst places from time to time at an annual outlay of some £400 or £500. The result, however, has not been satisfactory, and the deterioration which has arisen in past years has not been overtaken, so that the wall is steadily growing worse. The Council's engineer reported in 1895 that the cost of putting the wall into a proper state of repair, if undertaken at that time, would be about £6000, and that even then there would be a subsequent annual charge of about £200 for its maintenance. Under these circumstances the committee is firmly of opinion that the best and most economical course would be to reconstruct the wall in a substantial manner. The length of the river front of the park is about 1300 yards, or about three-quarters of a mile, and the engineer estimates that a granite-faced wall with a granite parapet can be constructed there for the sum of £43,500. In view of the large recurring charge for maintaining the

existing wall, and of the economy that would ultimately be effected by the substitution for it of a permanent granite embankment, and also taking into account the enhancement of the appearance of the park, the committee strongly recommends the Council to adopt its scheme.

AN instructive instance of the enterprise of English firms is afforded by the report just published from Lord Cromer on the subject of bridge-building in Egypt. In the first place, Lord Cromer ventures to point out that it is a mistake to suppose because a bridge has been too cheaply constructed and has consequently broken down that therefore the most expensive offer should for the future be accepted. The English offers, he says, have invariably been higher than those of any other nation for the construction of bridges. In the case of the Embabeh Bridge, which has recently collapsed, seven offers were received. Of this number one was from an English firm; it amounted to £138,000. The next two offers, each of £96,000, were from a German and a local firm respectively. The lowest offer, £67,340, was from an Italian firm. So that Italy was willing to undertake the project at less than half the price demanded by England. The contract was eventually given to a French firm at £81,200. Even after the £33,000 which now has to be expended on strengthening the bridge has been paid, the total cost to the Egyptian Government will only be £114,200, or nearly £24,000 less than the English offer. Lord Cromer gives another example of the very high prices asked by English firms. The English bridge builders have at times complained of the system under which they have had to prepare their own designs. After much trouble this system was changed. Designs were prepared by the Egyptian Government for certain iron bridges, and tenders were invited. At the time the Government thought the total cost would come to about £7000. Ten firms competed. The English, as usual, headed the list with an estimate of £16,619. A French firm came next asking nearly £7000 less. The lowest estimate of £5807, was tendered by a Belgian firm. It can hardly be contended, in the face of these figures, that it would have been possible to accept the English offer.

LAST week there was a "field" day at Sotheby's, and a record one in the history of English book sales by auction, about 150 lots realising a total of close on £10,000. With one exception (a Bible) every article was sold, and in this respect the Ashburnham library was the most notable which has come under the hammer for very many years. The day's sale commenced with an extraordinarily rare Block Book, the *Biblia Pauperum*, impressed on forty leaves on one side only, and dating from about the year 1430; this realised £1050. The principal interest was centred, however, in the vellum copy of the first printed edition of the Bible, and the first book executed with metal types, the work of Gutenberg and Fust of about 1450-55. This copy, for which the late Earl of Ashburnham paid £3400 at the Perkins sale in 1873, is the most splendidly decorated copy of the few that are now known. It realised £4000, which is £100 more than the amount paid a few years ago for Sir John Thorold's copy on paper, and which is, moreover, the highest price ever paid for a copy of this book. For a copy of the second edition of the Latin Bible, also printed on vellum, but the first printed Latin Bible with a date—i.e., 1462, from the press of Fust and Schoeffer, the sum of £1500 was paid—the Thorold copy realised £1000, whilst that in the Sunderland library fetched £1600. On the following day two remarkable prices were obtained. A fine copy, with four miniatures, of Boccaccio's "De la Ruine des Nobles Hommes et Femmes," a folio printed in 1476, but of which several of the early pages were in facsimile, sold for £695. The Sunderland copy, the last one sold in England, and without the miniatures, produced £960. "Boetius de Consolatione Philosophiæ," translated into English by the poet Chaucer, and printed by Caxton, fetched £510.



Mr. G. C. HARRÉ, whose work, whatever may be the medium in which it is expressed, never fails to interest, opened at 118, New Bond Street, last week an Exhibition of "One Hundred Lilliputian Pictures in Oil." These consist of views in London, landscapes in various parts of England, and subjects found in Venice, Holland, and many other countries where the Artist has wandered in search of material.

At the Croydon County Court last week Judge Lushington made some vigorous comments upon the commercial morality of builders. Addressing his remarks to a builder who appeared as defendant in a judgment summons, his Honour said: "O, you builders, you harden the heart of a judge. I have builder after builder living upon fraud, and defeating his just creditors in every unjust way. The whole trade is degraded, and the good name and fame of the country are injured too." There

Fletcher, Professor Roger Smith, Mr. J. Slater (vice-chairman of the Examining Board of the R.I.B.A.), and Mr. W. H. Pratt (president of the Architectural Association). Silver medals were awarded to Mr. J. C. Brown, Mr. J. Crewdson, and Mr. H. C. Williams.

THERE was a keen contest at Christie's last week over the drawings by Rossetti and Sir E. Burne-Jones from the collection of the late G. P. Boyce, R.W.S., some of the most interesting being bought by Mr. Sidney Colvin for the British Museum. Rossetti's paintings from the same collection were also sold, and the sale included the fine portrait of a young man by Holbein which will be remembered by visitors to Burlington House and the Tudor Exhibition. Though not so important or so perfect as the picture which the nation was too poor to buy at Sir John Millais' sale, it was one of the few genuine examples of this

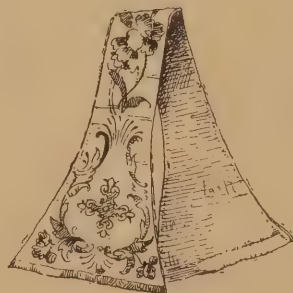
basement are two lifts to convey the students to class-rooms on the upper floors. The ground floor contains a fine central hall, round which are placed the administrative offices of the schools, the principal and vice-principal's rooms, the secretary's office, the situation bureau, waiting-rooms, &c. The class-rooms are large, light, and airy, and will accommodate 1500 pupils. The Architect of the building is Mr. G. D. Martin, of 3, Pall Mall East. The contract for the erection of the school is in the hands of Messrs. Perry and Co., the total cost being estimated at £27,000.

WHILE Kensington Palace has never been without tenants, many of the rooms which may be regarded as the State apartments are in a decaying condition. The dilapidation has been going on for years, and has caused a good deal of anxiety to Her Majesty's Office of Works. The ceilings are giving way, damp

SPANISH CHASUBLE  
16<sup>th</sup> Century



See No. 124



ITALIAN CHASUBLE  
16<sup>th</sup> Century



See No. 152

are doubtless black sheep in every flock, and no doubt Judge Lushington had cause to complain; still, his strictures are severe upon those builders whose work and credit are beyond reproach.

THE results of a year's careful work on the part of the students attending the Carpenters' Company's lectures on the above subjects, were seen when the annual examinations were held at the Hall, in London Wall, and at the Technical Schools in Great Titchfield Street. The main feature of the Company's examinations consists of the practical tests which all the candidates have to undergo, and it was for this part of the proceedings that the schools in Titchfield Street were used. The candidates this year exceeded in numbers all former entries, and the judges had no light task in awarding the prizes, of so excellent a character was all the work executed. Among the examiners acting for the Company were Sir Philip Magnus, Professor Banister

rare master still remaining in private hands in this country.

It has been found necessary to provide much more extensive premises to accommodate the pupils attending Pitman's school. The proprietors accordingly in December last obtained a site at the corner of Russell Square and Southampton Row on which to erect a new building, which, in view of possible extension in the near future, has been arranged so as to form the first wing of a much larger structure. The present building has a frontage of 67ft. and a depth of 110ft. It contains seven floors and a basement, and in the matter of light and air is exceptionally favoured. The front is of red brick with Portland stone facings, and the principal entrance faces into Southampton Row. The building will be illuminated with the electric light, and heated and ventilated on a new American plan. The basement will contain the cloak-rooms and lavatory. Communicating with the main corridor in the

courses affect the walls, and the woodwork is decaying. It is estimated that nearly £30,000 would be required to put the palace in a thorough state of repair, and room has never been found in the Estimates for such a large exceptional expenditure.

"PROBABLY there are few, even amongst archaeologists, who are aware that there are within seven miles of the Bank of England the well-defined remains of a Roman camp," writes Mr. F. A. Edwards. "This camp is situated on Uphall Farm, on the eastern bank of the river Roding, between Ilford and Barking, and is of the usual four-square shape on a slight elevation above what was formerly marshy ground. The vallum, though much reduced by centuries of agricultural operations, is still recognisable on all four sides, whilst on the river side there is a higher elevation, evidently for look-out purposes. Now this relic of the past is threatened with extinction by the irrepressible builder, the farm being advertised for sale as



building land. Cannot the destruction of this antiquity of some fifteen centuries be prevented? If the area could be dedicated to public purposes and the inclosure turned into a garden or even cricket field, it would be of lasting benefit to the fast-growing population of this district. Once destroyed it can never be replaced."

THE widening of Upper Thames Street is now on the point of completion, the last claim having been settled. The work of widening this now much-used thoroughfare was commenced over forty years ago, and bit by bit and house by house the scheme has been carried into effect. The first portion of the improvement having been more or less completed, there remained several projecting properties which marred the street line, and were responsible also for occasional "blocks" in the heavy and increasing traffic which passes along the street all day long. These projecting pro-

#### AN INTERESTING EXHIBITION.

A LARGE collection of antique tapestries, embroideries, brocades, &c., is at present attracting much attention at Messrs. G. J. Waring and Sons' show-rooms in Oxford-street. Art connoisseurs especially have succumbed to the allurements of the artistic catalogue which chronicles the contents of the collection. Apart from its historical importance, the Art of embroidery has, at different periods, been closely associated with the kindred Art of painting—authorities have not hesitated in recognising the supremacy of this ancient Art over painting in the first centuries—and one cannot fail to be much impressed by the marvellous skill of the Artist and the exquisite beauty and splendour of his work, as revealed at Messrs. Waring's Exhibition. The collection embraces examples from all parts of the East, and from the seventh and eighth centuries down to modern times. In early

ture (among which is an oak room from the house of Rubens at Antwerp), antique silver, and a collection of English productions of the "Della Robbia" pottery industry. Both the Architectural and the pottery departments are well represented. From the former department are shown fountains, friezes, symbolic panels, &c., and from the pottery department are circular plaques, card trays, vases, dessert and tea services, &c., the whole showing a remarkable variety of design and intention. We are able to illustrate one or two of the specimens of antique silver which forms an interesting portion of the Exhibition. The missal cover is heavily embossed and chased with figures of the Twelve Apostles, the centre medallions representing "The Crucifixion" and "The Resurrection." The Beaker (569) is of Norwegian origin, and is chased with figures representing the four seasons. The Dutch vase and cover (No. 575) is richly embossed with tableaux of "Moses and the Tables of



Missal Cover  
See No 561

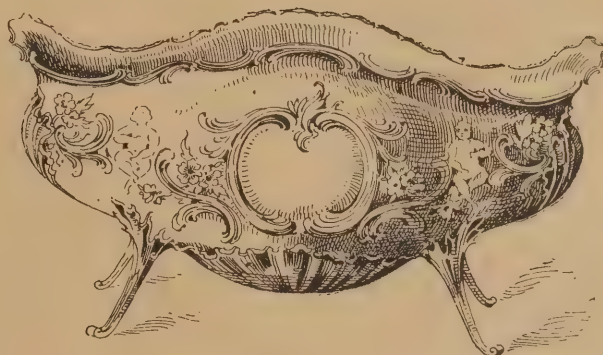


Beaker  
See No 569.

#### ANTIQUE SILVER



Vase & Cover  
See No 575.



Jardiniere  
See No 572.

perties have been acquired by the Commissioners of Sewers, and in the course of a month Upper Thames Street will have a clear street line from Peter's Hill to Queen Victoria Street, and, in addition, it will be paved with Australian hard wood. The cost of the improvement, from start to finish, has been exceedingly heavy.

A SOMEWHAT novel experiment has been successfully performed in Kirk Michael. The proprietors of Glen Wyllin having discovered that their large refreshment rooms were wrongly placed in the glen, decided to have them moved to a more convenient quarter. Instead of pulling down the structures, Mr. Jno. D. Kelly, contractor, Kirk Michael, has carefully stayed and bolted the various parts of the refreshment rooms, fastened a strong wire rope round the whole, and with the help of a traction engine dragged the buildings bodily a long distance up the glen.

days the Art of embroidery seems to have been much favoured by Royalty, and the rivalry to excel, fostered by the beneficent rays of popularity, resulted not only in the production of some magnificent examples, but, about the sixteenth century, in the perfection in the Art of needlework. By this time embroidery had extended itself from the Church, to which heretofore it had mainly been confined, and invaded many branches of Art. Schools of embroidery developed in Italy and France, Milan and Florence became famous centres. Of the various schools, the oldest in origin was that derived from Oriental works. Then comes the Italian School, characterised by the marvellous elegance of its arabesques. Lastly, we have the French School, with its realistic tendencies. Of these schools, and of the best periods, the present collection will be found fully representative. The Exhibition also includes many fine examples of antique furni-

ture "and "The Worshipping of the Golden Calf," the remaining ornamentation being scroll-work and clusters of fruit. No. 572 is a Dutch Jardiniere, of graceful design, of the Louis XV. period, chased and embossed. The Spanish chasuble illustrated is of the sixteenth century; the centre embroidered on red velvet with arabesques and saints. No. 152 is a fine specimen of a sixteenth century Italian chasuble and apparel, with silver and coloured silk embroidery, on a yellow silk ground.

WITHIN the past few days the Burgomaster and Sheriffs celebrated the 200th anniversary of the rebuilding of the historic Grande Place adjoining the Hotel de Ville, Brussels. This famous square has been recently restored in harmony with its sixteenth century traditions, and forms the most perfect example extant of that period when the Early Renaissance was supplanting the Gothic style of Architecture.



## Professional Items.

**ABERDEEN.**—A committee of the Town Council was held last week to consider the altered plans of the elevation of the new Fire Brigade Station. Mr. Mackinnon, the Architect for the new buildings, was present, and submitted designs of the elevation as altered. These showed a story added to the main building, making it three stories instead of two, which, while improving the appearance of the elevation, provides accommodation for three additional married firemen—saving extension in case of future additions to the staff. An additional story has also been put on the Firemaster's house at the end of the main building, providing accommodation there for the Assistant Firemaster. There is also an additional workshop at the back. The pavilion roof of the main building has been discarded, and in its place there is now an imposing elevation, marked with an effective granite balustrade, and other architectural features. The cost of the design is increased by the alterations. The original design was estimated to cost £10,400. As submitted to the committee a fortnight ago, with several alterations suggested by the committee, the design was estimated to cost £11,625. As now submitted, with further alterations, it is estimated to cost £12,215. The sub-committee resolved unanimously to recommend that the design as now submitted be adopted.

At a meeting of the Finance Committee of the Aberdeen Town Council the question of the site for the new Post Office was under consideration. Two schemes were under discussion. The first proposal was to the effect that the depths in rear of the Queen's statue in St. Nicholas Street should be filled up, the block of property from the Wallace Tower to St. Nicholas Street cleared away, as well as other property for some distance further along St. Nicholas Street; that St. Nicholas Street should be made a street at that part 70ft. wide, or flush with the gable of the Town and County Bank buildings; and that the new Post Office should be erected on part of the cleared ground about the foot of Netherkirk-gate, with a frontage to St. Nicholas Street. This, it was urged, would not only provide a central site for the Post Office, but would effect at the same time a decided city improvement in respect alike of the widening of St. Nicholas Street and the clearing away of a considerable amount of congested dwellings lying between Guestrow and St. Nicholas Street. The view was expressed that the proprietors in the neighbourhood might be willing, in view of all the circumstances, to accept a fair and reasonable sum for the property required to enable the improvement to be carried out. In the event of this scheme proving too costly, a second one was in view. This was to acquire as a site for the Post Office the block lying between Gaelic Lane and Little Belmont Street; widening Gaelic Lane considerably so as to make it a thoroughfare of 50ft.; and, if necessary, closing up or diverting Little Belmont Street and providing a frontage for the Post Office either to Gaelic Lane, Back Wynd, or Little Belmont Street. The feeling of the committee was in favour of the St. Nicholas Street scheme, but it was remitted to the burgh surveyor to bring up to a future meeting a report as to the amount of property that would have to be acquired in connection with both schemes.

**BATH.**—Mr. F. H. Tulloch, C.E., Local Government Board Inspector, recently held an inquiry, at the Guildhall, respecting the applications of the Urban Sanitary Authority for power to borrow sums of £6880 and £3750 for electric light works. The former amount was part of a sum which the Board declined to sanction the raising of, after a previous inquiry, last October, and was for extension of mains and expenses incurred in opposing the company's application for a provisional order, and the purchase of their undertaking. The £3750 was for new foundations for the new and heavier plant to be put down; a new roof to the works, and other expenses at the station.

Mr. J. F. Meehan opposed the application as to extensions, contending that it was premature, and that the works should be first placed in a thoroughly satisfactory and efficient state. The Inspector at the same time inquired as to a proposed loan of £5000 for removing wood pavement in several streets, and for laying wood down instead of stone on the west side of Queen Square.

**BEXHILL.**—The new Congregational Church in Station Road was opened on Wednesday. The building is but the larger portion of a scheme which comprises the Victoria Hall, built in 1887 at a cost of £1700. The total estimate for the whole scheme, including Church and hall, with furniture, was £3900, of which £1800 was set aside for the former. The Church presents a substantial appearance. The site was an extremely awkward one upon which to erect a Church, but the Architect has erected an L-shaped structure, and has economically utilised the space by adding a side projecting aisle, which forms a bay. The building is constructed of red bricks, with a permanent green slate roof, late Gothic style of Architecture being adopted. A spire, covered with oak shingles and Elliott's patent stone dressing, rises up a considerable distance above the north-eastern corner of the roof. At the opposite corner a small ornamental turret serves as a buttress to the clerestory, and also forms a relief to the gable, the apex of which is carved stone. The building is surrounded by an oak pale fence, shaped to design, with handsome posts at the entrance gates. At the south side of the Church a private entrance leads to the vestry, which is situated at the extreme western end, and from here direct access is obtained to the dais, upon which the pulpit is placed. The vestry is also connected with the platform of the Victoria Hall, and is fitted with complete lavatory accommodation. The northern entrance forms a lobby, leading to the Church, the heating chamber, and other offices, as well as the lower portion of the Victoria Hall. The interior of the Church is divided into a nave and two aisles, the seating being arranged in semi-circular fashion. There is a spacious gallery at the eastern end, which will accommodate some eighty persons. The whole building will comfortably seat 556 persons.

**BOCKING.**—The new Church of St. Peter, Bocking End, built as a chapel-of-ease to the Parish Church, was consecrated recently. The Church stands upon a site adjoining the Braintree and Bocking Public Gardens. The design was prepared by Mr. J. T. Micklethwaite, and the building was entrusted to Mr. W. Parmenter. The committee directed the Architect to design the Church to hold about 600 persons, but in such a way that part only—itsself forming a complete Church—should be built first, for the accommodation of 300. The parts completed are the nave, with its clerestory, the chancel, the lower part of the tower, which adjoins the chancel, and the vestries, with temporary porches to two doors near the west end. The walls are of stock brick, plastered inside and rough cast outside, and with red brick quoins and plinths. The roof is of red tiles. The ceiling is of wood, ribbed, and painted white. The floor of the nave is laid with oak blocks, and that of the chancel with stone quarries, on a level with the floor of the nave. The carved oak pulpit was purchased with a gift of £50, by the trustees of Christ Church, Braintree, on the dissolution of that place of worship. The rest of the Church furniture, with the exception of a few separate gifts, was provided out of the bequest. The nave is temporarily seated with chairs. The font is of plain Portland stone. There are four arches on either side of the nave resting on stone pillars standing in full relief from the plain brick walls.

**BRIGHOUSE.**—The Town Council has accepted the tender of Mr. Geo. Taylor, contractor, Brighouse, for the erection of buildings, &c., at the sewage outfall works at Cooper Bridge in connection with the Corporation's sewage scheme. Already £21,299 has been spent on the sewage scheme, including the sum

of £15,000 for the purchase of the land at the outfall works. Mr. Taylor is now engaged on the contract—the construction of sewers—amounting to the sum of £43,000.

**CRAIGMILLAR.**—A Church is about to be erected at East Suffolk Road. The building will accommodate 709 seatholders, and the hall and class-room will afford sitting room for 270 additional persons. Situated at the east end of East Suffolk Road, Craigmillar Park, the building will run east and west, and will consist of nave, with passages, aisles, transepts, apse, hall, and class-room; while provision will be made for future extension in the shape of session-house and ladies' rooms, &c. A doorway through the tower will form the principal entrance to the Church, and access will thereby be given to a vestibule extending along the whole west end of the building, with an exit porch at the opposite side from the tower. There will be a gallery at the back or west end of the Church, and the style of Architecture adopted by the Architects will be of the decorated Gothic period. On the west gable will be a seven-light window, with buttresses at the sides, and the clerestory will have a range of four three-light windows, the transepts being lit by a three-light window in each gable. The apse will have a single-light window in each bay, which will be filled with stained glass. A special feature will be that the hall will be of an octagonal shape on plan, to suit the ground, rather suggesting the chapter-house of a Cathedral. The contracts for the hall and offices have been already taken, and the Church will be proceeded with as soon as that part of the work is finished. Red stone from Cornoskle and Hailes Quarries will be utilised, and green slates from Buttermere will be used. The Architects are Messrs. Sydney Mitchell and Wilson.

**DARLINGTON.**—During the last 30 years the post office premises in Northgate have been thrice extended, and what was originally a large garden in rear of the original building has been gradually incorporated until not a foot of available space was left for further extensions. The need for further accommodation has become imperative. The owners of the land at the south side of Crown Street were approached, and a plot acquired with an area of 665 square yards for further jected extensions. The work of extension is expected to commence immediately. The post-office at present possesses a road between this building and the premises of Mr. W. Harding, and also has a right of way through into Priestgate, and it is supposed that one result of the extension will be that the road under the archway in Northgate will be carried further east and then south into Priestgate.

**FORMBY.**—The pretty little Church of Formby, consisting of a nave only, has recently been enlarged. The Church, designed in the Early Decorative period of Gothic Architecture, has now additions of chancel and transepts. The present Church stands near the site of a mediæval Church which has long disappeared, but of which some interesting archaeological remains still exist, and many old stones lying about the site belonging to the old Church, including the old font, have been collected by Mr. Jonathan Formby, barrister, and now form a very pretty feature, grouped together at the west end of the Church. The new chancel has carved oak stalls and vicar's reading desk, with a beautiful stained glass window, the work of Mr. Rowlands, of Slater Street, Liverpool. The south transept is for the purposes of the organ and a vestry for the choir. The organ has been considerably improved by the organ builders, Messrs. Hardy, of Stockport, and the front decorated by Mr. James Smith, of Waver-tree. The Architectural work has been entrusted to Mr. William Parslow, the sole contractor being Mr. James Taylor, of Blundellsands. The masonry has been carried out by Mr. T. Taylor; Messrs. Paterson and Son, of Liverpool, have executed the joiners' work; Messrs. Clark and Taylor, the plumbing and decorating; and Mr. Littleton, the slating and plastering. The heating of the Church has



been carried out by Messrs. J. E. Cooper and Sons, of Liverpool. The cost of the additions of chancel and vestries amounts to about £1500, and the renovation and decoration of the west end will be covered by an expenditure of between £200 and £300.

**GLASNEVIN.**—The Chapel just erected in honour of the Sacred Heart at the St. Vincent de Paul Orphanage, Glasnevin, is a pretty edifice, in the Romanesque style of Architecture, corresponding with the Orphanage. It consists of a nave and chancel, with sacristy adjoining. Its length is 72ft., its width 24ft., and its height 32ft. It is lighted by six windows on each side, and three over the chancel and nave. The roof of the nave is open; it is of pitch pine, stained and varnished, with curved principals springing off Portland stone corbels on each side. The roof of the chancel is moulded and panelled. The chancel arch is of red Aberdeen columns with stone caps, annulets, and bases, the caps being carved. At the end of the Church facing the altar is a gallery with ornamental front in pitch pine; it is approached by a circular staircase. The Communion rail, the work of Messrs. J. McLoughlin and Son, is of wrought iron and brass. The benches, which have not yet been completed, are being executed by Messrs. Noonan Brothers, Bolton-street. The Church is built of black limestone, with chiselled granite coign. The Architect is Mr. George C. Ashlin, R.H.A., and the contractors Messrs. Conolly and Son. The cost of building the Church is estimated at about £2400.

**GUISELEY.**—At a meeting of the Guiseley District Council last week Messrs. S. Mounsey and Sons submitted plans showing the conversion of the old Wesleyan Chapel into public baths. It appeared that the main sewer in Town Street was not low enough to take the waste water from the proposed baths, and it was proposed that the Council take steps to lower the main sewer to such a depth as would drain the baths, the approximate cost of this being stated to be from £25 to £30. The plans were approved.

**HEADLESS CROSS.**—During the gale on March 24th, 1895, the Wesleyan Chapel, which was erected in 1873, was totally destroyed. Energetic efforts were at once commenced to replace the building, with the result that the opening services of the new building took place last week. The style of the new Church, which is 65ft. in length and 41ft. wide, is Tudor Gothic, and the materials used are red brick with stone dressings, and joinery of deal and pitch-pine, stained and varnished. One of the principal features of the elevation is a tower and stone spire of about 70ft. in height, the latter being constructed of open tracery work. The plan consists of nave, with lean-to aisles and clerestory. The windows are glazed with slightly tinted leaded lights of geometrical design, supplied by Mr. T. H. Yates, of High Street, Smethwick. The Church will seat about 400 persons, including the accommodation of gallery, which is arranged over the main entrance corridor and lobbies. There is a minister's and choir vestry, with separate entrances, and suitable lavatory arrangements. The choir seats are arranged on each side of the chancel, and the organ-chamber placed on one of the sides. The Church, schools, and class-rooms are heated by means of a low-pressure hot-water apparatus, and have efficient ventilators. The floor of the Church is laid with a gradient towards the pulpit, the aisles being of solid blocks upon concrete. The pulpit is octagonal in plan and constructed in pitch-pine, having panels filled with rich tracery. The wrought-iron fencing and gas-fittings have been supplied by Mr. E. Glover, of Dudley Road, Birmingham. The builder is Mr. Henry Surman, of Redditch, and the Architects are Messrs. Ewen and J. Alfred Harper, of Colmore Row, Birmingham. The cost of the structure is about £2500.

**HULL.**—The scheme for the reconstruction of the Hull tramway system came before the Works Committee of the City Corporation recently. As the question of wood pavement

on various roads was included, the committee had to take into consideration the cost of construction of the proposed new system, and also the estimates of the cost of the paving of the large thoroughfares through which the trams run, with wood. The total cost of reconstruction of the system and wood paving was put down at £272,000. It was decided to adopt the Borough Engineer's estimate, and recommend it to the City Council for adoption.

**KIRKHEATON.**—A new chancel screen has been erected at Kirkheaton Church. The rails are of wrought-iron, surmounting a low stone wall on the chancel steps. In the central portion is a gate which opens inwards, and through it access from the nave to the chancel is gained. A large reredos is also to be erected in memory of the late Mr. W. E. Hirst. The reredos will be of oak, richly carved, and is expected to be ready by the middle of August.

**KIRRIEMUIR.**—The buildings of the Parish Council are to be replaced by a new building. Messrs. L. and J. Falconer, Architects, Blairgowrie, were commissioned to prepare plans and take in estimates for the work, and it has been agreed to accept the tenders of the following tradesmen, all of Kirriemuir:—Masons, Messrs. Crabb and Ballentine; joiner, Mr. Charles Ogilvy; slater, Mr. Thomas Donaldson; plumber, Mr. Alexander Fyffe; plasterer, Mr. George Munro. The building will be built of stone from Ballinshoe Quarry. All the sides of door and window openings are moulded with hood mouldings and rubble arches over them. The accommodation consists of large entrance hall, public offices, with fire-proof strong room. The Council Halls have a coved ceiling, and panelled dado 5ft. high all round the walls, oak chimney-piece, and polished floors. The entrance Hall and lavatories are all laid with encaustic tiles, and all the woodwork is to be pitch pine varnished.

**LEEDS.**—At a meeting of the Leeds Board of Guardians last week—Mr. A. Hobson, vice-chairman, presiding—it was reported that the Finance Committee had considered Mr. Wilson's scheme for the raising of a sum of £20,000 by loan to defray the cost of altering the laundry and building new imbecile wards. The money, it was suggested, should be repaid in a term of thirty years—the Leeds proportion to be repaid from the balance of Consols standing in the name of that township. As an alternative scheme it was suggested that instead of raising a loan from outside, the Leeds township, as suggested by the Local Government Board in 1895, should lend to the Union the remaining portion of the £20,669 Consols after the payment of £6377 for the Nurses' Home, at the same rate of interest (2½ per cent.) now received on the Consols, to be repaid in the time of thirty years; the Leeds proportion of each repayment being credited to that township, and the out-townships' proportion being also paid to the credit of Leeds, thereby enabling the Union to benefit by the payment of interest on the loan in place of an outside body. Ultimately it was resolved that the clerk be instructed to apply to the Local Government Board for an order to realise the balance of the Consols standing in the name of the township of Leeds (or so much of it as may be required), and to sanction the loan to the Union for thirty years of the amount realised for the purposes of building the imbecile wards, altering the laundry, &c.

**LEWISHAM.**—The Prince and Princess of Wales have fixed Monday, July 12th, to open a new hospital erected by the Metropolitan Asylums Board for the treatment of scarlet fever, diphtheria, and enteric fever at Hither Green, near Lewisham. The hospital in question is said to be the largest for acute cases of fever in the United Kingdom. The buildings are forty-two in number. There are eighteen pavilions, containing 108 wards, varying in size from those for single beds to others 120ft. long for twenty beds, with separate residences for the officials and larger "homes" for the male servants, the female servants, and for the nurses. This last consists of three

blocks containing about 200 rooms in all. The Architectural scheme places the servants, kitchens, stores, &c., in the centre, with a water and clock tower, and to the east, west, and south of this centre are grouped the various pavilions for the different diseases, all separated one from another and the whole being connected to the central administration by arcaded covered ways open to the air. Beneath these are subways for steam heaters, water and steam pipes, electric cables, &c. The whole hospital is heated by steam and hot water, lighted by electricity, fitted with fire appliances and electric alarms, telephones, and other modern appliances. Wells are being sunk on the site to supply water from the chalk, the estimated maximum daily consumption being over 200 tons. An apparatus is provided for softening the water before it enters pipes and boilers. All the cooking is by gas or steam, and the walls of the kitchen buildings are lined with glass. The Architect of the hospital is Mr. Edwin T. Hall.

**LIVERPOOL.**—The Great Northern Railway Company has just opened in Liverpool a spacious central dépôt, which occupies the site in the centre of the triangular block of property bounded by Manchester Street, Dale Street, and the Old Haymarket. The dépôt occupies an area of fully 9000 square feet. The main entrances are in Dale Street and the Old Haymarket.

At St. Bridget's, Bevington Hill, an altar in honour of St. Joseph has just been erected. Designed by Messrs. Sinnott, Sinnott, and Powell, Architects, and executed by Messrs. Norbury, Paterson, and Co., of Liverpool, the altar and its super-altar are chiefly of richly-figured and polished alabaster. Columns of polished red marble, arcaded paneling being between, uphold the altar, while the front of the super-altar is embellished with sunken and carved quatrefoils. Caen stone is conspicuously used above the super-altar, together with shafts of green marble, whose bases, bands, and capitals are ingeniously carved. These support a boldly recessed arch adorned with carving, which is topped by a crocketed gable. Panelled and carved pilasters with crocketed pinnacles and finials flank the sides. Both in conception and in working-out the altar of St. Joseph is distinctly good.

**LIVINGSTON.**—A memorial window has been placed in Livingston Free Church. It cost about £300. It occupies the south gable of the Church, and consists of three lancets 25in. in breadth, 13ft., 15ft., 13ft. in length, with a mullion of 14in. between them. Each lance has two groups of figures filling up its length without crowding it, six in all. The other windows have received Cathedral glass, and the two half-length windows over the pulpit have been treated in bright designs—the one symbolising the Law, the other the Gospel. These designs are the work of the firm (Messrs. Dickson and Walker, of Edinburgh) who executed the memorial window.

**LOWESTOFT.**—The new swing bridge at Lowestoft, which is considered to be the finest of its kind in the kingdom, weighs, including its working machinery, just about 350 tons. The two main girders have a length of 118ft., as compared with 100ft. in the old bridge, and the central roadway for vehicular traffic is 19ft. wide. Guarded footways (7ft. wide) formed by cantilevers from the main girders, run each side of the roadway, which has been constructed to bear a practically unlimited strain, it consisting of a corrugated bottom of steel plates with 6in. concrete above, faced with 4in. pine blocks. The top portion of the bridge—which will swing to the west quay—rests upon a great centre girder, the whole structure revolving upon a massive "live-ring" 31ft. 6in. in diameter, and having ninety-eight big rollers. Upon the top of the huge pivot, upon which the centre girder takes its bearing, is an elaborate bearing arrangement of twenty steel rollers, turned true to the radius of the revolving portions, above which is a gigantic screw to admit of lowering or raising the bridge to adjust the weight. Hydraulic power



will be used to swing the bridge into position over the river, and afterwards to tilt it on to the bearing blocks at the opposite side. The overhanging portion of the bridge from the central pivot is 82ft. in length, whilst the balancing end is 36ft., this being weighted with 2300 cast-iron weights, turning the scale at 85 tons, and packed away in a huge receptacle at the extremity of the structure.

MIDDLESBROUGH.—A new lecture hall and schools in connection with the Newport-road Presbyterian Church was opened on June 29th. The new premises are built at the rear of the Church and at the corner of Hill Street and Johnson Street. The main entrance from Hill Street gives access to the three rooms on the ground floor. The class-room is 32ft. by 21ft.; vestry and managers' room, 17ft. by 12ft.; another class-room, 21ft. by 17ft. There is also boiler-house, w.c.'s, and lavatory, and an additional access from Newport Road leading by the side of the Church. The large hall on the first floor is reached by a wide staircase formed throughout with cement concrete. This it is intended to sub-divide by movable partitions into two, so as to form retiring-room and platform at the rear. Access is also gained to this hall by a separate entrance from Johnson-street. It was originally intended to heat the large class-room and the hall by open fireplaces, but the committee decided to substitute closed slow combustion stoves. The rooms are well lighted with large windows, the upper part being made to open for ventilation, and also fitted with Boyle's ventilators on the ridge of roof. There are also large ventilating grates fixed into the flues below the ceiling for the same object. The Hill Street elevation is faced with white bricks in keeping with the Church, and the Johnson Street elevation with common bricks, with Normanby red pressed brick arches and dressings. Between the joists of the first floor it is treated with slag wool for sound deadening purposes. Each room in the hall has stained and varnished dado about 4ft. high, and where possible all the internal woodwork is treated in the same manner. The Architect is Mr. Walter G. Roberts, of 61, Albert Road, and the contractors were Messrs. Hudson Brothers, of Middlesbrough.

MORLEY.—A new Baptist Chapel was opened at Morley on the 29th ult. The cost of the building, which includes a series of class-rooms and an assembly-hall, was about £3200. The building is in the Classic style of Architecture, and the designs were prepared by Mr. Walter Hanstock, of Leeds and Batley. The whole of the external walls are in stone, with ashlar dressings, from the Morley quarries, and the interior woodwork is pitch pine, varnished.

OLDHAM.—The Town Clerk recently submitted to the Oldham Finance and General Purposes Committee a sketch of the enlargements and improvements to be carried out at the General Post Office, Union Street. He said that the Library Committee had agreed to give to the Government a plot of land to enable the extension of the present buildings to be carried out subject to certain rights being reserved to the Corporation, and also subject to certain improvements in the existing front elevation. It was thought the plan of the present office was a poor one, particularly as it had the Free Library on one side and the Science and Art School on the other. In the first instance the Government did not intend to alter the appearance of the existing building beyond making it two bays longer, but now it was its intention to improve the whole of the front and side elevation. The walls would have plenty of stone about them, and there would be ornamental pillars in the centre of the front of the building.

PUDSEY.—The old "clock Chapel" at Pudsey is about to be replaced by a more imposing building. The first stage in the erection of the new building was commemorated by the laying of memorial-stones last week. The site of the new chapel is that which has been occupied by the old building. The Architect of

the new Chapel is Mr. W. H. Dinsley, of Chorley, and the style of Architecture Free Corinthian. Accommodation will be provided for 1000 persons. The building will contain a gallery on three sides, the fourth being occupied by the rostrum and Communion table, from which the pews will radiate. The exterior will be of Yorkshire stone, the walling of the front of dressed ashlar. In the centre of the front elevation will be a handsome portico, flanked on the left by a tower, covered with sheet copper, in which provision will be made for a clock with two dials. The total cost of the building is estimated at £7000, of which more than half has already been raised. The contracts have been let as follows:—Brick-laying and masonry, Mr. Wm. Hutton, Pudsey; joiner's work, Messrs. Appleyard Bros., Bramley; glaziers and painters, Messrs. Higginbotham, Idle.

SCARBOROUGH.—Mr. Herbert Richardson, of the Engineer's Department of the Middlesbrough Corporation, has been appointed deputy engineer and surveyor to the Scarborough Corporation, the vacancy having been caused by the appointment of Mr. George Ball, who held the office, to the surveyorship of Bexhill-on-Sea. There were originally fifty applicants. Mr. Richardson is the son of Mr. W. B. Richardson, solicitor, Queen Street, Scarborough, and for six and a half years was in the Scarborough Borough Surveyor's office, under Mr. Joseph Petch, the present consulting engineer.

SEAFORTH.—An important change, and one that will add to the accommodation of the Bootle county police at Seaforth, is the removal to the new and commodious police station. The new station is situated in a most central position, and affords valuable facilities to the police by reason of the excellent accommodation its position furnishes from railways being contiguous. The building is plain, but substantial in character, and no effort has been spared to make it as complete and as appropriate as possible for the special purpose for which it has been designed. The general group of buildings will provide accommodation for one superintendent, one inspector, a married sergeant and constable, and seven single men, and for the latter there will be a day-room and dormitory. In addition, there is a well-appointed charge office, eight cells for prisoners, also a consulting-room, clerk's office, witnesses' and solicitors' rooms, and a large exercising or drill yard, with a covered shed attached. In that portion of the building facing Lime Grove will be a weights and measures office. The whole of the premises will be furnished with baths, hot water heating, and the most complete sanitary arrangements. The principal buildings face Seaforth Road, with a frontage of about 160ft. in length. The other elevation, with weights and measures office, cart entrance, &c., in Lime Grove, extend lineally about 150ft. The total area occupied for police purposes is upwards of 2500 superficial yards. The elevations to Seaforth Road and Lime Grove are red pressed brickwork, relieved with Bootle stone details. The Architects are Mr. George Holme, county surveyor, and Mr. Francis U. Holme, of 3, Westminster Chambers, Crosshall Street, Liverpool; Mr. Grocott is clerk of the works; and Mr. Walter Musker, of Bootle, the general contractor.

SHETTLSTON.—Evidence was heard before Sheriff Strachan, in Glasgow Sheriff Court last week, in the action by the Rev. John White and the managers of Shettleston Parish Church against the heritors of the parish to ordain them to take down and rebuild the church, the present building, it is alleged, being in a decayed condition. The Church is 146 years old.—Mr. R. A. Bryden, Architect, Glasgow, stated that the building was in an unsafe condition. All the walls showed signs of damage. Reconstruction, in his opinion, would cost about £2324; and the erection of a similar Church, providing similar accommodation, about £2916. He was strongly of opinion that it would be foolish to attempt to repair the existing building, and that an

entirely new Church should be built.—After further evidence the case was adjourned.

SOUTHPORT.—New Congregational Schools were opened yesterday in Chapel Street. In order the better to meet the wants of different bodies, the schools are so arranged with separate entrances that two considerable meetings, or even two concerts, can be held at the same hour without the one in any way interfering with the comfort of the other. The central hall will seat 400 adults or 500 children, and opening out of it are sixteen classrooms, one of which is to seat forty children. A ladies' drawing-room, a church parlour, ante-rooms, offices, and caretaker's house are all comprised in a building well lighted, well ventilated, and with electric fittings. The cost, inclusive of gifts of the electric lighting, and much of the more expensive furniture, comes within £4000.

SUNDERLAND.—The completed portion of the alterations at the Central Railway Station at Sunderland has been thrown open to the public. Two new flights of stairs to the platforms have been constructed, and will do much to relieve the heavy traffic. New booking offices, &c., are being constructed.

WOLSHINGHAM.—The Lord Bishop of Durham has just formally reopened the Parish Church, which has been closed for some time, undergoing important renovations and improvements. An addition has been made to the west end of the Church, where the baptistery is now located together with some additional seats, the floor of the Church has been entirely relaid with blocks of wood upon a concrete foundation, the Church has been reseated, and a new pulpit added, all being of Hungarian oak. The altar is also new, and an improved heating apparatus of hot water has been fixed together with a new lighting arrangement, the gas brackets being suspended from the roof in place of the old fixtures on the pews. The total cost of the work is close upon £800. The alterations were carried out to the designs of Mr. C. H. Fowler, Durham, by Mr. Westgarth, builder, Wolsingham; Mr. W. Hudson, joiner, Bishop Auckland; and Messrs. Dinning and Cooke, of Newcastle-on-Tyne.

YARDLEY.—An enquiry was held recently at Sparkhill, by Major H. D. Crozier, R.E., into the application of the Yardley Rural District Council for sanction to a loan of £1300, for the purchase of land at Sparkhill as a site for a depot, public offices, fire-station, and mortuary.

The whole of the £100,000 required for the purposes of the projected new Infirmary at Newcastle has been raised.

The drinking fountain in Peckham Rye Park, presented by Mr. Edwin Jones, was opened last week to the public.

The Hull City Council has adopted by a large majority the scheme for paving the principal streets with wood, at a cost of about £275,000.

The temple near Chatham belonging to the sect known as the Jezreelites, which was put up for public sale, has not yet been sold. The highest bid was only £5500. The building cost £40,000.

The memorial stone of the new parish house of St. Clement Danes and Clare Market was laid on Friday last. The building is being erected on a site in old Clare Market at the corner of Vere Street and Sheffield Street.

The great lens of the Yerkes telescope has had a narrow escape. The elevating floor on which it was placed in position dropped down 45ft., but fortunately the glass was uninjured. Nevertheless, the repairs will delay the use of the telescope until the autumn.

At Kilis, in Bessarabia, four hundred houses in that town have already been destroyed, and unless the floods subside the whole place may be wiped out of existence. The water is a fathom deep in the town, and locomotion is only possible by means of boats. Many of the inhabitants have sought refuge in the top stories of the houses, while others are camping in the fields.



## Trade and Craft.

### ELECTRICITY ON RAILWAYS.

An important departure has recently been made by the principal railway in New England—the New York, New Haven, and Hartford—in the adoption of electric power on a portion of its line. The latest move of the New Haven is regarded as a very important one for the railroads generally. The innovations upon previous methods are in this case striking. The thirteen miles of track from Hartford to New Britain is provided with a third rail to carry the electric power for the motors. In the laying of the third rail some novel ideas were for the first time put into practical use. The rail weighs 100lb. to the yard, and is shaped like a wedge, with a flat top. This affords a large conductive body with plenty of surface for the "shoes" which convey the current to the motors to act upon. Insulation is provided by simple blocks of wood, which, to the surprise of the experts, have been found to answer perfectly well, the loss of current being practically insignificant. At crossings, switches, and stations the current is conducted underground, while an ingenious automatic arrangement, operated by electricity, provides compressed air to operate a whistle for signalling. The experiments thus far made by the New Haven Company would demonstrate that neither snow, damp, nor flood interferes with the efficiency of the system. This demonstration is undoubtedly of great value to all railroads. On the New Haven's new electric line a speed of thirty to fifty miles is maintained with ease, while it is simply a question of construction of motors to keep up a speed of eighty miles an hour. Furthermore, it is claimed that there is no dead point in the revolution of an electric motor; it is the ideal solution of the transportation problem, and while some further questions have to be determined by the practical experiences with the new principles, extending over a longer period than has yet been possible, it is apparently true that the way has been opened for a further advance toward increased economy, speed, and utility in transportation.

### LEEDS ELECTRIC TRAMWAYS.

The work of putting down the plant for the running of electric cars between Roundhay and Kirkstall is proceeding very satisfactorily, and little doubt is now entertained that they will be ready for use by August 1st. The six miles of double lines along the route are practically complete; the overhead wires have been placed in position; the cars, with their plush-lined seats and easy running bogey carriages, are rapidly nearing completion; whilst the construction of the generating station at Crown Point has so far progressed that in a week or ten days the power necessary to propel the cars will be available. One of the engines—a 400-horse power compound condenser—has been completed some days. The dynamos have also been tested at the works of Messrs. Greenwood and Batley at Armley. There will be a pair of these dynamos to each engine, and in a week or so one pair of them will have been fixed in the generating station, and ready for use. Only one engine and pair of dynamos are required to generate the required electrical current to propel the cars, the provision of a duplicate engine and dynamos being that they may be used in case of emergency, thus obviating the necessity of stopping the service of cars to await repairs. There is a separate boiler to each engine. These boilers are supplied by Messrs. Clayton, Son, and Company, of Hunslet. These important changes in the tramway service of the city are being carried out under the supervision of Dr. Hopkinson. Mr. Eurbidge is clerk of works, and Mr. E. B. Martin, of the City Engineer's staff, is in charge of the operations at the generating station.

### CURIOUS CASE OF LIABILITY.

The case of Edward Taaffe v. the Dublin Southern District Tramways Company, heard at Dublin before the Lord Chief Baron and a

special jury, involved an important question as to the liability of the defendant company to pay compensation for damage suffered by traders in Kingstown by reason of the alteration in the levels of the streets and footways in the construction of the tram lines. The plaintiff is the lessee and occupier of the shops and premises, 50 and 51, Upper George's-street, Kingstown. He complained that on various days and at divers times in the years 1895 and 1896 the defendants, their servants and workmen, wrongfully lowered the road and footway running in front of plaintiff's premises, obstructing and interfering with the access to and egress from them, and lessened the support and injured the foundation of same. In consequence of these alleged wrongful acts the plaintiff complained that he was injured in his trade and business, and he claimed £2300 damages, and sought an injunction to restrain the defendants from the continuance or repetition of the injury. The defendant company denied the acts complained of, and pleaded that, under the provisions of the Dublin Southern District Tramways Order and Acts incorporated therewith, it was authorised to alter the level of the then existing tramway laid through Upper George's-street, Kingstown, including the portion along the frontage of the plaintiff's houses. The defendant company further stated that prior to the doing of the acts complained of the management, control, and maintenance of the street was vested by statute in the Kingstown Commissioners, being the road authority, and the defendants lowered the level of that street under the authority and by the direction of the Commissioners. The defendant company also pleaded that it did the acts complained of by leave and licence of and with the knowledge and acquiescence of the plaintiff. The jury, by direction, found for the plaintiff, with costs, and by consent of both sides the nominal sum of 6d. was named for damages, pending further proceedings.

### ELECTRIC LIGHTING OF LEEDS STREETS.

During the next twelve months important changes are likely to be made in the system of lighting the thoroughfares of Leeds. For Boar Lane and Briggate a new method of illumination has already been decided upon; the present gas lamps are to be removed, and the light supplied by forty arc lamps. These are to be placed on the top of the centre poles and side brackets, to be used in connection with the overhead electrical tramway system. The required electrical current for the lamps is to be obtained from the Corporation's tramway electrical generating station at Crown Point. Each light will have an illuminating power equal to about 1500 candles. These lamps are expected to be ready for use about the end of September. But this central avenue is not the only part of the city where a change in the system of lighting is contemplated. During the last fortnight the experiment has been tried of lighting Park Row, from the Cathedral to the end of Bond Street, with incandescent lights. The trial has proved satisfactory, and it is probable at an early date the committee will take into consideration the advisability of introducing this form of illumination in several of the main thoroughfares.

### BUILDERS AND THE BIRKENHEAD CORPORATION.

Cecil Edward Maples, of 14, Cook Street, Liverpool, was recently summoned for that he being a person laying out a new street exceeding 150 yards and not exceeding 300 yards in length, viz., a street in continuation of Mulberry Road there, unlawfully did lay out such street so that the width thereof is not 36ft. at the least.—Mr. Fearnley, for the Corporation, said the defendant had deposited plans for laying out a new street 30ft. wide continuing Mulberry Road from Wycliffe Street to the Mersey Railway, and then to be continued about right angles in a southerly direction under the name of Ashley Street, continuing as such on the western side of the railway for 83 yards and then turning again at right angles towards Wycliffe Street again in a westerly direction. The street thus

formed three sides of a square, the back of Wycliffe Street forming the fourth side. The Corporation contended that though this street had two names it was really one street, as the length of a street had to be taken from the point of entrance to the point of exit. Treating this street in this commonsense way Mulberry Road and Ashley Street formed one street exceeding 150 yards in length, and therefore should be 36ft. wide. By consent of the defendant, who wished the point settled, they were to be treated as though the street were actually laid out, but as a matter of fact the street as yet existed on paper only.—Mr. Charles Brownridge, Borough Surveyor, was called to prove the plans and show that these two streets were, in fact, one, and should be treated as such.—For the defence Mr. Layton contended that in reality this was three streets, and should be treated as such.—The magistrate said that after hearing the surveyor and examining the plans they had decided that what should be looked at was the object of the bye-laws under which these proceedings were taken. These were for the purpose of securing proper ventilation and preventing a congestion of traffic. In this case there would be no ventilation interfered with, because the end of the street abutted on the Mersey Railway, neither could there be a congestion of traffic, because carts would prefer the direct line along Wycliffe Street. The Bench were therefore of opinion that these were practically three streets, and not one continuous street, and gave a verdict for the defendant, with costs—three guineas.

WE beg to notify that Mr. Arnold Mitchell has removed from 16, Finsbury Circus, to No. 39, Great Marlborough Street, W.

THE popular seaside resort of Blackrock will shortly be connected with Dundalk by an electric tramway. The work will, it is expected, be commenced at an early date.

A new pulpit has been erected in St. George's Cathedral, Cape Town, to the memory of those who lost their lives in the wreck of the Drummond Castle.

At a meeting of delegates of the building trades held in Paris a few days ago, a general strike was resolved upon by an overwhelming majority; 20,000 men came out on strike at once.

THE work of extending the Royal Naval Barracks, Keyham, is to be commenced in September. The extension will cost £160,000, and it is proposed to so arrange the work as to ensure its completion by December, 1900.

THE new docks at Buenos Ayres, including two dry docks, were inaugurated a few days ago. The construction of the docks has occupied ten years. The contractor was Mr. Walker, and the cost was £7,000,000.

THE Chairman of the Devonport School Board recently laid the memorial stone of the new school for girls and infants, now in course of erection at Johnstone Terrace, Keyham. The Architects, Messrs. Hine and Odgers, presented to the chairman and vice-chairman a silver trowel.

BUSINESS is brisk at the Carrara studios near Spezzia, judging from the British Vice-Consul's reports. In addition to numerous commissions from Spain, Central and South America, and other countries, orders for marble busts of Her Majesty the Queen are being executed for several towns in England in connection with the Diamond Jubilee.

AN archaeological discovery of considerable interest has just been made near Thermopylae, between the old barracks and the watermills. It consists in the laying bare of sarcophagi containing bones, earthenware, and glass vases, bronze coins, medals, &c. It is believed that the skeletons are the remains of Leonidas' Spartans.

THE Prince of Wales's forthcoming engagements in London include the opening of a new fever hospital and public baths and wash-houses, erected at Hither Green by the Metropolitan Asylums Board. The parish of Lambeth has erected—after a long struggle on the part of the Progressives—an admirable set of public baths, which will receive notable publicity by the presence of the Prince.



## SOCIETY MEETINGS.

**Iron and Steel Institute.**—The autumn meeting of the Iron and Steel Institute will be held at Cardiff on Tuesday, Wednesday, Thursday, and Friday, August 3rd, 4th, 5th, and 6th next. The following papers have been offered for reading: "On Passive Iron," by J. S. de Benneville (Philadelphia). "On the Diffusion of Sulphides through Steel," by E. D. Campbell (Ann Arbor, Michigan). "On the Manufacture of Tin Plates," by George B. Hammond (Pensarth). "On a Spectroscopic Analysis of Iron Ores," by Professor W. N. Hartley, F.R.S., and Hugh Ramage, Assoc. R.Sc.I., F.I.C. (Royal College of Science, Dublin). "On Improvements in Shipping Appliances in the Bristol Channel," by Sir W. T. Lewis, Bart., Member of Council. "On the Iron Industry of Hungary," by D. A. Louis, F.I.C. (London). "On a Thermo-Chemical Study of the Refining of Iron," by Professor Honoré Ponthière (Louvain). "On Carbon and Iron," by E. H. Saniter (Wigan). "On some Mechanical Appliances at Penarth Docks," by T. Hurry Riches, M.Inst.C.E. (Cardiff). "On the Application of Travelling Belts to the Shipment of Coal," by Thomas Wrightson, M.Inst.C.E. (Thornaby-on-Tees). In addition to business deliberations, there will of course be the usual social attractions.

## Announcements.

## Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

## Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS and SIXPENCE per annum by half-yearly or annual prepayments.

## Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two. Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open. Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

## Editorial and Publishing Offices:

Effingham House, Arundel St  
Strand, W.C.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**ALFRETON.**—For the erection of new hotel. Mr. J. P. Earle, Architect, Sheffield. 2956

**BOSTON (Lincs.).**—For the erection of a dwelling-house, on the West-street-road, for Mr. Josiah Beaulah. Mr. James Rowell, Architect, Boston. 2925 10 0  
S. Sherwin 21,020 0 0 H. W. Parker 2925 10 0  
J. Lucas 994 12 0 W. Greenfield\* 875 0 0  
[All of Boston.]  
\*Accepted.

**BRIDLINGTON.**—Alterations to Estcourt House, for Mr. J. Bielby. Mr. Joseph Shepherdson, Architect. 2112 10  
John Rennard, Bridlington 98 10  
Robert Musk 83 18  
Wm. Barnes

**BROMHAM (Bedfordshire).**—For the erection of new stables, for Mr. W. H. Allen. Mr. George P. Allen, Architect, 26, Great Ormond-street, Russell-square, W.C. 21,500  
S. Foster, Kempston

**BURY (Lancs.).**—For the erection of a mission-room, Clerk-street. Mr. Thomas Nuttall, C.E., 20, Market-street, Bury. 2707 0  
Charles Burton 2555 10  
Thos. Ashworth 680 0 John Tinline 580 0  
Chas. Bourley 645 0 Saml. Clough 550 0  
Thompson & Brierley 615 0 John Smith and Sons, 165 0  
Jethro Comfort 608 0 East-street, Bury\* 545 0  
\*Accepted.

**CLACTON-ON-SEA.**—For the erection and completion of a villa residence, Thorogood-road, Clacton-on-Sea, for Mr. G. Hughes. Mr. James W. Martin, Architect, Station-chambers, Clacton-on-Sea. 21,220  
Myall and Ellis 1,100 Hammond and Sons 21,097  
E. West 1,100 H. J. Linzell 998

**CLACTON-ON-SEA.**—For the erection and completion of six villa residences, Hubert-road, Clacton-on-Sea, for Mr. G. Holmes. Mr. James W. Martin, Architect, Station-chambers, Clacton-on-Sea. 22,514  
M. Potts 22,250  
H. J. Linzell 2,250 E. West 1,900  
Myall and Ellis

**DORCHESTER.**—For alterations, additions, &c., Antelope Hotel, Dorchester. Mr. A. L. T. Tilley, Architect, 16, Cornhill, Dorchester. 22,030  
R. Davis and Son, Dorchester

**DRIFFIELD.**—Accepted for erecting a dwelling-house at Driffield, for Mr. Hy. Dosser. Mr. Joseph Shepherdson, Architect. 2338 0  
Brickwork.—W. Leason and Son 198 10  
Woodwork.—T. Rudd 72 0  
Plumbing, &c.—Wm. Bell

**DRIFFIELD.**—Accepted for erecting two dwelling-houses, for Mr. T. W. Stabler. Mr. Joseph Shepherdson, Architect. 2492 17  
Brickwork.—Moses Gage 345 10  
Woodwork.—J. Julian and Sons

**DRIFFIELD.**—Accepted for erecting a dwelling house, for Mr. J. T. Sokell. Mr. Joseph Shepherdson, Architect. 2398 8  
Brickwork.—Moses Gage 275 0  
Woodwork.—T. Rudd 116 10  
Plumbing, &c.—Wm. Bell

**DRIFFIELD.**—Accepted for erecting six cottages in Bridge-street. Mr. Joseph Shepherdson, Architect. 2329 0  
Brickwork.—Moses Gage 225 0  
Woodwork.—F. Thornton 26 18  
Plumbing, &c.—Stabler

**DRIFFIELD.**—Accepted for repainting work at Driffield Union Workhouse. Mr. Joseph Shepherdson, Architect. 2891  
J. R. Wilson, Eastgate, Driffield.

**EAST SHEEN.**—For repairs and decorator's work at "The Cedars," East Sheen, Surrey, for Mr. E. H. Leycester Penrhyn, J.P. Mr. C. Innes, Architect, 27, Queen-street, E.C. 21,600  
Prestige and Co. 2891  
Campbell, Smith, & Co. 1,250 McLachlan and Sons 874  
Pitman and Sons 1,185 Colls & Sons (accepted) 862

**FELINFOL.**—Accepted for addition to Felinfoel School, for the Llanelly School Board. Mr. J. B. Morgan, Architect. 2649 9  
Brown, Thomas, and John

**GILLINGHAM.**—For sewers to building estate at Gillingham, Kent, for Mr. Walter Green. Mr. Ernest J. Hammond, Surveyor, New Brompton. 2643 0  
J. C. Trueman, H. Weldon 477 7 2  
Swanley, Kent\* 2414 0 0  
\*Accepted.

**GRIMSBY.**—For the erection of twenty-nine Diamond Jubilee homes. Mr. H. C. Scaping, Architect, Grimsby. 26,251  
J. M. Thompson & Sons 6,123  
Hewins and Goodhand, H. Marrows 5,950  
A. Atkinson 5,592  
Levi N. Davison  
\*Accepted.

**KENDAL.**—For the Victoria Mills, Kendal, for Messrs. P. W. Thomson and Co. Mr. R. Walker, Architect, Windermere. 22,500  
Walling.—Dixon and Son  
Joinery.—Nelson Bros.  
Plastering.—W. Knight  
Plumbing, Painting, and Glazing.—W. Jackson  
[All of Kendal.]

**KENDAL.**—For the Netherfield Works, Kendal, for Messrs. Somerville Bros. Mr. R. Walker, Architect, Windermere. 21,400  
Walling.—J. W. Howie  
Joinery.—G. F. Martindale  
Plumbing.—W. Parsons  
Plastering.—B. Davis  
Painting, &c.—W. Jackson

**LLANELLY.**—Accepted for the erection of School Board offices. Mr. J. B. Morgan, Architect, Llanelly. 21,098  
Brown, Thomas, and John

**LONDON.**—For rebuilding warehouse at 12, Baches-street, for Messrs. Berry and Roberts. 2857 0  
Berdon 21,047 0  
J. Perry Bros. 825 15  
J. Anley 870 0  
J. Weibking & Sons\* 825 15  
Gardener and Hazel 859 0  
\*Accepted.

**LONDON.**—For alterations and additions at the Prince Arthur Public-house, Finsbury-road, Poplar, E., for Mr. G. Hutcheson. Mr. Fred. A. Ashton, Architect, 177, Romford-road, Stratford, E. 22,175  
S. Salt 21,893  
W. Shurmer 2,170  
Brown, Kruse, & Co. 1,885  
W. Watson 2,145  
C. Simmons 1,773  
J. and H. Cocks 2,095  
W. Maddison 1,725

**LONDON.**—For erecting convent and school buildings of St. Aloysius, Clarendon-square, Somers Town, N.W. 215,170  
Smith and Sons 211,342  
Shurmer 12,505  
Coxhead 11,337  
Putnam and Fothering- 12,216  
Nightingale 11,180  
ham F. G. Minter 11,100

**LONDON.**—For the erection of new co-operative stores, Plaistow. Mr. Beresford Pite, Architect. 22,400  
Three Stories. 22,005  
Two Stories. 2,394  
Adkins and Green 1,917  
Shurmer 1,890  
Watson 2,363  
Reale 2,343  
Barrett and Power 1,817  
Gregar and Son 1,810  
Read and Son 2,306  
Co-operative Builders 2,296  
Maddison 1,806  
Thomson and Son 2,219  
Harris and Wardrop 1,724

**LONDON.**—For the erection of premises, for Messrs. McCorquodale and Co., at Cardington-street, Hampstead-road. Mr. H. Phelps Drew, Architect. Quantities by Mr. J. Rookwood. 218,996  
Patman and Fother- 217,329  
L. H. Roberts 18,750  
Foster and Dicksee 18,400  
F. T. Chinchin 17,200  
F. G. Minter 17,884  
Edwards & Medway\* 16,241  
G. Gohl 17,734  
Scrivenor and Co. \*Accepted.

**LONDON.**—For the erection of vicarage at Harrow, for the Rev. Thomas Smith. Mr. F. E. Jones, Architect. Quantities by Mr. R. T. Wreathall. 22,680  
F. T. Chinchin 22,395  
H. Batchelor 2,585  
T. Turner 2,287  
H. Bailey 2,487  
G. and J. Waterman 2,260  
Faulkner and Son

**LONDON.**—For painting Lillie-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2332 0  
F. G. Minter 2491 10  
T. Cruwys 543 0  
E. Flood 440 0  
W. Hammond 519 0  
\*Accepted.

**LONDON.**—For painting Malmesbury-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2355 0  
J. T. Robey 2302 0  
A. E. Symes 309 10  
J. Kybett 282 0  
G. Munday and Sons 309 10  
S. H. Corfield\* 263 0  
G. Wales  
\*Accepted.

**LONDON.**—For painting Matthias-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2347 0  
F. Britton 2343 11 9  
McCormick & Sons 455 12 6  
Grover and Son 359 10 0  
J. Morrisson  
\*Accepted.

**LONDON.**—For painting Medbury-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2335 0  
T. Cruwys\* 2143  
G. Chase and Son 2335 0  
W. Hornett 150  
\*Accepted.

**LONDON.**—For painting Plumstead-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2368 0  
J. H. Hodgkin\* 2340  
C. Foreman 350 0  
G. Summers 326  
E. Proctor  
\*Accepted.

**LONDON.**—For painting Poole's Park Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2367 0  
F. Britton\* 2322 12  
G. Kirby 533 10 0  
Stevens Bros. \*Accepted.

**LONDON.**—For painting Ruby-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2300 0  
J. G. Summers 2146 2  
H. J. Williams 249 0 0  
Rice and Son\*  
\*Accepted.

**LONDON.**—For painting Duke-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2227 19 0  
J. S. Musgrove 2165 2 6  
Jones and Groves\* 183 0 0  
G. Summers  
\*Accepted.

**LONDON.**—For painting Edinburgh-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2154 0  
F. T. Chinchin 2110  
F. G. Minter 130 0  
E. T. Folley\* 97  
G. Neal  
\*Accepted.

**LONDON.**—For painting Essex-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2285 0  
E. Triggs\* 243  
Gibb and Co. 280 0  
A. W. Derby 240  
A. E. Symes  
\*Accepted.

**LONDON.**—For painting Fauce-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2422 0  
E. Triggs\* 2915  
J. F. Ford 337  
\*Accepted.

**LONDON.**—For painting Fleet-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2465 0  
Marchant and Hirst\* 2461  
Chase and Son 585  
E. T. Folley 457  
McCormick and Sons 549  
T. Cruwys  
\*Accepted.

**LONDON.**—For painting Garrett-lane Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2373 0  
Heinemann and Brown 235  
E. Flood 354  
Garrett and Son\* 327  
C. Gurling  
\*Accepted.

**LONDON.**—For painting Gillespie-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2596 10 0  
W. H. Stephens 2167 1 0  
G. Kirby 528 0 0  
F. Britton\* 381 10  
Stevens Bros. 474 0 0  
McCormick & Sons  
\*Accepted.

**LONDON.**—For painting Graystone-place Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2183 0  
B. E. Nightingale 2117 0  
T. Cruwys 182 0  
G. Foxley 136 17  
Marchant and Hirst 175 0  
Johnson and Co.\* 16 10  
W. Hornett 155 0  
\*Accepted.

**LONDON.**—For painting Great Wild-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2365 0  
A. M. Sparks 2357 0  
T. Nicholson 275 10  
T. Cruwys\* 250 0  
W. Chapell 273 0  
B. E. Nightingale 25 0  
W. and H. Castle 262 0  
Johnson and Co. 238 10  
W. Hornett  
\*Accepted.

**LONDON.**—For painting Grove-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2439 8 0  
G. Summers 283 17 6  
Jones and Groves 339 13 6  
J. S. Musgrove\* 253 12 0  
W. Banks  
\*Accepted.

**LONDON.**—For cleaning and painting Hack-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2332 0  
Rice and Son 2335 0  
Star and Son 629 12  
Garrett and Son 420 0  
Harding and Son 345 10  
Holliday & Greenwo\* 419 0  
F. R. Blaxton  
\*Accepted.

**LONDON.**—For painting Hanbury-street Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2165 0  
Munday and Sons\* 2146 6  
Gibb and Co. \*Accepted.

**LONDON.**—For cleaning and painting Haselrigg-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2500 17  
F. G. Minter 2400 0  
F. R. Blaxton 540 0  
J. Garrett and Son 391 0  
E. P. Bulled and Co. 510 0  
Heinemann and Brown 360 0  
Holloway Bros. 409 0  
E. Flood\* 34 17  
Rice and Son 402 0  
\*Accepted.

**LONDON.**—For painting Honeywell-road Schools, for the London School Board. Mr. T. J. Bailey, Architect. 2599 0  
Rice and Son 212 0  
Bulled and Co. 577 0  
Garrett and Sons 345 0  
F. G. Minter 560 0  
Heinemann & Brown\* 391 13  
E. Flood  
\*Accepted.



LONDON.—For painting Prinsep-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 F. Newton £20 0 W. and H. Castle £38 0  
 G. S. S. Williams & Sons £40 10 W. Hornett\* £30 0  
 Marchant and Hirst £30 0 Johnson and Co. £30 0  
 W. Hill and Sons £63 16 \*Accepted.

LONDON.—For painting Randall-place Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 G. Foreman £179 0 G. Summers £238 0 0  
 W. Banks £23 15 6 Jones & Groves\* £12 0 0  
 W. Holding and Son £48 0 0 \*Accepted.

LONDON.—For painting Mantua-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 F. Flood £2 2 4 E. P. Bulled and Co. £467 0  
 C. Garling £34 4 J. E. Williams & Sons £44 0  
 L. R. Blanton £23 10 J. Garrett and Son\* £46 0  
 \*Accepted.

LONDON.—For painting Oxford-gardens Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 H. C. Clifton £350 0 G. H. Sealey £255 0  
 F. Chidley £25 4 W. R. and A. Hide £247 5  
 W. Brown £258 0 F. T. Chichen £248 10  
 G. Neal £255 0 E. T. Polley\* £197 0  
 \*Accepted.

LONDON.—For painting Rutland-street Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 G. Munday and Sons £230 0 D. Gibb and Co.\* £223 0  
 T. Robey £230 0 \*Accepted.

LONDON.—For painting Saffron-hill Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 Willmott and Sons £271 10 W. Hornett £185 0  
 T. Cruys £223 0 Johnson and Co. £179 0  
 A. M. Sparks £215 0 W. Chappell\* £173 0  
 \*Accepted.

LONDON.—For painting St. Leonard's-road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
 Marsh, Tucker, and Co. £425 0 Beaumont and Son £285 0  
 T. H. Jackson £297 0 A. W. Derby £371 0  
 Munday and Sons £305 0 J. J. Robey £263 0  
 Gibb and Co. £804 0

## BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.

## "ECLIPSE" PATENT ROOF GLAZING.

Absolutely Imperishable. Needs no Maintenance Whatever. Millions of Feet Fixed.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

MELLOWES & CO. Works: SHEFFIELD. LONDON: 28, Victoria St., Westminster, S.W.

## THE SMOKELESS FIRE CO. LTD.,

Sole Proprietors of Marsh's Patents FOR THE

## COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c. 100, SHAFTESBURY AVENUE, LONDON, W.

# HOMAN & RODGERS,

ORIGINAL PATENTEES OF ALL GIRDERS

ENGINEERS.

FORMED OF JOISTS AND PLATES

CONSTRUCTIONAL STEEL SKELETON BUILDINGS (AMERICAN SYSTEM).

FIRECLAY BRICK FLOORS ALSO CONCRETE FIREPROOF FLOORS USED IN OVER 2000 BUILDINGS.

ROOFS,

BRIDGES

PIERS,

GRANITIC

PAVING STEPS,

ASPHALTE.



SECTION OF

BRICK FLOORS.

LONDON { OFFICES: 17, GRACECHURCH STREET, E.C. |

WORKS: NINE ELMS LANE, S.W. |

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026, Avenue.

MANCHESTER { OFFICES: 10, MARSDEN STREET

WORKS: WEST GORTON. |

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 687

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.

Perfect Sanitation, Healthy Houses obtained by adopting the

## "TWYCLIFFE"

Patent Pedestal Syphon W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W. C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.

Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.

Practically noiseless in action.

Simple in construction, reliable in action.

No complicated mechanism to get out of order.

Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.



RECOMMENDED AND SPECIFIED BY ARCHITECTS AND SANITARY ENGINEERS.

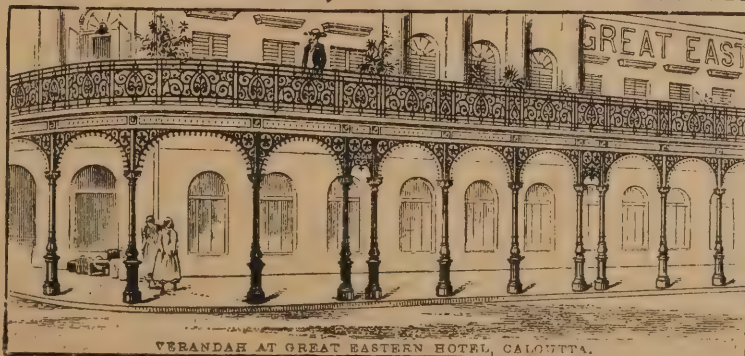
# WALTER MACFARLANE & CO., GLASGOW.

TWO GOLD MEDALS, CALCUTTA EXHIBITION.

Railings, Gates, Balconies, Panels, Stairs, Standards, Pipes, Gutters, Urinals, Closets, Fountains, Lamps.

ELECTRIC LIGHT PILLARS, BRACKETS, AND WIRE WAYS.

Illustrated Catalogue and Prices on application.



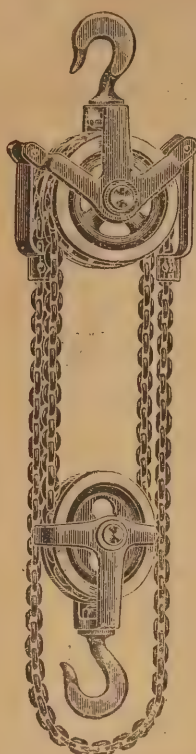
VERANDA AT GREAT EASTERN HOTEL, CALCUTTA.

Spandrils, Columns, Verandahs, Covered Ways, Bandstands, Conservatories, Structures, Foot Bridges, Stable Fittings, &c.

GLASS ENAMELLED SOIL AND DRAIN PIPES.

Architectural, Sanitary, and General Ironfounders.





## HOISTING APPLIANCES

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

## WESTON

AND OTHER

## Pulley Blocks

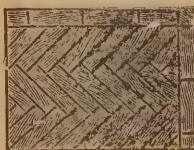
in Stock, with any  
length of

## CHAINS.

Chain Maker on Premises  
for Repairs, &c.

## LONDON HOIST AND CHAIN CO.

32, Norton Folgate, E.C.



## WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

For Churches, Schools,  
Offices, &c.

Estimates and full particulars on ap-  
plication to

**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM  
JOINERY WORKS,  
Clapham Junction, S.W.

**LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

LONDON.—For painting Single-street Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
A. W. Derby ... 2332 Munday and Sons\* ... 2304  
J. Kybett ... 317 J. T. Robey ... 297  
Gibb and Co. ... 397 S. H. Corfield\* ... 295  
\*Accepted.

LONDON.—For painting Smead-road Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
A. W. Derby ... 2480 G. Munday and Sons ... 2302  
A. E. Symes ... 350 J. T. Robey ... 275  
Gibb and Co. ... 355 S. H. Corfield\* ... 265  
\*Accepted.

LONDON.—For painting Star-lane Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
F. L. Minter ... 2102 O. W. Hammond\* ... 297 0  
C. Gurling ... 105 0 \*Accepted.

LONDON.—For painting Station-road Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
Grover and Son ... 2482 0 Stevens Bros. ... 2431 0  
T. Cruwys ... 474 0 F. Britton ... 408 3  
McCormick and Son ... 444 0 W. H. Stephens\* ... 333 0  
\*Accepted.

LONDON.—For painting South Lambeth-road Schools,  
for the London School Board. Mr. T. J. Bailey, Archi-  
tect:—  
T. Hooper ... 2516 10 J. Garrett and Son ... 2324 0  
D. Charteris ... 355 0 Lathey Bros. ... 315 0  
Rice and Son ... 344 0 E. Triggs ... 286 0  
Holloway Bros. ... 338 0 G. Foxley\* ... 271 0  
\*Accepted.

LONDON.—For painting Union-street Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
J. H. Hodgkin ... 2240 C. Proctor\* ... 2230  
C. Foreman ... 232 \*Accepted.

LONDON.—For painting "Victoria" Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
W. R. and A. Hide ... 2295 15 W. Brown\* ... 2282 10  
\*Accepted.

LONDON.—For painting Walton-street Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
W. Hammond ... 2165 0 G. Foxley ... 2108 0  
E. Flood ... 140 0 C. Gurling\* ... 97 7  
Lathey Bros. ... 136 10 \*Accepted.

LONDON.—For painting Whitfield-street Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
F. Newton ... 2311 W. Hornett ... 2215  
W. Chappell ... 240 G. Foxley\* ... 189  
T. Cruwys ... 217 \*Accepted.

LONDON.—For painting Wilmot-street Schools, for the  
London School Board. Mr. T. J. Bailey, Architect:—  
A. W. Derby ... 2530 Gibb and Co. ... 2420  
G. Barker ... 483 J. Kybett\* ... 373  
\*Accepted.

MELKSHAM (Wilts).—For the erection of a Masonic  
Hall, for the Chaloner Lodge. Mr. J. A. Randall, Archi-  
tect, Exchange-place, Devizes:—  
H. Ash ... 2334 D. Davis & Son &  
G. Brown ... 825 0 0 Carpenter.  
G. Bigwood ... 463 15 4 Melksham\* ... 2450 14 0  
\*Accepted.

MORECAMBE.—Accepted for the erection of a brick  
chimney (12 ft. high), &c., for electric lighting works, for the  
Urban District Council. Mr. J. Bond, Surveyor, Council  
Offices, Morecambe:—  
John Edmondson, Clarence-street, Morecambe 22,676

MULLINGAR (Ireland).—Accepted for supplying and  
erecting iron buildings, for the Governors of Mullingar  
Lunatic Asylum. Mr. A. E. Joyce, Engineer, Ballinagore,  
West Meath:—  
Humphreys, Ltd., Knightsbridge, London, S.W. 21,604

NEATH.—For alterations and extensions to Coedfranc  
Board Schools, Neath, for the Coedfranc School Board. Mr.  
J. Cook Rees, Architect, Church-place, Neath:—  
J. Roberts, Ponty. Rees, Skewen ... 22,220  
Cymmer ... 22,734 D. Jenkins, Swansea ... 2,170  
W. J. Bloxham, Ban- ... 2,395 David Bros. Skewen ... 2,170  
bury ... 2,425 Thomas Watkins and  
Evan Thomas, Neath ... 2,395 Co.\* ... 2,067  
D. Rosser, Llansamir ... 2,290 \*Accepted.

NEW BROMPTON.—For furniture store at New Brompton,  
Kent, for the New Brompton Economical, Industrial,  
and Provident Society, Limited. Mr. Ernest J. Hammond,  
Architect and Surveyor, New Brompton:—  
C. E. Skinner ... 2,391 G. Wren ... 2,275  
F. Langley ... 235 T. Cornelius ... 230  
H. Harris ... 293 H. E. Phillips ... 205

NEW BROMPTON.—For erecting villa residence in  
Balmoral-road, New Brompton, Kent, for Mr. F. Pierson.  
Mr. Ernest J. Hammond, Architect and Surveyor, New  
Brompton:—  
J. H. Park ... 2507 F. A. Hammond ... 2375  
J. L. Trueman ... 480 C. E. Skinner, Railway-  
street, Chatham\* ... 335  
H. Harris ... 395 street, Chatham\* ... 335  
\*Accepted.

OSWESTRY.—For alterations and additions to Oswestry  
Conservative Club. Messrs. Shaylor and Madoc-Jones,  
Architects, 19, Church-street, Oswestry. Quantities by the  
Architects:—

	Estimate A.	Estimate B.	Estimate C.
		Plumbing.	
Felton, Oswestry ...	249	270 0	252
Thomas ...	489	65 8	50
Bradney and Lloyd ...	530	74 0	70
Tyley, Oswestry ...		64 0	

OULTON (Norfolk).—For restoring the Parish Church.  
Mr. H. J. Green, Architect, Norwich:—  
T. H. Blyth ... 21,330 0 0 Tuddenham and  
R. Chapman ... 1,316 0 0 Sons ... 21,258 7 6  
R. W. Riches ... 1,038 8 10

PENGE.—For the erection of houses on the Phoenix  
Estate, for Mr. W. R. Quesed. Mr. A. E. Pridmore, Archi-  
tect, 2, Broad-street-buildings, E.C.:—  
H. Leney ... 25,959 0 J. Edwards ... 24,484 0  
H. Heathfield ... 5,850 0 P. Fraser ... 4,386 10  
A. A. Webber ... 5,000 0 Beer and Gash ... 3,923 0  
H. King ... 5,000 0 W. J. Davenport ... 3,895 0

PICKERING (York).—For the supply of 600 tons whin-  
stones, for the Urban District Council:—  
Per ton.  
George Hodgman ... 6 11 Geo. Schofield, Gros-  
mont (accepted) ... 5 6

PORT TALBOT.—For the erection of new vestry at Cur-  
navon, Port Talbot. Mr. J. Cook Rees, Architect, Church-  
place, Neath:—  
D. Lloyd, Cymmer ... 2545 0 W. Clarke, Curnavon ... 2533 0  
S. Rees, Aberavon ... 540 0 Leverton Bros., Aber-  
avon\* ... 470 14  
T. Jenkins, Port Tal-  
bot ... 540 0 \*Accepted.

ROCHESTER.—For road and sewer work at the building  
estate at Delce, Rochester, Kent, for Mr. G. B. Winch,  
Chatham. Mr. Ernest J. Hammond, Architect, New  
Brompton:—  
J. C. Trueman ... 2,174  
Anger Bros., Magpie Hall-road, Chatham (ac-  
cepted) ... 447



No. 234.—WASH-OUT.

**SAMUEL HUNT ROWLEY, Swadlincote, nr. Burton-on-Trent.**

PATENTEE AND MANUFACTURER OF THE

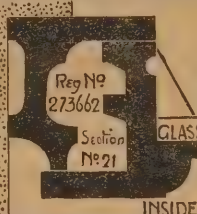
## "WASH-OUT" CLOSET (PATENT).

Three Awards at the International Medical Sanitary Exhibition, South Kensington, 1881.  
Specialities in Closets, Traps, Urinals, Lavatories, Sinks, and other  
Sanitary Fittings.

Price Lists and Full Particulars on Application.  
Telegrams:—"ROWLEY, SWADLINCOTE."



DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS



WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.

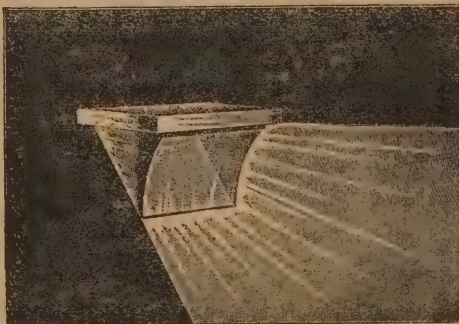


# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.



## "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation  
falling on anything which happens to be below.

## WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass  
prisms, and prevent slipping, as well as doing  
away with the studs.

## WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



**SHEFFIELD**—For the erection of six houses, at Darvall Hill. Mr. J. P. Earle, Architect, Sheffield:—

Geo. Norman, jun. £1,250

**SHEFFIELD**—For the erection of three houses, at Darvall Hill. Mr. J. P. Earle, Architect, Sheffield:—

Geo. Norman, jun. £650

**SHERINGHAM**—For erecting villa residence in Railway road, Sheringham, Norfolk, for Mr. Hy. Bird. Mr. Ernest J. Hammond, Architect and Surveyor, New Brompton, Kent:—

Jas. White, Cabbell-road, Cromer £435

**STECHFORD**—Accepted for the erection of premises at Stechford, near Birmingham, for the Birmingham Photographic Company, Limited. Mr. W. F. Edwards, Architect, 1, Newhall-street, Birmingham:—

J. W. Smith, Small Heath £3,879

**STRATTON (Dorset)**—For additions, &c. at Homestead, Stratton. Mr. A. L. T. Tilley, Architect, 16, Cornhill, Dorchester:—

A. Harvey, Charminster £288 3 7

**TINSLEY (near Sheffield)**—For the erection of eight houses. Mr. J. P. Earle, Architect:—

Chas. Roberts £3,780

**TOTLEY (near Sheffield)**—For the erection of two houses. Mr. J. P. Earle, Architect:—

Jas. Sheppard £650

**VENTNOR**—For the erection of a new block, in memory of Colonel H. R. H. Prince Henry of Battenburg, K.G., for the Royal National Hospital for Consumption and Diseases of the Chest, on the separate principle, Ventnor, Isle of Wight. Mr. Theodore R. Saunders, Architect, Ventnor. Quantities by Mr. Thos. J. Carless, 39, Old Queen-street, Westminster:—

T. Jenkins £3,075 0 J. G. & W. Jolliffe £8,974 10  
H. Ingram & Sons 9,400 0 A. Sims, Ventnor\* 8,883 0  
Roe and Grace 9,335 0 \*Accepted.

**WATFORD (Herts)**—For the erection of engine-house, chimney shaft, ejector station, &c., in connection with Watford Sewerage, for the Watford Urban District Council. Messrs. Shone and Ault, engineers, 47, Victoria-street, Westminster, S.W. Quantities by Messrs. Evans and Deacon, 1, Adelaide-street, Charing Cross, W.C.:—

Andrews and Sons £3,588 F. Dupont £3,300  
B. Cooke and Co. 3,490

After the above tenders had been opened, the Council re-advertised, when the following additional tenders were received:—  
W. Neal £3,492 J. Jackson, Plaistow, E. (accepted) £3,000

## CONTRACTS OPEN.

### LUTON RURAL DISTRICT COUNCIL.

The above Council invite TENDERS for the SUPPLY of SLAG for the year ending March 31st, 1898, to be delivered in accordance with terms of contract to be obtained of the undersigned.

Tenders and samples to reach the Clerk to the Council not later than SATURDAY, JULY 17th next.

The Council do not bind themselves to accept the lowest or any Tender.

By order,

Office, Dunstable, Beds,  
June 26th, 1897.

JOHN ANSTEE,  
Surveyor.

### THE URBAN DISTRICT COUNCIL of SURBITON.

TO BUILDERS, CONTRACTORS, and OTHERS.

The above Council invite TENDERS for the REMOVAL of a BUILDING consisting of twenty rooms, hall, staircase, and passages, known as Hill House, situate at the corner of Ewell and Berrylands-roads, Surbiton Hill. The materials to be the property of the Contractor.

For further particulars and cards to view, apply to Mr. SAM'L MATHER, A.M.I.C.E., Surveyor's Office, Victoria-road, Surbiton.

Surbiton, July 1st, 1897.

## COMPETITIONS.

### TO ARCHITECTS.

The Urban District Council of Surbiton invite DESIGNS for New COUNCIL CHAMBERS and OFFICES proposed to be erected at a cost of £5000.

A professional assessor will advise the Council in the selection of designs.

Premiums of £30 and £15 will be awarded to the authors of the designs placed first and second respectively.

Printed conditions, with lithographed plan of site,

may be obtained of the undersigned upon a deposit of 10s. 6d., which amount will be returned on receipt of a bona-fide Design.

All Designs to be sent in not later than AUGUST 13th next.

JAMES BELL,

Clerk to the Council.

Council Offices,  
Victoria-road, Surbiton,  
June 30th, 1897.

**PARTNERSHIP** desired in a well-established Country Office by an ARCHITECT of many years successful town practice. Good air-ventilation. Coast preferred.—Box 518, Office of the BUILDERS' JOURNAL.

Price 3s.

**GLOSSARY OF TECHNICAL TERMS** used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

### CIVIL SERVICE TECHNICAL EXAMS.

—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

### SANITARY INSPECTORS' EXAMINATIONS.

—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required.—For particulars and testimonials apply CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

### R.I.B.A. EXAMS. PREPARATION

personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library. Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

**MCNEILL'S FELTS**

(Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)

**MCNEILL'S SLAG WOOL**

(Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

*Lists, Samples, and full particulars free on application to*

**F. MCNEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

THE SUNBURY

**LINCRUSTA-WALTON.**

WALL DECORATION.

NOVELTIES for 1897—DADOES, FRILLINGS and CEILINGS at 1s. a yard, 2lin. wide.

CHEAP DECORATIONS, DELICATE COLOURINGS, supplied by all Decorators, Furnishers or Builders in the United Kingdom.

LINCRUSTA WALTON, tested and triumphant, "King of Wall Hangings," the only Wall Decoration on the Market.

SOLID in colour, SOLID in relief, and SOLID in value.

*Write for Price List, Illustrations of "JUBILEE" and "NATIONAL EMBLEMS," &c., to*

**FREDK. WALTON & CO. Ltd.,** Sole Patentees and Manufacturers,

Telephone, 3769.

2, NEWMAN ST., OXFORD ST., LONDON, W. *Telegram: "Lincrusta-Walton," London.*

**EASTON, ANDERSON & GOOLDEN, LIMITED,**

BROAD SANCTUARY CHAMBERS,

BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."

Telephone—"545, WESTMINSTER."

**ELECTRIC & HYDRAULIC LIFTS & CRANES,**

**PUMPS, RAMS.**

**WATER SUPPLIES, ENGINES AND BOILERS,**

**ELECTRIC LIGHT AND POWER.**

**MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST**

**AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.**



# APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

## THE LONDON (TELEPHONE {Holborn, No. 1011.}) DRAWING & TRACING OFFICE,

98, Gray's Inn Road, Holborn, W.C.  
(Adjoining Holborn Town Hall.)

MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS,  
PERSPECTIVES, SURVEYS,  
COMPETITION DRAWINGS,**

Black Line PHOTO-COPIES and Blueprints.  
Quantities, Specifications LITHOGRAPHED.

**MODELS, DIAGRAMS, &c.**

TRACING and PRINTING Rooms, HATTON GARDEN,  
connected by Private Telephone.

**TO LOCAL SURVEYORS.—ASSISTANCE**  
in the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL.

**ARCHITECTURAL DRAUGHTSMAN**  
(experienced) WANTED, for Edinburgh office.—State salary wanted, and full particulars, to No. 137, Keith and Co., Edinburgh.

**BOROUGH of BOURNEMOUTH.**  
First-class ARCHITECTURAL DRAUGHTSMAN, experienced in the design of constructional iron-work, WANTED for about six months.  
Apply by letter, stating experience and salary required.

F. W. LACEY, M.I.C.E.,  
Bournemouth. Borough Engineer.

## LONDON PLATE-CLASS INSURANCE CO. LTD.

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

MODERATE RATES. PROMPT REPLACEMENTS.

SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited  
Liberal Terms for Business Introduced.

## WOOD BLOCK FLOORING.

**MASTIC** for laying above supplied in any quantity.

W. BRIGGS, Chemical Works, DUNDEE,  
SOLE MAKER OF

"Tenax" Building Rock Composition  
For Wall Cavities.

## PILKINGTON'S

WORKS:

CLIFTON JUNCTION,  
NEAR MANCHESTER.

MANUFACTURERS OF HIGH CLASS TILES.  
Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR

CHURCHES, PUBLIC BUILDINGS AND

PRIVATE RESIDENCES.

London Show Rooms:

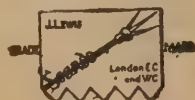
Chambers, 45, Whitcomb Street W.C.

Manchester Show Rooms

37, Cross Street

## TILES.

TELEGRAMS:  
"WEATHERVANE, LONDON."



**J. LEWIS,** 5 & 6, Great Winchester Street, LONDON, E.C.

## LIGHTNING CONDUCTORS.

ELECTRICAL EXHIBITION CRYSTAL PALACE AWARD, 1892.

"LEWIS' LINK," The only EFFICIENT COUPLING for Conductors. PATENT No. 16,641.

SEE SECTION Fig. 2.

**BUILDER'S CLERK.—FIRST-CLASS**  
MAN WANTED, not for books, cash, or ordinary correspondence; help in the practical or administrative side required.—CHARLES, Building Contractor, Theford Works, Moseley, Birmingham.

## WITHAM URBAN DISTRICT COUNCIL.

COLLECTOR OF RATES, SURVEYOR, AND INSPECTOR OF NUISANCES REQUIRED.

The District Council require a person to undertake the duties of the above-mentioned offices as from AUGUST 1st next.

Salary, £100 per annum.

The duties will embrace the making-out and collecting all the rates made by the Council, the performances of the duties of a Surveyor under the Public Health Act, 1875, and Acts incorporated therewith (including the management of the Highways and the Sewage Farm) and of an Inspector of Nuisances as prescribed by the orders of the Local Government Board.

The person elected must be competent to take levels, prepare plans, and supervise the erection of new buildings, and will be required to reside in Witham.

Security will be required to the amount of £300. Applications in writing, with testimonials, to be sent in to me, on or before FRIDAY, JULY 23rd.

By order,  
WM. BINDON HOOD,  
Clerk of the District Council.

Witham, Essex,  
June 29th, 1897.

## BOROUGH of SUDBURY, SUFFOLK.

**SURVEYOR.**  
The Town Council of the Borough of Sudbury invites APPLICATIONS for the APPOINTMENT of a BOROUGH SURVEYOR and INSPECTOR of NUISANCES, pursuant to the provisions in that behalf, of the Public Health Act, 1875, at a salary of £150 a year.

The person to be appointed is to devote the whole of his time to the service of the Corporation.

Applications, in the handwriting of the respective candidates, which are to state the ages of the applicants (not to be under 25 nor over 45 years), and their qualifications, and which are to be accompanied by copies of recent testimonials, not exceeding three in number (which will not be returned), are to be sent home at my Office, 16, Frear's-street, Sudbury, under cover, marked "Borough Surveyor," on or before TUESDAY, JULY 20th next.

The person appointed will have under his superintendence about ten miles of streets and roads.

An Office is provided for the Surveyor by the Town Council in the Town Hall.

Personal application to any member of the Council is prohibited and will render any candidate ineligible.

Dated June 23rd, 1897.

By order of the Council,  
W. BAYLY RANSOM,  
Town Clerk,

**DRAUGHTSMAN (experienced) WANTED**  
for architectural terra-cotta work.—Address by letter, stating past experience, to DOULTON and CO., Lambeth.

**WANTED, at once, competent ARCHITECT'S ASSISTANT.** State age and salary required.—Apply LANCASHIRE and SON, Hartshead, Sheffield.

**OFFICE (Furnished), 15ft. by 12ft., TO LET**  
in Victoria-street. Recently decorated, lavatory, splendid light; suitable for Architect or Surveyor. Use of Electric Light. £1 per week, inclusive.—Apply, YOUNG and Co., 12, Victoria-street, Westminster.

THE

## Local Government Journal

AND MUNICIPAL, COUNTY, DISTRICT AND PARISH COUNCILLOR.

Record of Poor Law, Sanitary Progress, Official Contracts Open and Appointments Vacant.

THIS JOURNAL, ESTABLISHED IN 1872,

Furnishes List of Situations Vacant, Tenders Open under Public Bodies, and gives all information concerning Local Self-government.

IT IS A FIRST-CLASS MEDIUM FOR OFFICIAL ADVERTISEMENTS,

And is the Medium between

LOCAL AUTHORITIES AND CONTRACTORS,

Forming a most Valuable Medium for the Advertisements of articles suited to the requirements of Public Institutions; and comes before

50,000 MEMBERS AND OFFICIALS OF LOCAL AND OTHER PUBLIC BOARDS,

Who are engaged in carrying out the work of Local Government.

Every Saturday, Price 2d.

Post Free, Three Months, 2s. 6d.

S. EDGECUMBE-ROGERS, 2, Dorset St., Fleet St.

Reading Cases may be had on application to the Manager. Price 1s. 9d. each.



**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON,** Lutterworth, **WITHINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.



VILLAS,  
MANSIONS,  
SCHOOLS,  
CHURCHES,  
FACTORIES,  
CHIMNEY  
SHAFTS, &c.





# Surveying and Sanitary SUPPLEMENT.

JULY 7TH, 1897.

## WORKHOUSE PLANNING.

(Continued from page lxxiv.)

By GEORGE H. BIBBY, F.R.I.B.A.

### VI.—SCHOOLS.

THE Local Government Board has published extracts from a memorandum entitled "Points to be attended to in the construction of Workhouse buildings." These have been published since September, 1891, and have been again issued lately, but the whole of the clauses from 51 to 67 have been omitted; these relate entirely to the construction of school buildings in connection with workhouses, and I have been informed recently, by a leading official of the Local Government Board, that at present no regulations as to the arrangement of accommodation for Poor Law children have been definitely drawn up or issued. It has long been considered desirable that the children of workhouse inmates should be separated very completely from all adult paupers; it is preferable that all such children should be boarded, housed, and taught in an entirely independent establishment of the nature of an industrial school. Where the workhouses are small, two or more Unions may unite to make such arrangements practicable and economical; in many cases, however, the workhouse children have been boarded and housed at the workhouse and taught with the children of national and other schools outside. This arrangement has very many disadvantages, and the most that may be said in its favour is that the cost of special school buildings and teachers is thereby not incurred. In connection with all large industrial or workhouse schools, it is desirable that there should be adequate provision for thoroughly isolating recent admissions, so that the children may not readily introduce infectious diseases, opthalmia, ringworm, &c., and where they may be placed under observation for the purposes of classification, that very objectionable children be not at once forced upon the society of others who have had some care and good training. Although in many instances the circumstances of an Union render it necessary that the children should be provided for at the workhouse, yet the school buildings should always be detached from all other portions of the institution as far as may be. The school buildings should be planned to contain children's dining-rooms, class-rooms, work-rooms for both sexes, also the dormitories and day-rooms. The latter should never be used for school or workshop purposes. The plans should provide for covered play-sheds sufficient for the whole of the children in wet or inclement weather, and there should be ample facilities for training both boys and girls to some useful employment—for the girls a well-lighted needle-room is very advisable, and there should be suitable rooms for tailoring, shoemaking, and other occupations. The Local Government Board require that all

work-rooms should be well lighted, warmed, and ventilated, and be sufficient in extent to prevent inconvenience by reason of the atmosphere being fouled by the materials employed in industrial training. The lavatory accommodation for the school-children should provide for a hot and cold water supply sufficient to enable them to wash thoroughly twice daily, care being observed that the same water be not used by two or more children, the lavatories should be so planned that the children may not be liable to get wet feet, and the fittings are best arranged when jets of running water are used instead of basins: it is desirable that during the winter months the lavatory should be supplied with hot water. The bath-rooms should be adequate for the bathing of every child at least once a week in winter and twice a week in the summer. The attention of the Local Government Board has long since been directed to the serious accidents which have occurred through the absence of proper regulations in workhouses and district schools for the bathing of the inmates, and have requested that special attention be given to certain requirements, amongst which the following have reference to structural arrangements. In the first place, the bath should be so constructed that the cold water may certainly be placed in the bath before the hot water. There are many special arrangements for this purpose, some of which are waste-preventing. Before any child or adult enters the bath, the official in charge of the arrangements should ascertain by a thermometer the exact temperature, which should be between 80° and 98° Fahrenheit. The bath-room should not be so small that it would be inconvenient for some paid officer or servant to be present to conduct the bathing. Every hot water tap should be provided with a key, which should be kept in the permanent charge of an officer of the workhouse, and may be entrusted temporarily to the person responsible for the bathing. During the bathing of children the schoolmaster or mistress or some trustworthy subordinate officer should always be present, and inmates should have the right to demand water which has not been previously used; therefore the capacity of the water tanks, both hot and cold water, should be regulated accordingly, and the most liberal supply of water that the district can afford should be secured. The baths should be of glazed fire-clay, and need not cost more than £5 each. In large establishments a swimming bath may advantageously be added, especially if so planned that it may be used alternately for both sexes. The depth of the swimming bath should not be more than about 5ft. at the deeper end and about 2ft. at the shallow end, with a bottom sloping gradually from end to end. The waterclosets and urinals should always be placed (as in other parts of workhouses) in an annexe, such as has been already illustrated in previous pages. This accommodation should be at the rate of not less than 10 per cent. of the boys, and 15 per cent. of the girls. This accommodation in connection with dormitories

should also be near to the sleeping apartments, but effectually isolated, as regards ventilation, by the narrow neck corridors already referred to. The children's dormitories require to have the minimum amount of wall spaces per head here given exclusive of door and fire spaces. If the dormitory be 15ft. wide, 4ft. per bed must be allowed, and if the dormitory be 18ft. wide then the wall space may be 3ft. 9in. In both cases, however, the floor area per bed must not be less than 36ft., and the cubic space 360ft. More than two rows of beds in the dormitories of industrial and other schools are frequently to be found, but are not by any means desirable. It has been suggested that the amount of spaces above mentioned might be somewhat diminished in those institutions "where the children are sub-divided into very small groups or families, as in the case of 'cottage homes' for ten or a dozen children, who may still further be sub-divided by placing four, five, or six children in a room," but as a general rule any such reductions should not be made unless under pressing circumstances, as the more liberal the areas allowed per bed the better must it be for the health of the inmates, whether officials or children. It is desirable that the site of the schools should be sufficient to afford ample space for playgrounds for children, having a sunny aspect, and, wherever possible, a piece of turfed or meadow land for outdoor exercise; and that it be where light and air can be freely admitted on all sides—these are points which have been insisted upon by the Local Government Board. The Guardians of the Poor of the parish of Birmingham long since adopted the system of forming large schools on the Cottage Home plan, and purchased a plot of ground at Marston Green, near Birmingham, of about forty-six acres in extent, and upon it built fourteen cottages (seven for boys and the same number for girls) each to contain thirty children; also residences for the superintendent and his assistants, workshops, store-rooms, school-rooms, a receiving or isolation ward at the entrance, a detached infirmary, swimming-bath. A considerable amount of land remained for cultivation both as a training ground and as an important source of food supply for the children. The industrial works of the children included needlework, painting, glazing, baking, carpentry, shoemaking, tailoring, tinplate working, gardening, &c. The sickness and death rates were found to be extremely small. It is desirable both for boys and girls that in the yards and play-sheds (or in rooms specially devoted to such purposes) there should be provided the means of physical training and exercise for the children, such as swings, parallel bars, ropes, and rings, and other gymnastic apparatus. The schoolrooms should be 18ft. in width, and not less than 12ft. in height, and afford a minimum floor-space of 9ft. for each child, exclusive of such space as may be necessary for purposes of access between the groups of desks, or such space as is from time to time required by the code of the Education Department. Generally the arrangements of the



school or class-rooms may be similar to those usually found in approved modern schools for children under the control of School Boards, and the Local Government Board has accordingly required that the desks should be so arranged as to afford a side light for the children, who should not be placed with their faces or backs to the light; the desks should be so constructed and arranged as to enable the children to work in unconstrained positions, and thus prevent weakness or distortions of the body after long sitting; the doors and fireplaces in schoolrooms should be so arranged as to leave the whole of one side of the room clear for the requisite seats and desks; where class-rooms are necessary they should be additional to schoolroom accommodation, and should be provided for about one-fourth of the children in the schoolrooms; they should be fitted up with galleries at right angles to the windows. The Local Government Board has stated that, in addition, to the necessary school, class, and work-rooms, there should be day-room accommodation of at least 10ft. for each child; the day-rooms being upon the ground floor, and possessing ready means of access to the playgrounds; they should have wood-block or boarded floors, and suitable arrangements for warming and ventilating at all seasons of the year. An important adjunct of a workhouse school for girls is the training laundry and washhouse, in which the appli-

## THE PRACTICAL DESIGNING OF IRON AND STEEL ROOFING.\*

(Continued from page lxxxiii.)

BY ALEXANDER DREW.

NO. VI. OF SERIES.

A WORD of warning might be given at this point, and that is, that if the arrangement (O) be chosen for a truss joint, it is desirable to make the junction-plates reversible, the holes being made symmetrical, so that should the workman reverse these plates while erecting the truss, no harm will be done. The last connection of this kind to be noted is that at (P), and is only suited for minor connections or small spans; the main tie is provided with an intermediate eye. The strut (shown here as T section) has part of the web notched away and the table kneed up, the vertical tie passing through these two members, and connecting all together by means of double nuts. In all cases where a joint of this kind is shown in text-books, the web of the T iron is indicated as bearing accurately on the main tie—in some cases it is carefully specified that such is to be the case—but in practice this nicety of finish cannot be ensured; the consequence is that this portion is either not bearing at all, or may be bearing so hard that when the joint

nected by a single bolt there. Should longitudinal ties be desired in this case, the plates may be made deeper, as shown dotted; the longitudinal ties being in this case provided with screwed ends and double nuts, and arranged zig-zag in alternate holes.

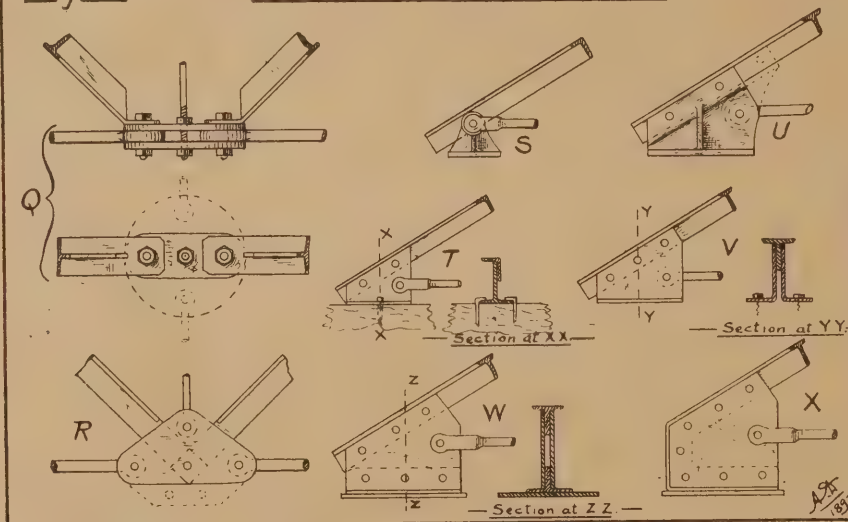
The last joint considered is that at the shoes. (S) shows a simple form of cast-iron shoe, the rafter drops into a notch in the same, and the main-tie is here shown with a jaw passing outside all; one single bolt being used to join all together. Such a type I would not recommend for anything but small spans (and to emphasise this the rafter is shown as of L section), although this exact form is shown in at least one text-book applied to a span of 85ft. For small spans a simpler shoe still is that shown at (T), this consisting of a short piece of T-iron bevelled off in the web, and connected to the rafter by two bolts; the main tie has a jaw at its end to connect it to this shoe; the whole is here shown as spiked done to a timber wall-plate. For larger spans another cast-iron arrangement is that shown at (U), the T-iron in the same way dropping into a notch, while a pocket is provided to take the eye at the end of the main tie. The same objections apply to a junction of this kind, as has already been noted with reference to the apex connection illustrated at (G), Fig. 31, and these need not be repeated here. Sometimes it will be noticed that this type of shoe is carried forward up the rafter as in the dotted lines, but this does not in any way improve the type. At (V) is shown a very good practical arrangement, and one that may be recommended in nearly every case for moderate spans. It consists simply of two kneed plates, shaped somewhat as shown, and bolted together with the rafter between same; the main tie may be either provided with a jaw and pass outside these plates, or with an eye and be set between; in this latter case it is likely that either packings would be required, or the plates would have to be joggled to provide room for the eye. A more elaborate, but no more efficient, wrought-iron or steel arrangement is that shown at (W), and consists of two shaped plates rivetted at bottom to a piece of T iron, this latter being in turn rivetted to a sole-plate, the rafter passing between the upper edges of the two plates, and is connected there generally by means of bolts; the main tie may be arranged as described for the last type. The last type illustrated is again that which should be taken as a warning; here the rafter of T section is turned downwards and then backwards in the manner shown; a plate is rivetted at either side of the web, and a sole-plate is also provided, to which the rafter end is rivetted. The difficulty and cost of turning round and welding up the rafter in this manner at once condemns such an arrangement, particularly when no benefit over that shown either at (V) or (W) can possibly be claimed for this. The main tie may be either provided with a jaw or eye, as in the last two cases.

Time will not permit of anything further being said with reference to iron or steel roof framework, and in conclusion we must turn for a little to the last subject noted for treatment—that of corrugated sheets.

Corrugated sheets, when used in constructional work, are almost exclusively applied in the form of covering to the roof or sides of a building. It is only with the former we have to deal here, but what is said with reference to this will apply almost entirely to the case of side covering as well. The thicknesses of these sheets are measured by what is called the "Birmingham Wire Gauge," where certain numbers represent a series of more or less arbitrarily chosen sizes; the larger the number the thinner the sheet. For roofing purposes these sheets vary from No. 16 to No. 24 gauge, or from about  $\frac{1}{16}$  in. to  $\frac{1}{8}$  in. in thickness; thinner sheets even than this, as No. 26 or No. 28, are frequently exported, but are made little use of in this country. No. 16 gauge is rarely used, No. 18 forming a very substantial covering indeed, while the more usual gauge is No. 20 or No. 22.

These sheets have so very little stiffness in themselves, that a considerable amount of framing is required if they are laid in this

Fig 32— JOINTS & CONNECTIONS.



ances, tables, and fittings should be constructed of a height to meet the requirements of girls undergoing training for domestic service, &c. For this reason hand appliances are desirable rather than machinery, and, in connection with these, airing-courts are by some authorities considered preferable to drying-closets, as being more in accordance with the conditions of private establishments, and the probable surroundings of the children in after-life. It is specially requisite that the playgrounds or courts for the children should have means provided for draining them in wet weather and for keeping them free from injurious dust during dry seasons; the playgrounds should be as pleasantly situated as circumstances will permit, and not be overshadowed by the workhouse or school buildings.

(To be continued.)

The first sod of the new waterworks at Midhope, on the South Yorkshire Moors, about ten miles from Barnsley, was cut recently. Parliamentary powers were obtained for the construction of the works after a prolonged and costly fight which ended in a compromise being effected between Sheffield and Barnsley. The selected site for the reservoir is at Hogg Wood, Midhope, where a natural valley provides an admirable spot. The engineer is Mr. Charles Hawksley. The estimated cost will, it is believed, reach nearly a quarter of a million.

is drawn up, the tendency is to twist both strut and tie; such being the case it would be distinctly better to cut the web away quite clear of the main tie, and thus get rid of difficulty or trouble which might arise here. If reference be made to junction (Q) on Fig. 32, a better arrangement of strut-end for a joint of this kind will be seen.

Passing to Fig. 32, the next joint indicated is that at the centre of the main ties, and only two examples of this form are given. At (Q) the main ties are provided with eyes, the struts have the web notched off and table turned up, while the king-rod is provided with a long screw and double nuts, the whole being connected by two junction-plates in the manner shown. Should it be desired to add longitudinal ties (that is to say, ties running from truss to truss throughout the full length of the building), it is only necessary to enlarge these junction-plates, say, in the manner dotted on sectional plan, and provide the longitudinal ties with plain eyes at the ends, which would slip between the two plates. (R) shows the same type of connection, but here the plates are vertical, and the king-rod is provided with an eye at its lower end, the struts are kept straight, but have the table notched off, are crossed at their ends, and con-

\* A lecture delivered before the members of the Edinburgh Architectural Association, and exclusively published in the BUILDERS' JOURNAL.



flat condition; but the almost invariable practice is to bend or set these in some manner to increase their stiffness. A considerable number of different methods have been suggested from time to time, but almost the only one in regular use now is that in which the sheets are corrugated, being stamped or rolled into a series of ridges or corrugations, running lengthwise, as illustrated in Fig. 33. The sizes in which these sheets can be got are more or less limited; the widths in regular use being 2ft. or 2½ft., while the lengths may be conveniently got up to 8ft. or 9ft., above this and up to a maximum of 12ft. or thereby, an extra price must be paid. The usual size of these corrugations are 5in. from ridge to ridge by 1½in. in depth for 16 and 18 gauge; while for 20 and thinner, and occasionally for 18 as well, the corrugations measure 3in. by ½in. deep. The width of sheets is measured from centre to centre of outside corrugations, and thus run in multiples of 5in. or 3in., 5-5in., and 6-5in., or 8-3in. and 10-3in. being the widths in common use. In laying such sheets the ordinary practice is to lap the edges one corrugation, as it is called (see Fig. 33), but if special weather tightness is wanted, or in some cases to secure extra stiffness, the sheets may be laid "double lapped" as shown. The end laps are usually 5in. or 6in., but might with advantage be increased should the slope be very flat, so as to check the tendency which the rain has to find its way up between the joints. The sheets are connected together by small bolts and nuts, or by means of light rivets and washers.

Fig. 33 shows two methods of laying; in the one the joints run in straight lines, while in the other the horizontal joints break with one another; the latter is frequently adopted where stiffness is aimed at, as in some special forms of curved roofs, otherwise there is not much to pick and choose between the two styles. In the same Fig. is shown one or two methods of connecting these to angle iron purlins; at (A) a hook bolt has its end slipped over the edge of the purlin, and the sheet is drawn down tight on same by means of a washer and nut; (B) is a distinctly better arrangement, where a special shaped clip is clasped round the purlin and bolted to the sheet. Sometimes the sheet has to rest on the edge of the purlin, as is often the case at the eaves of an iron roof; when such occurs the pair of clips shown at (C) and (D) may with advantage be used alternately; the former prevents the sheets from spreading, while the latter checks any tendency there may be for the sheets to rise upwards. (E) shows a single clip, on the same principle as that at (B). Should these sheets be laid on timber framework no difficulty need arise in fixing, iron spikes or screws being used. In all these cases of fixing no trouble whatever need be experienced in making holes for the bolts or spikes; the sheets are so thin in themselves that this may be readily done by means of a hand hammer and a punch.

Such sheets, if exposed to the weather for any length of time, would very quickly rust through, and they must thus be protected in some way. This protection may be got by means of a coating of paint or tar applied every few years, as might be found necessary; but a more usual method is that of *galvanising* the sheets. Here the sheets are first annealed (or heated to a red heat, and allowed slowly to cool), so as to render them soft and ductile, and are placed in a bath of dilute acid, so as to remove all dirt and scale, &c., from the surface; they are then washed carefully in water, and are finally passed through a bath of molten zinc, by which operation the surface becomes coated or covered over with this metal, and thus a very good protection is provided for the iron. Except in the very heaviest gauges, this galvanising is done before the sheets are corrugated. It is very desirable that all sheets be first carefully inspected before they are put through this process, to prevent trouble arising afterwards through any flaws or defects being temporarily hidden by this galvanising, only to be revealed at some later date.

There is one point which should be carefully considered when sheets are proposed as a roof-

covering, and that is the locality and circumstances under which they will be placed. Thus, in the neighbourhood of certain chemical works, or even gas-works, these sheets (particularly when galvanised) will sometimes be found to deteriorate very rapidly, owing to the acid fumes met with there. To overcome this an attempt has been made to supply leadcoated or *galenized* sheets, but this has not been very successful.

In all cases where sheeting is used, and particularly in such cases as those just noted, the sheets should be examined from time to time, so that any deterioration may be at once noticed and checked. In conditions unsuited to galvanised sheets, the best plan is to coat these with good paint, or some tar compound (in which case ordinary black or ungalvanised sheets may be used), and by renewing this coating as found necessary, a very good and lasting roof may be provided, suited to almost any circumstances. Under exceptionally favourable conditions these sheets have been known to last, without any material signs of decay, for many years, but such is not likely to be the case near any manufacturing town.

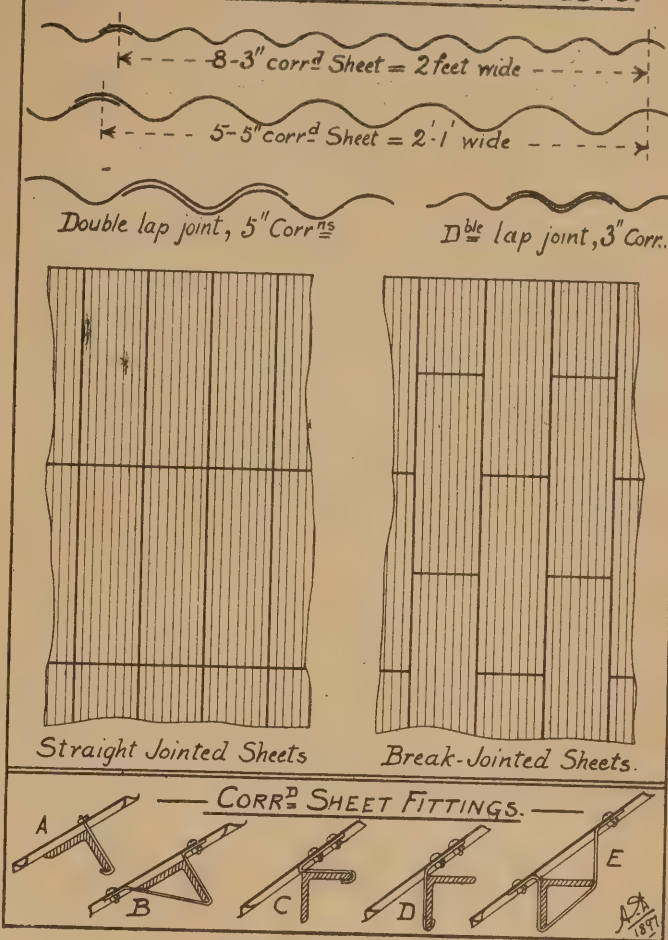
In concluding this series of lectures, I would earnestly impress upon all who may at any time be called upon to design such work as we have been considering, to keep the practical side of the question always before them. Theory and calculation will point to a particular section or scantling for each member of a roof-truss, while practice may often warn him that these same scantlings should be slightly modified to allow of their readier manipulation or handling, or it may be to permit of the bars being readily and cheaply procured.

Again, theory accepts almost any form of joint, so long as sufficient allowance has been made for the bearing and shearing stresses which occur there, while practice points to the adoption of the arrangement of joint which, while fulfilling the above-noted conditions, is at the same time the simplest and easiest to manufacture. In this, and in many other ways, practice will be found to govern or guide theory, while theory in its turn may help practice, to the mutual benefit of both.

In settling on the scantlings for any structure, do not forget the fact that iron and steel bars can only be had in a more or less limited range of sizes (and in this respect differ from timber, or the like material), and that in most cases no appreciable extra cost will be incurred by specifying, where necessary, a somewhat larger size than is required, so as to keep to some "stock" or easily-got size; considerable delay, and often additional expense, may be involved in getting delivery of odd or out-of-the-way sizes or sections.

It is also very desirable, while designing such structures or their details, to look at these things frequently from the point of view of the workman or engineer who may be called upon to produce the actual work; this will in many cases help the designer to avoid some of the pitfalls into which he might otherwise stumble, and will tend to ensure as a result an economical and practical structure.

Fig. 33.—CORRUGATED ROOFING SHEETS.—



I regret that time will not permit of anything being said on the question of the quality of the materials most suited for structural requirements, and the best manner of specifying and testing the same; but this is unavoidable in such a short course. For the same reason nothing has been said directly as to the strength of iron and steel purlins, and the like; the special arrangements which have frequently to be employed in finishing off the end of a roof, either when closed down to the square, or pavilioned; or when one roof mitres into another. The best method of providing light and ventilation in such roofs, particulars as to gutters and rain-water pipes, and many other points more or less directly connected with the designing of iron and steel roofing, have also necessarily been entirely passed over. I trust that what I have been able to bring forward may serve either as a means of refreshing the memory of those who have already studied the matter, or help those who may desire to take up this subject for the first time.

[FINIS.]

MESSRS. JAMES YOUNG AND SONS, since they obtained the contract, have lost no time in making a start upon the important works of the Talla Reservoir. The huts are being built of wood, with a felt roofing, upon the south side of the stream below the reservoir. Each is 112ft. in length by 24ft. in width, and accommodates eighty men. On the north side there will be a bakery, stables, and wooden cottages for the managers and inspectors, and there will be a small Church, and a club-house and recreation hall. The men are chiefly engaged in excavating for the puddle trench, which will go 70ft. below the bed of the stream, and is 22ft. in width. To enable them to get down with safety and without any risk of flooding, the contractors are pushing on the construction of a tunnel into which, when it is completed, the whole body of the water will be turned.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
July 9	Brighton—Alterations, School of Art	Town Council	F. J. C. May, Town Hall, Brighton.
" 9	Bedminster—Stables, North-street	Co-operative Society	Society's Office, 160, East-street, Bedminster.
" 9	Harrow—Drying Rooms, &c.	J. Adamson and Co.	Johnstone Brothers, 39, Lowther-st., Carlisle, Cumberland.
" 9	Mallow—Piers, Gates, &c.	Guardians	Board's Engineer, Market-square, Buttevant.
" 10	Beetham—Alterations, &c., Vicarage		J. F. Curwen, Architect, Highgate, Kendal.
" 10	Burnley—Walling, &c.	Rural District Council	S. Edmondson, 18, Nicholas-street, Burnley.
" 10	Cardiff—Alterations, 52, Charles-street	Guardians	E. Seward, Queen's-chambers, Cardiff.
" 10	Dalton—Small Mission Church		E. A. Stockdale, Vicar, Dalton.
" 10	Londonderry—Six houses, Strand-road		W. Barker, 3, Richmond-street, Londonderry.
" 10	Leeds—Alterations, &c., Dewsbury-road	City Council	R. H. Townsley, Municipal Buildings, Leeds.
" 10	Leeds—Meter House, New Wortley Gasworks	Gas Committee	R. H. Townsley, Gas Offices, Leeds.
" 10	Rooksbridge—Chapel		E. W. House, Rooksbridge.
" 12	Boscombe—Bank Premises	Wilts and Dorset Banking Co.	G. M. Silley, 17, Craven-street, Strand, W.C.
" 12	Odiham—Schools, Bury Fields	School Board	Colson, Farrow, and Nisbett, 45, Jewry-street, Winchester.
" 12	Abertillery—School	School Board	G. Rosser, Victoria-buildings, Abercarn.
" 12	Southall—Public Offices, &c.	Urban District Council	T. Newell, High-street, Southall.
" 12	Bradford—Works, &c., for School, Sandy-lane	School Board	Peterson and Lawson, 1, Bank-street, Bradford.
" 13	Old Hutton, Kendal—Alterations, &c., Audland Park	H. A. Rauthmell	G. L. Hoggarth, Architect, Kendal.
" 13	Shap—Alterations, &c., Threaplands	T. A. Metcalfe-Gibson	G. L. Hoggarth, Architect, Kendal.
" 13	Bucklow—Taking Down, Erecting, &c., Footbridge	Rural District Council	J. M'D. McKenzie, 7, Market-street, Altrincham.
" 13	Ilford, Essex—Foundations of Lunatic Asylum	West Ham Town Council	L. Angell, Town Hall, Stratford, E.
" 13	Elgin—Alterations and Additions		C. C. Doig, Architect, Elgin.
" 13	Thornbury—Four Terrace Houses		Fairbank and Wall, Craven Bank-chambers, Bradford.
" 13	Malling—Alterations, &c., to Infirmary	Union	J. Ladds, 7, Doughty-street, Mecklenburgh-square, W.C.
" 14	Halifax—Mill, &c.	Guardians	C. F. L. Horstall and Son, Lord-street-chambers, Halifax.
" 14	Pontefract—Vagrant Wards, &c., Workhouse	School Board	Greaves and Co., Corn Market, Pontefract.
" 15	Barry, Wales—School Works, Palmerstown-road		W. H. D. Caple, 1, St. John's-square, Cardiff.
" 15	Leeds—Two Houses		Fred. Mitchell, Architect, 71, Albion-street, Leeds.
" 17	Arisaig, Inverness—Additions, &c., Hotel		D. Cameron, Architect, Inverness.
" 17	Penygroes—School		E. Evans, 8, Castle-street, Carnarvon.
" 17	Clown—Bricklayers' Work, Six Houses	B. Davies	B. Davies, Crown Inn, Clown.
" 17	Northumberland—Bath Rooms, &c., Lunatic Asylum	County Council	J. Cresswell, Moot Hall, Newcastle-on-Tyne.
" 19	Walsall—School, Croft-street, Birchills	School Board	Bailey and McConal, Architects, Bridge-street, Walsall.
" 19	Baslow—Twelve Cottages	Urban District Council	V. R. Cockerton, Clerk, Baslow.
" 19	Wimbleton—Stabling, Dwellings, &c.	Urban District Council	C. H. Cooper, Council Offices, Broadway, Wimbledon.
" 19	Chester—Restoration of Town Hall, &c.	Town Council	T. M. Lockwood and Sons, 80, Foregate-street, Chester.
" 19	Oulton, near Lowestoft—Annexe, Infirmary	Guardians	A. Clarke, 126, London-road, Lowestoft.
" 20	Salisbury, Wilts.—Engine House, Boiler House, &c.	County Asylum	Massey and Allpress, 25, Queen Anne's-gate, S.W.
" 21	Felixstowe—Shelter	Urban District Council	Town Hall, Felixstowe.
" 24	Bourton-on-the-Water—Hall, &c.		E. W. Kendall, Bourton-on-the-Water.
" 26	Goole—Extension of Boothferry-road Schools	School Board	W. B. Andrews, 24, Boothferry-road, Goole.
" 30	Crowborough—Residence, Workshops, &c.	Provincial Gas Works Limited	The Engineer, at Works, Crowborough.
No data.	Topping Fold, Lancs—Four Houses	Mr. Sand	C. H. Openshaw, Engineer, Fleet-street, Bury.
"	Clacton-on-Sea—Shops, Residences, and Stables		J. W. Martin, Station-chambers, Clacton-on-Sea.
"	Surbiton—Removal of Building	Surbiton Urban District Council	S. Mather, Surveyor, Victoria-road, Surbiton.
"	Grimsby—Business Premises	N. E. International Trading Co.	H. C. Scapery, Architect, Court-chambers, Grimsby.
"	Merthyr Tydfil—Fifty Houses, Pennydarren Yard	Building Club	Johnson and Williams, Architects, Merthyr.
"	Weside, Hereford—Shedding and Horse Boxes	Herefordshire Horse Show Soc.	W. T. Williams, 6, St. John-street, Hereford.
"	Middleton St. George, Durham—Asylum Buildings		J. W. Dyson, Architect, 67, Grey-street, Newcastle-on-Tyne.
"	Salisbury—Steam Laundry, Fisherton Asylum		F. Bath, Architect, Crown-chambers, Salisbury.
"	Yorks—Pair Semi-detached Villas, Sleights		J. Milligan, Architect, 77, Baxter-gate, Whitby.
"	Hurst—Six Houses, Queen-street		J. Hurst, Surveyor, 196, Curzon-road, Hurst.
"	Ikley-in-Wharfedale—Extension of Grammar School		C. H. Hargreaves, Architect, Exchange-buildings, Bradford.
"	Keighley—Additions to Park Works		Jno. Haggas, Architect, North-street, Keighley.
<b>ENGINEERING—</b>			
July 9	Barton-on-Humber—Puddled Tank, &c.	Gas Company	Company's Works, Barton-on-Humber.
" 9	Easingwold—Waterworks	Rural District Council	Clerk's Office, Easingwold.
" 9	Haslingden—Artificial Filter Beds, &c.	Sewerage Board	H. L. Hinnell, 41, Corporation-street, Manchester.
" 9	South Shields—Boiler and Mountings, Pump, &c.	Corporation	Borough Electrical Engineer, West Holborn, South Shields.
" 10	Buckfastleigh—Main Drainage Works	Urban District Council	J. Wilcocks, Surveyor, Buckfastleigh.
" 10	Cockett, Wales—Water Mains, &c.	Rural District Council	J. Thomas, 32, Fisher-street, Swansea.
" 10	Llansamlet, Wales—Water Mains, &c.	Rural District Council	J. Thomas, 32, Fisher-street, Swansea.
" 10	Walton-on-Naze—Extension of Pier	Pier and Hotel Company	W. Jaffrey, 3, Victoria-street, Westminster.
" 10	Wilton, near Lakenheath, Suffolk—Bridge	County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 13	London, N.—Reconstructing Highgate Archway	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 13	London, S.W.—Engines, &c., North Woolwich	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 13	London, S.W.—Boilers, North Woolwich	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 14	Gainsborough—Waterworks	Urban District Council	H. Riley, Council Offices, Gainsborough.
" 14	Maryborough—Weighbridge, Lunatic Asylum	Board of Governors	Chairman, Board of Governors, Maryborough.
" 15	Urfingford—Pump, Ballyphilip	Guardians	A. Cavanagh, Whiteswall.
" 19	Almaden, Spain—Boiler, Quicksilver Mines	Directors	Delegaciones de Hacienda, Barcelona.
" 19	Sunderland—Service Reservoir	Water Reservoir	Company's Office, Fawcett-street, Sunderland.
" 21	London—Extending Reservoir, Drain Pond, &c.	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 21	London—Laundry Machinery	Metropolitan Asylums Board	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
Aug. 28	Craiova, Roumania—Water Supply	Communal Council	Mairie, Craiova, Roumania.
" 31	Cairo—Iron Bridge	Ministry of Public Works	Inspector of Irrigation, 2nd Circle, Cairo, Egypt.
<b>IRON AND STEEL—</b>			
July 9	London, E.C.—Girder Bridges	South Behar Railway Company	Company's Office, 44, Finsbury-circus, E.C.
" 13	Oldham—Ironwork, &c.	Waterworks Committee	G. H. Hill and Sons, 3, Victoria-street, Westminster.
" 15	Valetta—Iron Joists		Crown Agents for the Colonies, Downing-street, London.
<b>PAINTING—</b>			
July 9	Sedgley—Painting, &c., Schools	School Board	S. Wilkes, Chairman, Sedgley.
" 10	Chorley—Painting, &c., Town Hall	Corporation	W. Leigh, Town Hall, Chorley.
" 12	Wainsgate—Painting Baptist Chapel and Schools		J. Judson and Moore, Architects, Oakworth, near Keighley.
" 12	London—Painting various Schools	School Board	Works Department Offices, Victoria Embankment, W.C.
" 12	Bradford—Painting, &c., Schools	School Board	School Board Offices, Manor-road, Bradford.
" 12	Salford—Painting, &c., Schools	School Board	School Board Offices, Salford.
" 13	Ipswich—Painting, Decorating, Schools	School Board	Board's Offices, Ipswich.
" 22	Surrey—Painting, &c., St. Saviour's Union	Guardians	G. D. Stevenson, 13, King-street, Cheapside, E.C.
" 26	Manchester—Painting Dwellings, Oldham-road	Sanitary Committee	City Surveyor, Town Hall, Manchester.
<b>ROADS—</b>			
July 9	Rochdale—Supply of Carnarvon Setts	Health Committee	Sanitary Works, Entwisle-road, Rochdale.
" 10	Eastbourne—Passage-way	Highways and Drainage Committee	Engineer's Office, Eastbourne.
" 10	Romsey—Hauling Gravel and Flints	Rural District Council	J. Allsop, Clerk, Romsey.
" 10	Sunderland—Whinstone, &c. (12 months)	Rural District Council	G. H. Humble, Council's Offices, Sunderland.
" 10	Fenton—Supply of Paving Setts (450 tons)	Urban District Council	S. A. Goodall, Town Hall, Fenton.
" 10	Leicester—Preparing, &c., Stone Sett Paving	Urban District Council	S. A. Goodall, Town Hall, Fenton.
" 12	Baldon—Supply of Granite (700 tons), &c.	Trustees of Wyggeston's Hospital	W. H. Woolley, Surveyor, Stapenhill, Burton-on-Trent.
" 12	Ebbw Vale—Improving Road	Urban District Council	H. E. Huggins, Clerk to the Council, Baldon.
" 13	Sedgley—Hauling Materials for Roads, &c.	District Council	T. J. Thomas, District Council Offices, Ebbw Vale.
" 13	Dover—Granite Spalls (150 tons)	Guardians	26, High Holborn, Sedgley.
" 13	Willesden—Road-making and Drainage	District Council	E. Carder, Union Offices, Dover.
" 14	Knaresborough—Street Works	Rural District Council	O. C. Robson, Public Offices, Dyne-road, Kiburn.
" 17	Luton—Supply of Slag	Rural District Council	R. Annakin, 44, Station-square, Harrogate.
<b>SANITARY—</b>			
July 12	Beckenham—Sewer (925 lineal feet)	Urban District Council	J. A. Angell, District Council Offices, Beckenham.
" 12	Holyhead—Sewerage Works	Urban District Council	J. L. Griffith, Clerk, Stanley House, Holyhead.
" 13	Norwich—Sewerage Works	Corporation	A. E. Collings, Guildhall, Norwich.
" 15	Wallsend—Scavenging, &c.	Urban District Council	G. Hollings, District Council Offices, Wallsend.
" 19	Walsall—Sewer, Rookery-lane	Rural District Council	T. T. Fisher, Leicester-street, Walsall.
" 21	Biggleswade—Sewerage Works	Rural District Council	The Surveyor, Council Offices, Biggleswade.





### Art versus Professionalism.

The election of Fellows to the R.I.B.A. is a question which has given rise to much excitement in that

august body. The two meetings lately held on this subject seem to have been quite animated. The Council, oppressed by the fact that the candidature for the Fellowship does not increase, or, rather, that it shows an alarming tendency to decrease, appears to have been tempted to resort to the methods of "a certain man" in the parable, who sent out into the highways and hedges to compel them to come in, that his house might be full. To this proceeding the Associates objected, as tending to lower the rank and dignity of the Fellow, and, consequently, that of the Associate. They had paid dearly enough for their privileges, such as they are; so why should others, no better than themselves, be put over them simply for the asking? Why should men who had tried to pass the examination, and had failed, be elected as Fellows, because they had been successful in obtaining commissions, and because they happened to have friends on the Council? This, though narrow, was what might have been expected; so it was not to be wondered at that when certain candidates, having failed to pass the examination, were put up for election as Fellows, the Associates should go down in a body and blackball them, so as to be on the safe side. The Council appointed a committee to consider the whole question; their report came before a Special General Meeting on May 31. To certain clauses of this report the Associates objected, particularly to one in which it was proposed to alter the proportion of votes necessary to election from four in favour of to one against—as it is at present—to two in favour of, to one against. This seems to have been considered as an attempt to make it more difficult to blackball any of the Council's candidates. It was strenuously opposed, and, after a heated discussion and an adjournment, was withdrawn. Another clause, empowering the Council to elect, without ballot, any member of an allied society who should be unanimously recommended by that society, was also strongly opposed but was eventually agreed to, with the added proviso, that his work should be of sufficient merit in the opinion of the Council, and that this rule should only remain in force for five years. The logic of all this is not quite clear. The Associates, as a class, have no objection, on principle, to the election of outsiders who have not passed the examination. They are willing enough to admit those they think desirable. If they made a matter of principle of it, and refused to admit anyone who had not passed the examination, their position, whatever else it might be, would at least be logical, and we could understand it. As it is, we have some difficulty in following them, and can only conclude that they differ from the Council as to which constitutes the necessary qualification of a Fellow; that they consider themselves better judges than the Council of the sort of man of whom the Institute approves. This seems a bit presumptuous; surely the older men, who have spent a lifetime in the Institute, would know its point of view better than the comparatively new comers? Where, too, is the logic in this? They do not think the Council good enough to judge

whether a man is fit to be a Fellow or not, but they are quite willing, and even eager, to get a sentence inserted in the bye-laws, whereby this same Council is made the judge of the merits of anyone proposed by an allied society—presumably as a check on that allied society—or else the allied society is supposed to be a check on the Council. This is naïve. As far as we can understand it, the whole body of the Institute elects a Council, as a head, to act for it and represent it; then proceeds to say that this head does not know what sort of man the Institute delights to honour. If the head does not know, surely the body does not; and if neither knows, who does? The Institute frames an examination,

ture really means. Is it simply because these men are clever in their own way, and successful; and that the Institute is more concerned with widening its own influence and power than with maintaining a high and correct conception of Architecture? We have heard it said that those represented by the Associates' Committee do not so much hold that the Council cannot be trusted to select the type of man that the Institute has been in the habit of honouring, but rather that the Institute has hitherto honoured the wrong type, and that this is their way of expressing their sentiments. We understand they would like to see some recognition given to Art. They hold that the man to be elected Fellow



OLD HOUSE, HIGH STREET, OXFORD. SKETCHED BY H. I. TRIGGS.

including those things which it considers generally necessary to salvation. Then it proceeds to express its willingness to elect, and we believe has elected as Fellows men who could not pass this examination, and would not if they could; and not only that, but men whose whole lives have been a standing protest against the views and doctrines of the Institute. Is this treating the examination seriously? We confess it puzzles us, and prompts us to ask whether the Institute has the courage of its convictions, or rather whether it has any convictions at all? Does it really believe in its examination? If so, why go back on it like this? Is it quite sure its conception of Architecture is the right one? If it is, why does it profess itself willing to elect men who think differently—men who hold that the Institute has no conception of what Architec-

should at the very least have some claim to be considered an Artist; or, in other words, that the Fellows of an Institute of Architects should be Architects themselves. Here is something even we can understand, and it strikes us as most reasonable, and the only wonder is that no one had thought of it before. After all, then, professionalism is not everything. Considering that an Architect is before all things an Artist, it certainly might not be a bad idea to include in an Institute of Architects just a few Artists, with a view to leaven the whole Institute. But a certain practical difficulty occurs to us. In these days, when the principles of Art have been scattered broadcast to the four winds of Heaven, when the frontier line between Philistia and Bohemia has been hopelessly effaced, who is to say whether such or such an one is an Artist or not? Are these half a



dozen men, even among the Associates themselves, who are agreed as to what Architecture is? Do they possess any standard of criticism by which they can judge whether a man is really an Artist, and a sufficiently accomplished one, or whether he simply fancies himself to be such? We have our doubts. But do these Associates seriously propose to themselves the Herculean labour of cleansing the Augean stable, of transforming the Royal Institute of British Architects into a Society of Artists? If they do, we admire their pluck, as they have a heavy task before them. But do they remember the ancient apothegm concerning an Ethiopian and a leopard? Have they considered whether the amount of energy necessary to this undertaking might be more profitably employed in another direction? Have they considered whether the thing is possible, and if possible, whether it is worth while? Do they realise, we wonder, that an Artist is one who follows Art as a religion, one who will only tolerate professionalism and worldly success in so far as they are consistent with Art; and do they equally realise that the Institute is a body that only tolerates Art, in so far as it is consistent with professionalism and success. Do they quite realise that an Artist is one who lives by ideas, who worships Nature and her principles, and to whom freedom is as the breath of his nostrils; and that the action of the Institute gives ground for thinking that it lives by opportunism and officialism—by formulas and conventions—that worships professional decorum and practical success, and that is clothed with respectability and routine, as with a frock coat and silk hat. All which things are worthy enough in their own proper places, but that place is not the Republic of Arts. How do they propose to reconcile these two attitudes, between which there is a great gulf fixed; nay, more—between which there is the same difference as between night and day, as between the truth and a lie. We ask them to consider this, and to face the situation squarely—to say whether they expect any success in attempting to mix water and oil. We see no chance here for a compromise, no chance to try and sit on two stools, or to serve two masters. There is no such thing as being "a bit of an Artist." Either a man is an Artist by the grace of God, or he is not. It is a circumstance over which he has no control. Whether he has followed Art faithfully and is an accomplished Artist, or whether he has followed after some strange God and is an ignorant one, is quite another matter altogether. Can a Society of Artists logically include men who are not Artists, though both put up buildings? Can a Society of Musicians include fog signallers, though both produce sounds? Can a Society of Whites include Blacks, even though they are all human beings together? If it does, it is no longer a Society of Whites, any more than the Institute can be a Institute of Architects if it includes men who are not Architects. This fact presents some difficulty to all those who attach any value to the meaning of words, and think it advisable that things should be called by their right names. If what we hear be true, and if the Associates' Committee really determines to see to it that Art be put first, and Professionalism be left to take care of itself; to insist, in season and out of season, that an Institute of Architects is by its name an Institute of Artists, and should be composed of such; to proceed to attain this end by a policy of pouring in water till the oil overflows at the top, their proceedings will be followed by every lover of Art with sympathy and interest. But if they are merely of opinion that Art might safely be patronised a little further without danger to the success of the Institute; that a little more Art might still be consistent with Professionalism and success; that the men elected as Fellows should take a little more



THE SUNDIAL, CORPUS CHRISTI COLLEGE, OXFORD. SKETCH BY H. I. TRIGGS.

interest in Art and know a little more about it, but not necessarily be Artists by nature themselves; if they think that by this means the honour and glory of the Institute might be enhanced in the eyes of the public, all we can say is that possibly it may be so, but that it is of no importance to any one but themselves, one way or the other. A society of professional men taking a more or less intelligent interest in Art is one thing, possibly a very useful thing; but a Society of Artists, producing Art and living for Art, is of a different order of creation altogether. To the Artist who must live an Artistic life by the law of his being—who is concerned before all things for the advancement of his Art; who is content to leave his reputation and ultimate success to the "perfect witness of all-seeing Jove"—it is of no interest or consequence whatever how far the Institute, or any other respectable society, is pleased to approve or disapprove of his Art, so long as such society has other interests which it continues to put before those of Art.

#### STREET PAVEMENTS.

THE number of letters appearing in a Newcastle contemporary has induced a correspondent to send a few notes generally on street paving. No good roadway can be made without a rigid foundation, the material with which the street is paved being merely the skin or veneer to preserve the real roadway—the foundation underneath. Modern experience has shown that the best foundation is one composed of cement concrete. Numerous qualifications are necessary for an ideal roadway, and an engineer must take many considerations into account before deciding upon the most suitable paving for different roads. These considerations are:—Impermeability (on sanitary grounds), durability, foothold, ease of traction, adaptability to all gradients, adaptability to all classes of traffic, noiselessness, non-manufacture of mud or dirt, ease of cleansing, ease of repairs, economical in first cost and maintenance, not influenced by climatic changes, and good appearance. All these qualifications have to be considered as well as the effect on the value of the surrounding property and business

interests. The pavements for heavy traffic from which to select are "granite setts," "wood blocks," and "natural asphalt."

#### THE GRANITE SETT PAVEMENT.

when of good quality, and well laid, has a longer life than any other, and costs less for maintenance. In Liverpool, where the traffic is very heavy indeed, the average cost of maintenance for four years was only one farthing per square yard, while natural asphalt cost nearly 2d., and wood 5d. per square yard. This kind of pavement is adaptable to most gradients, is suitable for all classes of traffic, is very durable, has fair foothold, gives easy traction, gives minimum of dust and mud, is fairly easily cleansed, and is fairly easily repaired. Its defects are that in certain conditions of the atmosphere it is rather slippery, and the noise is undoubtedly very great. This latter defect can in a great measure be overcome by using London and Hobbs's patent non-conductor of sound, which, although it cannot prevent the noise of the vehicle on the granite, prevents that unpleasant echo or reverberation of sound which is caused by the common practice of sweeping hard gravel, a conductor of sound, between the setts before the bitumen is poured in. The use of

#### WOOD PAVEMENT

has increased in a remarkable way during the last few years, no doubt in consequence of the superior quality of the Australian hardwoods, recently introduced into this country, and its noiselessness without the slipperiness of asphalt. It is noiseless, manufactures no dust in itself, offers very little resistance to traction, is fairly durable, is comparatively easily repaired, suits all classes of light traffic, has a good appearance, and is fairly easily cleansed. Its most serious defects are, that it offends more than any other pavement against public hygiene, and its cost of maintenance is very great. In Liverpool, wood pavement is laid instead of granite setts if the abutting owners prepay 60 per cent. of the estimated first cost of the wood, the Council undertaking to maintain it for ten years. Asphalt pavement nearly complies with all requirements, but unless kept scrupulously clean is at times very slippery. It is very easily cleansed, and is quite impervious.



## OXFORD.

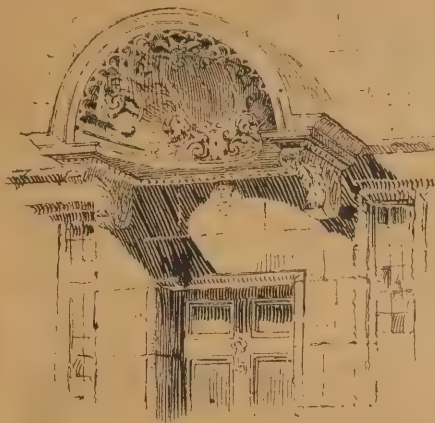
ILLUSTRATED BY SKETCHES BY H. I. TRIGGS,  
J. HUTCHINGS, E. F. REYNOLDS, AND  
G. A. COX.

## PART I.

IT was from someone who knew intimately of the history, the traditions, and the academic life of Oxford that there came the fastidious complaint of Oxford being "so bitterly historical." The phrase must seem unjust to the majority of us, whether we know Oxford in fact or by hearsay only. Oxford has a pre-eminence in antiquity, and as we are wont to value and esteem, to closely cherish all those ancient signs and tokens which help us to link ourselves to our forefathers, to feel and think for a moment as they felt and thought, and the past history of our race: so should Oxford be most valued, most cherished, and most esteemed of us. People are apt to forget that the major part of the charm and beauty which appeal to them in the relics of antiquity—in the work of the hands and minds of men who belonged to a past epoch—is not so much interest in the thing itself as that it focusses on to the imagination the limitations, customs, ideals, and enthusiasm of those from whom we inherit our national prestige, whose experiences we profit by, and whose impulses are yet throbbing in our own veins. The day is not far distant when an omnibus, such as those now running on our streets, with its primitive harness and iron-bound wheels, and all splashed over with crude colours and painted letters, will be set in a museum, and regarded with the admiration and veneration of our descendants.

When above we alluded to Oxford as being pre-eminent in antiquity, we did so advisedly. It has certain characteristics which make it, with the sister University at Cambridge, unique in the British Empire. We must first remember that since a very early date, which cannot be exactly stated, but which may be fairly referred to the year 1100, the purpose and ambition of Oxford has been constant and unchanged. It is known that Master Puleyn began to lecture at Oxford in 1133, and it is not likely he would have done

so had there been no schools. Oxford also, by virtue of its high privilege as a centre of education, has found respect of Kings, Popes, and Conquerors, and it has been largely preserved from the eliminations, reorganisations, and renovations which characterise other places. Oxford has always been Oxford;



A DOORHEAD. SKETCHED BY J. HUTCHINGS.

and it may be assumed that 400 years ago its University was of greater significance than it is now. In the reign of Henry III. there were 30,000 students. So it is that very little has been removed to make place for new. The Colleges venerated their traditions. One thing has grown and developed from another, till now we find in Oxford, and in its Architecture, and its régime, anomalies and anachronisms bunched together; and through and over this history has marked its epochs in stone walls, and in college phrases and customs, so that he who can read these signs and tokens may indeed feel and say, if he be so minded, that Oxford is "bitterly historical." In Architecture we may trace from the Old Castle and the Cathedral, Merton and Magdalen, to Jacobean Oxford, all crumbling and lichenized, and crowded with thousands of noble associations, and the names that have distinguished our country. At St. John's and Queen's we are reminded that even such modern names in the history

of Architecture as those of Inigo Jones and Wren are beginning to fade into the dimness of history along with those of William of Wykeham and William de Waynflete, for the Jones' Colonade in the inner quadrangle of John's is crumbling badly, and the noble front of Queens (which, however, is actually the work of Hawkesmoor, though suggested by Wren) is scared by the weather, and the forms of the carving are growing blurred and merged together confusedly. And so may we trace out, step by step, the history of Oxford in its stones, through Thomas Dean's University Museum, inspired by the writings of Mr. Ruskin, the Balliol scholar, through the work of the revivalists to Mr. Waterhouse's Balliol front, and to Mr. Jackson's new schools, Mr. Bodley's perfect and inimitable compositions in the style of the fourteenth century Oxford traditions, down to Mr. Hare's Municipal Buildings, which stand within a stone's throw of the old Carfax tower, as though a cycle were completed and the last were linked to the first. And that such a cycle never is, and never can be complete, that the future is always treading on the heels of the present, and the present is, even while we notice it, ticked off as belonging to the past, is the bitterness of the historical side of Oxford. This merging contrast of old and new is emphasised by the electric lighting which has displaced gas in the main streets of Oxford. One feels it was an obtuseness of sentiment and feeling, a very instinct of the vandal, that prompted such usage. Now, from the Carfax to Magdalen, and upon Balliol and John's, electric light flashes, and a tram jangles up and down before them. The old Colleges shrink away and stand alone with their solitary, solemn past, and the life of the place, with its hopes, and ambitions, and despairs, circles and hop round and within their walls. And if the varying forms of Architecture can so solemnly impress us with the ineffable sadness and awesome solemnity which are awakened in us when we are confronted with the relics of the past life of our race, how strongly must this be impressed upon the thoughtful within the University itself, when every custom of the invoked régime and discipline of the Colleges has its tradition, and to those who care to know, a special significance as being a heritage from the dead past,



WORCESTER COLLEGE, OXFORD. THE OLD BUILDINGS. SKETCHED BY H. I. TRIGGS.





THE QUADRANGLE, NEW COLLEGE, OXFORD. SKETCHED BY H. I. TRIGGS.

when other religions and aspirations were the living impulse of the 'Varsity. We have said that Conservatism is characteristic of the Academic mind, not to annul and reorganise, but rather to retain traditions, and modify them to the changing needs. We may, in illustration of this, refer to the ceremony known as Collections. The function has been thus described by Mr. Andrew Lang: "On the last day of term, undergraduates are called into the Hall, where the Master and the Dean of the Chapel sit in solemn state. Examination papers are out, but no one heeds them very much. The real ordeal is the awful interview with the Master and the Dean. The former regards you with the eyes of a Judge, while the Dean says: 'Master, I am pleased to say that Mr. Brown's papers are very fair, very fair. But in the matter of chapels and of catechisms Mr. Brown sets—for a scholar—a very bad example to the other undergraduates. He has only once attended Divine service on Sunday morning, and on that occasion, Master, his dress consisted exclusively of a long great coat and a pair of boots.' After this accusation, the Master will turn to the culprit, and observe, with emphasis (ill represented by italics): 'Mr. Brown, the College cannot hear with pleasure of such behaviour on the part of a scholar. You are gated Mr. Brown for the first fortnight of next term.'" Now this ordeal, with its strange appellation, is merely a survival of an obsolete custom relating to the collection of the College dues. This duty is now performed by the bursar at the beginning of each term, but in 1331 it was ordained that all Masters of Arts should personally collect their salaries from the scholars, and this was done at the end of the term.

The early history of the University is replete with a fascinating interest, but it is rather with the Architecture of the city that we are here concerned. The story of the early struggles with the Jews, the Friars, the Papal Legates, and, above all, with the town, which it is to be remembered was a flourishing commercial centre, with moneylenders and trading barges on the river before the University acquired any privileges, or, indeed, property. It was not till the thirteenth century that the University may properly be said to come into existence. It was only then that she gained to the possession of rents and common funds, and that benefactions were contributed and endowments made. From that date her power grew, chiefly by the support of the Monarch and the Papal Courts. One of the earliest tokens of the growing prestige and importance of the University were the assignation of fines. The earliest of these seems to have been paid by the townspeople of Oxford over the matter of the hanging of two clerks. The town had hanged these clerks, or scholars, of the University, and had to pay no less a sum than 52s. by way of compensation. In those days every clerk seems to have been equipped with bow and arrows, and dagger; and with perhaps a buckler to ward the weapons of his adversaries; indeed, even as in Monmouth's day, the University contributed a useful body of archers in the unfortunate cause. It was, however, in broils with the town, or more rarely with a rival College, that these weapons came into play. The "Town and Gown row" is by no means a latter-day invention, the game was played with more serious issues five hundred years ago. One may remark that even in the fourteenth

century the saying that "boys will be young men" was as true as it is in Oxford to-day, whether it inspires dawning manhood to ram plate-glass windows in the "High" with a ladder, and be fined in the Chancellor's Court therefor, or to abuse the wine at the Swyndlestock Tavern in Carfax and break the head of the vintner with his own tankard on his own threshold. This is what happened on the feast of St. Scolastica in 1354, and led to a town and gown row, such as the most hot-headed undergrad. dare not hope to provoke in these days. In ten minutes the town bell was set ringing in St. Martin's Tower, the Chancellor answered with the bell of St. Mary's, and shooting commenced. It was only at nightfall that the ranks of the town, strengthened by their friends from the country outside the gates, drove back the clerks to their colleges. One regrets that the town should have resorted to the scalping of sundry of the defeated scholars. Perhaps it was in consideration of this painful indignity that the final result of the whole matter was the conferring of many liberties upon the University by Edward III. This indulgence—for in point of fact many of these newly conferred rights had been taken from the town—indicates the recognition of power and consequence he accorded to the University.

It is with the Architecture of the city, however, that we are now in chief concerned. Oxford is full of fine Architecture, which is not merely manifested in its edifices of importance or magnificence, but in all the ramifications and humble outbuildings of its numerous Colleges. We are speaking, of course, of mediæval Oxford, but there is very little of bad Architecture, old or new, in Oxford, and among the modern collegiate buildings the only designs that can be termed bad are those erections of the days of the Gothic revival, and from these blots Oxford, happily, has largely found exemption. In our own day Mr. Bodley, Mr. Jackson, and Mr. Champneys have all contributed to the dignity and beauty of collegiate Oxford, and Mr. Hare, on behalf of the town, has, in his municipal hall, raised a building which, besides its great merits of design has, in point of style, exactly achieved that happy balance of old and new, which will allow his building forever to stand in mediæval Oxford, unchallenging and unchallenged of the College buildings, while, at the same time, it can never be attributed to any other date than the end of the nineteenth century. We find also a further gracefulness and charm in this beautiful city. If the College buildings could cease to have any existence, Oxford would still be one of the most picturesque and romantic of English towns. The unequal, irregular streets are flanked by houses that have stood, as they stand now, beside the Colleges for centuries. There were the unpretentious homes of the townspeople in times gone by. Some are simply plastered, some have carved bargeboards, a few gain an effect of richness with half-timbered fronts, but all and each achieve some simple Architectural effect, in superimposition of dormer over bay, or some picturesque grouping and emphasis of the window openings upon their narrow frontage. The characteristic feature in these humble dwellings is the oriel. Nearly every house is plastered white over a timbered construction, and the oriels and bays break out upon every conceivable curve and angle into hexagonal, octagonal, square or segmental projections in fancy-free variations and combinations, and besides effecting a variety of interesting and often felicitous designs, and expressing them with a precision and completeness that is fascinating, show to the passer-by along the curve of the street a broken vista of oriels, eaves, dormers, and corbelled gables which could hardly be anywhere matched for picturesqueness. And it is in this setting that the contrasting richness of the gray, time-worn Colleges are viewed. Their lichened, crumbling stone fronts stand, for the most part, sandwiched between all this broken picturesque jumble of white plaster and wood. It is in this particular that Oxford is in chief distinguishable from Cambridge; at the latter the University buildings, or



"backs," stand in one part, aside from the town. Comparisons are for ever being made between the sister 'Varsities, which are, in truth, rather wearisome. There are, however, one or two Architectural features which are distinctly associated with one or the other. It seems curious, for instance, that the Oxford Gate Tower should be characterised by a single angle turret, while that of Cambridge always has two, thereby achieving symmetry for its elevation. The great Coat of Arms decorating the spandril, formed by the label of the archway and the string above, is particularly a Cambridge feature. Those who have visited Cambridge cannot fail to have been struck with the richness and skill with which these scutcheons have been wrought over the entrance gateways at Christ's and St. John's Colleges.

In the continuation of this article we shall

### ON FLOORS AND THEIR COVERINGS.

BY WM. NORMAN BROWN.

PERHAPS in no other portion of our houses and their furnishing have greater changes been effected of late years than with our floorings and their coverings. While some generation or so since it was the custom to cover the whole floor space—possibly because of the ugly and ill-fitting boards—with a Turkey, or Brussels, or a Kidderminster carpet, or if more refined somewhat, having the space around hidden with floorcloth—this, usually, with the carpet, having horribly inartistic and crude patterns thereon, totally out of harmony with the furniture and their general surroundings—now it has become the custom in town, suburbs, and country alike, to have,

For pine floors a first-class stain consists of a saturated solution of permanganate of potash, which will give a more or less deep colour, according to the strength; when varnished with shellac dissolved by heat in alcohol, a rich walnut colour will be the result, or with a weaker solution and copal varnish, oak stain will be obtained. Other stains can be purchased, or made according to recipes. In the West of London there is a colony, given over rather to æstheticism, in which the houses were designed by Mr. Norman Shaw, and are for the most part comfortable, although æsthetic. It is not, however, with the colony, known as Bedford Park, the Architect, or the exterior of the houses that I have to do on the present occasion, but rather with the decorative interiors of some few over which I have recently rambled, and which are characteristic



AT MAGDALEN COLLEGE. SKETCH BY H. I. TRIGGS.

deal more particularly with the various Oxford Colleges.

ONE of the chief features of the Jubilee celebrations at Gravesend was the unveiling of a statue of the Queen, which the Mayor has presented to the borough. The statue has been erected outside the Technical School.

A BILL has been brought in by Mr. Jesse Collings and the Home Secretary to confirm a provisional order made under the Housing of the Working Classes Act, 1890, to enable the London County Council to clear and acquire a site of about 9000 square feet in the most congested part of Southwark, off the Blackfriars Road, and at no great distance from the Peabody blocks. The boundaries of this area are Pocock Street, on the north-west; Green Street, on the north-east, vacant land, on the south-east, and Board school buildings, on the south-west.

T T

in the better class of residences, the floorings either stained, painted, or grained, or, what is far better, hygienically and artistically, to have them laid with a well-fitting parquet. These are among the best of the modern furnisher's resources, and there are such a variety of makes upon the market that he must be hard to please, indeed, who cannot be suited. Further to these I shall not refer, but to those to whom parquet wood flooring is an impossibility, I would remind them that some very pleasing effects can be obtained from stains, particularly if the boards have been laid down in narrows. Thus a good effect can be procured by getting a light and a dark stain, and after preparing the woods by planing, sand-papering, &c., using them alternately on the boards, while another pleasing variety can be imparted by mixing equal quantities of the two stains together, and employing a third shade on a third board, &c.

of those all over the Park. In one the doors and woodwork were painted a pale grey blue, with flooring of a dark oak stain, varnished; the external sides of the doors, with the accompanying woodwork of passages, landings, and staircase of a dark chocolate colour, painted and varnished. Along the hall and staircase was an art varnished dado; but in one house an exception had been made in having this of Indian matting, stretched and fastened on with a neat beading, painted a pale sea green in harmony with the rest of the woodwork, the inner panels of the doors here being adorned with a spray of wild flowers on each, which stood out well from the sea-green background. For morning and sitting rooms and boudoirs this style of decoration is particularly appropriate. Other houses in Bedford Park, particularly if the panelling is of a pale dull brown—a mild terra-cotta, in fact—have the floor spaces around the art carpets or



centre rugs painted a brilliant white, much after the style of enamel, and if Liberty silks are employed in the wall decorations, and the furniture is *en suite*, the effect is charming. Many of our younger Art workmen would gain a valuable object lesson in decorative work by a ramble over a few of the Bedford Park houses when opportunity presents itself. Quitting Chiswick, I may mention that some time since a mansion in Eaton Square was decorated under the ægis of one of the sisters Crommelin, which house now ranks among the prettiest in London. The drawing-rooms are in plain white woodwork, with panels of pale sage-green silk let into the wall; between the two drawing-rooms are Eastern arches, and behind these is a small recess, having a white dado, and above it a Japanese paper with a cream-coloured ground, and bearing rose-coloured jasmine upon it. The ceiling is papered in the same colours, but the design is different, the rose-hued jasmine assuming somewhat cloud-like shapes. The dining-room has been furnished in crimson and white, the *motif* being thus preserved, having a high white dado and crimson paper, while the space usually occupied by folding-doors has in lieu a white Cairene gate of open Musbarabiyeh work. Another house, for the decoration of which the other Miss Crommelin was responsible, and situated in Wimpole Street, will be found rich, quaint, and somewhat unusual. Here the entrance hall, which it is the fashion to have totally distinct from the staircase, is panelled with oak, having let in panels of a splendid dark Rose du Barri and dull gold paper. The curtains are of brocade of the same colours, consisting of a double tapestry, and, when hung, have the appearance of being entirely woven by hand. The staircase is a very gay affair, the paper being a brilliant French one, having a pale cream ground, with a large, easy pattern of a rose-tree branch with a bird perched thereon. At irregular intervals a peacock, almost life size and gay in Nature's plumage, appears, standing also upon a branch. The drawing-room is decorated entirely in yellow, having curtains of a pale, soft colour, with a shot pattern thereon, ranging from

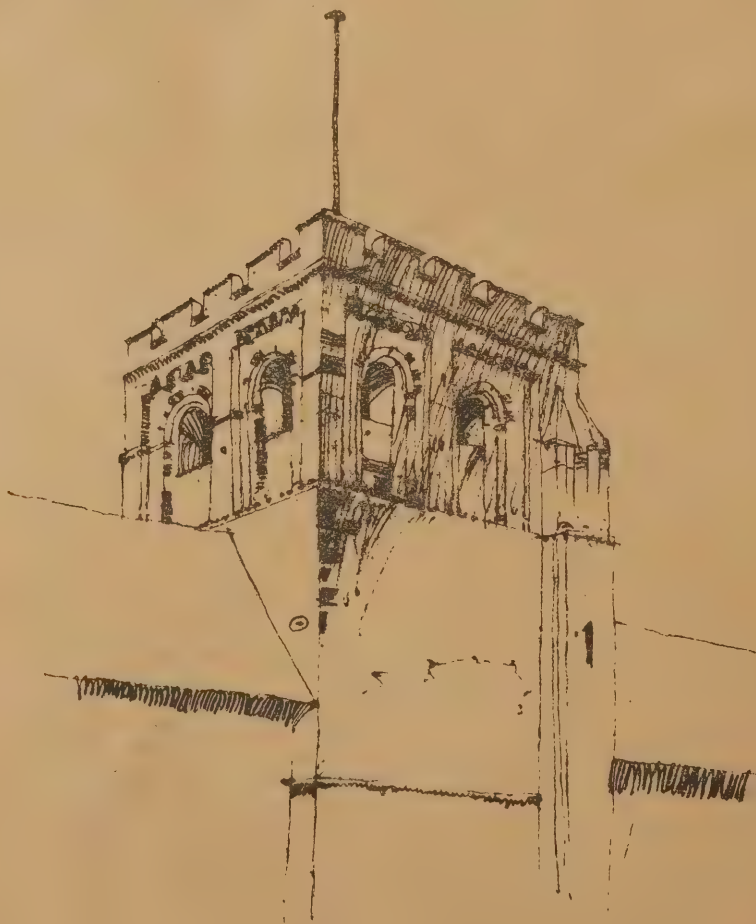
yellow to terra-cotta. Each chair and couch in this *salon* has been upholstered in a different colour, material, and pattern, but all are soft semitones. In the bedrooms, all those on the first floor are coloured alike, papered with pale pink carnations, of a deeper tone, and approaching to Rose du Barri, with green leaves mingling. In another set the bedrooms are papered with a quaint old English design of small, irregular terra-cotta flowering on a cream ground, the curtain being old English in design, with a conventionalised, indescribable flower pattern in grey on a terra-cotta ground. The boudoir is papered with pale, soft, willow green, having above that a white frieze with pale pink tea-roses all over it, the ceiling being in pale green also, with soft pink flowers scattered over it irregularly, the effect, with the dark terra-cotta chenille curtains, being simply harmoniously magnificent. To revert, however, to the immediate subject of this article, flooring, I may mention that painted floors, carried out decoratively in two or more colours, and in imitation of the inlaid woods found in ancient French houses, is especially satisfactory. A good design consists in having large octagonal blocks, enclosing a star radiating from the centre, where it commences as a small figure, formed of eight diamond-shaped blocks in two shades of yellow; from these other diamonds of chocolate, outlined with black, continuing thus to radiate in two rows of lighter shades of Indian red until blocks 3ft. in diameter are formed, the spaces between being filled with yellow blocks. The line of octagonal figures outlined with black and Indian red is edged by a band of yellow 6in. in depth, and bordered with a line of black, 1in. wide, and one of red, 3in. in width. The octagonal blocks extend in one uniform line, the triangular spaces formed between being filled with yellow and black stripes. If the aid of stencil-plates is called in, such designs can be very effectively and simply worked up. A very good and decidedly handsome border for a flooring can be obtained by painting the boards a pale cream colour, putting on two coats, then upon this

painting a serpentine line, 2in. in breadth, the half-circles being 12in. in diameter, and cut from paper, then in each semicircular space stencilling in some appropriate figure, using a paper pattern, and taking care to well fasten down the edges before working in. Then around this design on the ground apply one or more coatings of black paint, and when dry a coat of copal varnish, then rub



SKETCH BY J. HUTCHINGS.

off with pulverised pumice stone, rinsing off thoroughly before the pumice dries. Then if it is desired to be highly polished so as to imitate ebony, this varnishing, &c., will have to be completed several times until a perfectly dense hard finish has been obtained. Wet the paper-stencil designs to lift them off, and with a small sponge wipe off all paste, &c., when the result will be a very good imitation of inlaid flooring. A very handsome flooring can be obtained by employing stencil plates cut with blocks of various forms and sizes, then painting in with stains in imitation of inlaid blocks of walnut, oak, ebony, cherry, &c., with small blocks of enamelled cream-white, as near like ivory as possible. Thus an ebonised ground, with comparatively small figures in white, such as a conventionalised flower or geometrical pattern, will appear more like genuine inlaying than a diffuse and bold application. Where the very pleasing and beautiful plan of a central carpet with a border of natural wood or tiles, or their imitations, is adopted, a very good effect can be procured by painting, some three or four feet from the subbase, the floor in some colour contrasting with that of the walls and harmonising with the woodwork. A rich brown, warmed with red or Indian red, a chocolate, a rich deep-toned oak, or some of the buffs—*café au lait* or citrine—are all good colours for such purpose, and enable the employment of pretty rugs, thus permitting the furniture, which in these days is decidedly of the miscellaneous and *bric à brac* order, to be shown off to the greatest advantage. A carpet, to be perfect, should be soft of texture, rich in appearance, and "blowey" in effect—that indescribable effect which is observable in a field of breeze-blown corn—these results are the best attained in Oriental carpets and rugs. It must always be borne in mind by the artistic decorator that the carpet must form a suitable ground upon which furniture and other objects placed upon it are to stand in harmonious conjunction or pleasing contrast, while its character should also accord with the general surroundings. While hangings, wall decorations, furniture, and ornamental additions may be low in tone and delicately manipulated, a carpet should be full, rich, and deep, "glowing, radiant, or bright, as opposed to dull, quiet, or heavy," and having a predominance of bright and warm colour rather than of cold and neutral tints. The practice of covering up the entire flooring right up to the base of the skirting



IFFLEY CHURCH TOWER. SKETCH BY E. F. REYNOLDS.



board, leaving no trace of the floor material, is contrary to the first principles of Decorative Art, which strictly requires that the nature of the construction, as far as possible, should be always revealed, or at least indicated, by the adornment which it bears. I cannot do better than close my first article with a couple

decorated with flat ornament, *i.e.*, with designs which either represent a flat surface or whose handling is flat. This does not preclude the employment of fruits, flowers, leaves, and arabesques: it only requires that they should be treated flatly, being somewhat like plants in a herbarium, and not in relief, with effects

aspect from all points of view. Taking my other authority, Sir Digby Wyatt, he, in a report on the subject of floors, &c., says: "The moment one is impressed with the idea of walking or sitting upon what no person in his senses would think of walking or sitting upon, a painful sense of impropriety is experienced,



MAGDALEN COLLEGE, OXFORD. SKETCH BY G. A. COX.

of quotations. In a small German essay by Karl Krumboltz, and entitled "Made-Over Princess," the following sentiments respecting the true principles of design and colour regarding floor-decoration are worthy of remembrance: "In general little or no attention is paid to the law that the flat surface should be

of light and shade. This principle is applicable to the decoration of floors, walls, woodwork, tapestries, carpets, and furniture." According to this treatise, a flat surface, as that of a floor for instance, should be decorated with a symmetrical flat pattern throughout, which will give it a quiet surface, and present the same

proportioned in intensity to the vivacity with which this misappropriation of judicious design is expressed in the fabric."

THE Heckmondwike District Council has decided to apply for powers to borrow the money necessary to build public baths.



## CHATSWORTH HOUSE.

## VISIT OF THE SHEFFIELD SOCIETY OF ARCHITECTS.

EACH year it is the practice of the members of the Sheffield Society of Architects and Surveyors to journey to some notable place, and combine pleasure with instruction. This year Chatsworth House, one of the princely houses of the Duke of Devonshire, was selected, and the excursion recently made was one of the pleasantest ever held under the auspices of the society. Owing to the recent holidays the attendance was not so large as usual, but amongst those who took the trip were Messrs. Joseph Smith, vice-president; C. J. Innocent, hon. secretary; T. H. Waterhouse, Benjamin Bagshawe, E. M. Gibbs, W. J. Hale, H. Webster, J. Norton, J. T. Cook, A. H. Holland, C. F. Innocent, J. C. A. Teather, T. Myles, L. D. Hemsoll, W. Denton, F. J. Innocent, C. F. Bond, T. H. Robinson, and F. Wilson. Mr. R. W. Fowler (the president) and Mr. F. Fowler (the treasurer) wrote regretting their inability to attend. The Duke of Devonshire placed the whole of Chatsworth and its grounds at the disposal of the members, and there was no check whatever upon the party seeing anything that could interest them as professional men and lovers of all that is beautiful and rare in Art. Mr. Gilson Martin, F.S.I., his Grace's steward, met the members at the main entrance, and accorded them a hearty welcome. Mr. B. Bagshawe, who is a "lay" member of the society, was appointed cicerone. He has a rare knowledge of Chatsworth, of its history, its architecture, and its many treasures, and was able to conduct the party to places of the deepest interest to them. He was ever ready with explanation, suggestion, and reminiscence. Peculiarities of the stonework at the entrance having been commented upon, a visit was made to that portion of the house usually shown to the public, and here there was much to admire, though, to many, the sights were no new pleasure. The members were then privileged to visit

## THE LIBRARY.

A long stay was made here, and among the numerous valuable books examined were Claude Lorraine's "Liber Veritas," several of the famous Inigo Jones' sketch books, one including a diary of his stay at Rome, and another containing many exquisite designs—some coloured—for masque costumes, &c.; early Caxtons, and the first book printed in the English language, valuable illuminated books, a curious volume of surveys of the Cavendish estate at the end of the sixteenth and the early part of the seventeenth century, early plans of Chatsworth House, and sketches and manuscript memoranda of Watson, the person principally engaged on the carved stone and woodwork at Chatsworth at the end of the seventeenth and the beginning of the eighteenth century. Leaving the library, the grand suite of private apartments was traversed, and an opportunity was given of examining the magnificent works of Holbein, Tintoretto, Rembrandt, and other great Artists of their time. There were also some charming pictures by Reynolds, Lawrence, and other masters of the English School, exquisite wall and ceiling decorations, beautiful wood-carving, and rare china and curios. A move was made for the two galleries containing the most valuable collection of original drawings by

## OLD MASTERS

in the possession of any private individual. None of the great Italian, German, Flemish, French, Venetian, Spanish, and other Schools are unrepresented, and the drawings were a revelation to most of those present. Amongst them are the works of Raffaele, Michael Angelo, Rembrandt, Rubens, Leonardo Da Vinci, Poussin, Claude, Salvator Rosa, Correggio, Luca Signorelli, Vandyke, and many others. The drawings, of course, are not of large size, and the two galleries are filled with them. Hours would be insufficient to make a real inspection of the grand collection, and it would take days to observe and study them as they deserve. The late Mr. Reid, of the British Museum,

made a careful catalogue of the collection in recent years, and many of the more valuable drawings were autotyped years ago by Messrs. Brawn, of Paris, from whom facsimiles are still obtainable. Among other rooms visited were two private ones, containing a collection of exquisite water-colour drawings, principally beautiful examples of David Cox and William Hunt. The famous

## SCULPTURE GALLERY

also proved most interesting, and afterwards the gardens, with their many artificial wonders, and the electrical apparatus, for which water power is utilised for lighting the whole of the house, were examined. The fountains, including the Emperor, which throws a jet of water 270ft. high, were playing in honour of the visitors. There was a long discussion regarding the exterior of the house, and the cheap rate at

## ADDITIONS TO THE MONT BLANC OBSERVATORY.

THE first station placed upon the rock of the Bosses consisted of only two rooms. The new structure, which has been put together by Mr. Vallot, is simply amazing, situated as it is at an altitude of 14,360ft., well equipped, and scientifically arranged. The old station measured 16½ft. by 10ft., and was divided into two rooms, one of which was used as a refuge to travellers, and the other being used as an observatory; but modest as its dimensions were, it was of the greatest service to science and scientists. A few years later Mr. Vallot enlarged the observatory by adding four rooms to it, and since 1892 three other rooms have been built. The habitability of the structure is now perfect, even during snowstorms. A stone wall surrounds the edifice and embraces



MAGDALEN TOWER, OXFORD. SKETCH BY E. F. REYNOLDS.

which much of the beautiful carving was executed. The tour concluded with a visit to Queen Mary's Bower, and many were the opinions hazarded as to the time of erection and object of the strange, moat-surrounded building. No satisfactory conclusion was come to, but there was general agreement that the building was erected before the time of Queen Mary. A welcome break had been made in the sculpture gallery, where the vice-president, Mr. Joseph Smith, proposed a vote of thanks to the Duke of Devonshire for the privilege he had accorded the members, to Mr. Gilson Martin for his kindness in personally conducting the members through the house, and to Miss Martin for the manner in which she had placed the treasures of the library at the disposal of the visitors.

the stanchions, the ice constituting between the stones a cement of extreme hardness. The board walls are everywhere double, with a mattress of air between them, thus assuring a good internal temperature. The area occupied by the building is about 100 square feet, and it consists of a large kitchen, and a work room, both of which form the vestibule. On the right, a large room has been set aside for the use of guides, which contains ten beds, on the same side as the director's room, with four beds. On the left, there is the registering laboratory, and an extremely well-organised room for photography and spectroscopy, lighted solely from above by means of a window of coloured glass. There is also a sleeping apartment, with four beds, and an excellent physical laboratory.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





TOWER, MAGDALEN COLLEGE. SKETCHED BY H. I. TRIGGS.





TOWER OF FOUNDERS' BUILDINGS, MAGDALEN COLLEGE. SKETCHED BY H. I. TRIGGS.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
July 14th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

MR. JOHN BURNET, Architect, was presented with his portrait, painted by Mr. Guthrie, as a testimonial last week.—Mr. William Gilfillan,

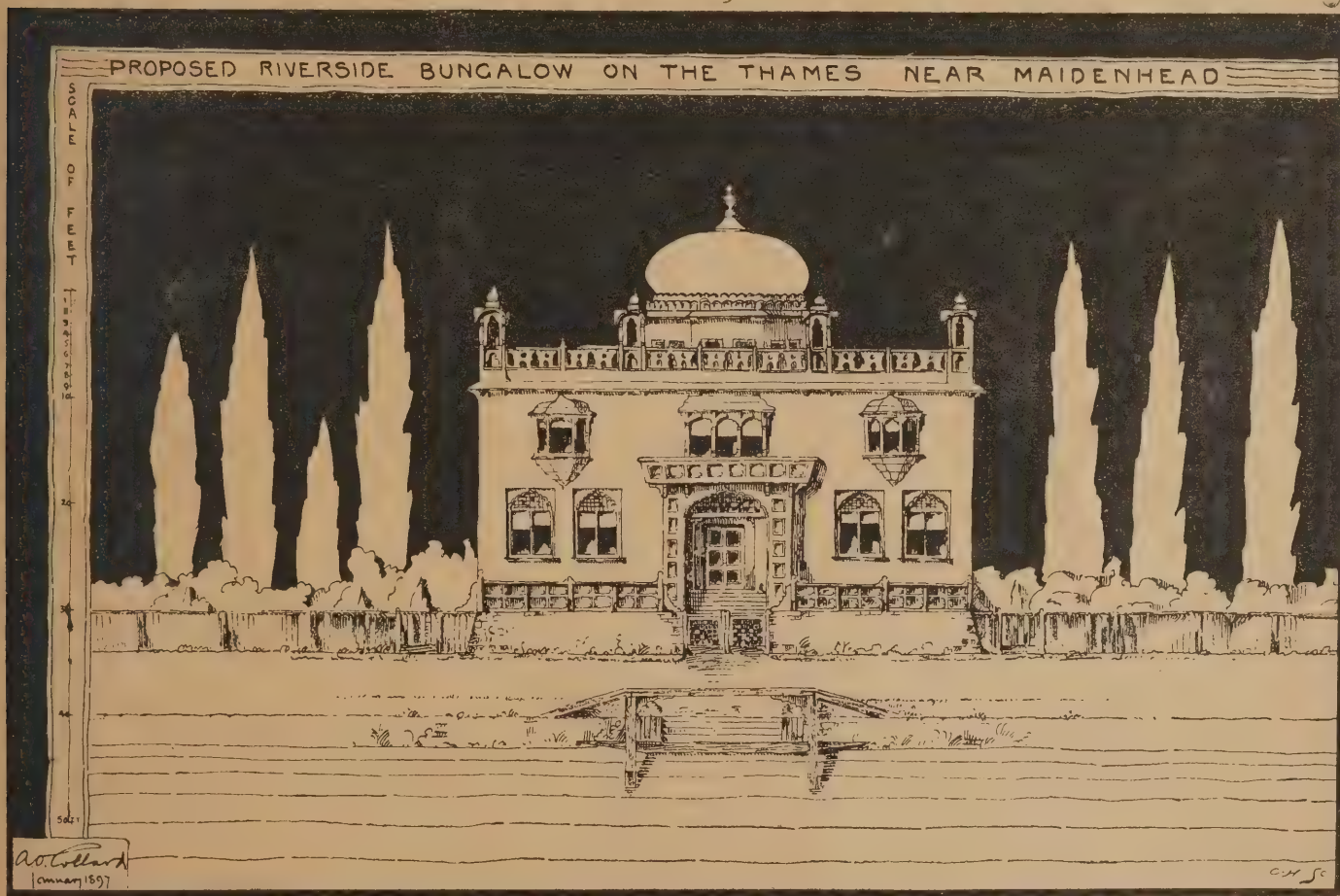
then narrated some interesting incidents in his professional career.

THE Building Act Committee of the London County Council has prepared an interesting report relative to the stands erected to view the Jubilee procession. In all 1226 applications for temporary stagings were received, of which 1104 were granted (but in forty-eight cases the licences were not taken up), ninety were refused, eight were withdrawn, and twenty-four were made too late to admit of their being dealt with. By far the greater number of stagings in respect of which licences were granted required amendments of a more or less important character, and in very many cases, even where the applications were made and the plans submitted by Architects or practical carpenters, it was found necessary to point out the need for the tying together by braces of the different parts of the structures. Among the stands were some of very large size, and their construction was specially supervised, not only by the Architect but in some cases by the engineer also. The Committee thinks it only due to the district surveyors concerned to state that they one and all exercised efficient and vigilant super-

purely local, experience, Mr. Josiah Thomas had long enjoyed the reputation of being a most capable judge of property, and his services to the city did not debar him from a large private practice.

LAST week the patch of the "Waste of Walworth," granted by Richard II. to Sir William Walworth, Lord Mayor of London, for his services in suppressing Wat Tyler's rebellion, was placed in the hands of contractors. It is to be converted into a recreation ground for the use of the children of the densely populated neighbourhood in which it is situated. The "patch," which is in the vicinity of East Lane, was long inhabited by gipsies, who were ultimately evicted by the sanitary authorities. Later on it became the Sunday resort of quack doctors, political agitators, cheapjacks, and Salvationists. The ground has been purchased for £6000, which sum is to be found by the London County Council and the Newington Vestry. Mr. Bailey, M.P. for Walworth, has contributed £375 for the erection of a gymnasium, and levelling operations are now being carried out.

The principal witness examined last week



A. O. COLLARD, ARCHITECT.

who presided, said that the testimonial was a token of the respect they bore towards Mr. Burnet for the high qualities he had manifested during his long career as an Architect in Glasgow. His intellectual powers had placed him in the forefront of his profession, and he had executed commissions, civic and ecclesiastical, of a magnitude that fell to the lot of few.—Mr. Thomson, on behalf of the Architects, Mr. R. Whitson, of the measurers, and Mr. John Paterson, of the contractors, offered a few words of congratulation.—Mr. John Burnet expressed his gratitude for their kindness, and his appreciation of the form which it had taken. Nothing could give him more pleasure than to receive a portrait painted by so eminent an Artist. It had always been a pleasure to him to have his designs carried out by friends present and absent. Mr. Burnet

vision over the actual construction of the stands after the plans had been approved by the Council's staff. It was found necessary to condemn 202 structures in various parts of London, consisting chiefly of temporary stands and balconies.

WE regret to announce that the long illness of Mr. Josiah Thomas, the Bristol city surveyor, has terminated fatally. Mr. Thomas had practically been in the city's service all his life, for after leaving the Bristol Grammar School he joined his uncle, the late Mr. Armstrong, C.E., who was then city surveyor, and he succeeded to that office when still a young man, holding this important appointment for more than thirty years. A man of great ability and industry, with thorough knowledge of his profession, and with altogether exceptional, if

by the Select Committee on Museums was Sir John Taylor, the chief Surveyor of the Board of Works, who said his department had control of all the public buildings in London, except those belonging to the Post Office. At South Kensington there were many old and some new temporary structures in close proximity to the galleries which were of an extremely inflammable character. Besides these, there were in the Cromwell Road front some very old and dilapidated buildings of a most combustible nature, occupied for residential and office purposes. The residences of the three chief officials had been built by the Department of Science and Art, but they had no pretensions to being fireproof. He considered that the whole of the temporary buildings should be at once removed as rapidly as possible, and re-built. The dangers of the



building had been placed before them by Mr. Street, an expert, who had been called in to report on the question. Since then very little had been done to improve the condition of things. There was no practical difficulty in renewing the roofs and making them fire-proof; the only question was one of cost. The buildings on the south side had no pretence to fire-proof construction. The floors and the roofs were both of wood. If money were provided by the Treasury, the Office of Works would at once proceed with the rebuilding. The plans were in part ready, and the only question was as to the front. The designs for the new building had been selected five years ago, and part of the working drawings had been completed, but there was no money to carry them further.

ONE of the oldest houses of Paris is to disappear in the course of a few days under the pick and crowbar of the contractor. The Hôtel des Arquebusiers, now No. 39 in the Rue de l'Arbalète, dates from Charles VI., and served as the headquarters of the crossbowmen during the fifteenth and sixteenth centuries. The vast garden, which still exists, afforded space for shooting practice and merry meetings. About 1578 the building became a school of apothecaries, whilst the grounds were converted into a physic garden. Later on the nuns of St. Agatha, vowed to perpetual silence, were the tenants, and the ladies of the Port Royal succeeded them. Then for a time less reputable occupants held the lease; but after the outbreak of the Revolution religion came back again, and the Mass was sung secretly in this retreat. An orphanage was next established by the Sisters of St. Vincent de Paul, and, finally, the Christian Brothers set up a school which, under lay direction, has existed to the present day.

THE well-known French painter, M. Dantan, who was taking a holiday at Villerville, was killed last week in a carriage accident. Joseph Edouard Dantan was born at Paris in 1848. He was the son of a sculptor, and made his début in the Paris Salon of 1869 with a picture entitled "An Episode in the Destruction of Pompeii." M. Dantan executed a large painting, "The Holy Trinity," for the Chapel of the Hospice Brézin, at Marnes. He obtained several medals, and was decorated with the Legion of Honour in 1880.

At a general meeting of the Institute of Painters in Oil Colours, Sir E. J. Poynter, P.R.A., Sir E. Burne Jones, Messrs. G. F. Watts, R.A., Frank Dicksee, R.A., and Frederick Sandys were elected honorary members; and Messrs. Wm. Llewellyn, Julius Olsson, Niels M. Lund, W. B. Wollen, R.I., Alfred Withers, and Robert Noble, A.R.S.A., were elected members.

At the International Congress of Naval Architects in the Imperial Institute, an interesting paper was read on "The Advances made in the Mathematical Theory of Naval Architecture during the Existence of the Institution," by Sir Edward J. Reed, vice-president. He said that the Institution of Naval Architects had powerfully assisted in advancing the theory of the Profession from its state in 1860 to its present condition, and had thereby taken a very important part indeed in that scientific expansion which was perhaps the greatest glory of our Sovereign's reign. The mathematical theory of naval Architecture naturally separated itself into the following divisions: (1) The science which dealt with the strains to which ships were subjected at sea, and with the provision of the strength necessary to withstand them; (2) the science which regulated dimensions, forms, and weights, so that vessels might float under all conditions with due displacement, draught of water, and stability; and (3) the science which provided for so adapting form to fluid resistances that vessels might be propelled, either by external or by internal forces, with due economy and security. A full exposition of the principles of strain would have to start with an investigation of all the strains to which ships were subjected, and to comprise a

theoretical explanation of the manner in which these were all provided for. This investigation had not yet been made, or even attempted, in any connected or exhaustive manner. It would be a great advantage, doubtless, were a theory of strain and of strength worked out in detail and with precision. But the production of such a theory, and its embodiment in appropriate formulae, was a task reserved for the future, and one not unworthy of the labour of some of our younger men.

THE Thoresby Society recently visited the Parish Churches of Thornhill and Dewsbury, with the view of inspecting the monumental and architectural relics, to which considerable interest attaches. In 1879 Thornhill Church was restored by Mr. G. E. Street. Mr. S. J. Chadwick pointed out the architectural beauties of nave and chancel, and directed attention to the fine tombs in the Savile Chapel, between which and the chancel is a monument, with canopy, to Sir George Savile and his wife. It is of the date of Edward IV. Some shafts of the fine Runic crosses were also examined, and mention made that the runes had been read and a translation published. Some ancient glass in the east window of the chancel was also described by Mr. Chadwick who, at Dewsbury, gave the history of the Church from Paulinus downwards, and directed attention to several relics of crosses and tombs dating from early Saxon times, explaining their character, and describing the peculiar ornamentation. A few of these had been discovered beneath the flooring when the Church was last restored, quite recently. Two, a supposed head of Paulinus and a portion of a cross, dating, it was believed, from the early days of Christianity in these parts, had been discovered at Pellon, near Halifax. They had been bought by an inhabitant of that town from a verger or grave-digger at Dewsbury Church, early in the present century, and taken away, and were restored by the Vicar of Pellon, to whose grounds they had been brought from Long Lover Hall, near Halifax. The clustered open columns in the south arcade of the nave of the Church, one only dating from the thirteenth century, were described, and so, too, was the ancient glass in a window of the north transept, in which are the arms of St. Martin, Earl Warren, and other notables of Feudal times. Some of the glass dates from the early part of the fourteenth century, and affords examples of good work in colour, design, and workmanship.

Two additions have lately been made to St. Olave, Hart Street. The first consists of a tablet to the memory of the late Mrs. Povah, wife of the rector. This has been placed by Dr. Povah in the north aisle, immediately under the middle of the three large windows there. The work is that known as opus sectile, and has been executed by Messrs. Powell and Sons, with the approval of Sir Arthur Blomfield. It is framed in alabaster. In the upper part of the monument, depicted on a ground of blue, are three angelic figures bearing a scroll. In panels at either side are the monograms I.H.S. and X.Pt., each on a shield, the background being floriated. Below, on gilt mosaic work, is an appropriate inscription. The whole is a very pleasing accession to a part of the Church somewhat lacking in warmth of colour. The rector has also presented to the Church a very rich altar frontal. Sir Arthur Blomfield was the designer, and Mr. A. Stalman, of Frith Street, executed the work. The colour of the cloth is red. On the super-frontal are worked in gold the Latin words of the Ter-Sanctus. The frontal itself is orphreyed, the ornaments on the latter being natural subjects, conventional foliage, roses, &c. In the centre is a vesica-shaped enrichment, on which is embroidered the sacred monogram.

At the sale of the pictures of Sir John Millais, his famous Holbein was purchased for 2000 guineas, and we learn that it has been sent to the Berlin Museum. It is a great pity that such a work should have been allowed to leave the country, and Sir Edward Poynter was most anxious to secure it for the National Gallery. Lord Ashburnham's Rembrandt

(one of the finest pictures in the world) was privately purchased a short time ago for the Berlin Museum, and Lord Darnley's splendid Titians, from Cobham Hall, has been allowed to go to the United States.

THE tomb of Tu-Duc, King of Annam, is just now the cause of a good deal of excitement in certain circles in Paris. The French Resident at Hué, in order to make a new road, has decided that the tomb of King Tu-Duc must be demolished, as it blocks the way. The Annamites, however, hold in great reverence the graves of the dead, more especially of their kings, and made vigorous protests against the demolition. As the Resident persists in his intention, a petition has been sent to Paris, the result of which the Annamites await with much anxiety.

THE well-wooded and historic country around Edge Hill afforded a very pleasant ground for the Archaeological Section of the Midland Institute last week. Arriving by train at Fenny Compton, the party drove first to the village and the interesting Church, with its short pyramidal spire, having, in common with Olney and a few other spires, a curved outline. Thence by a long ascent Burton Dassett was reached. The Church—large, solid, and handsome—has lately been repaired by Mr. Jethro A. Cossins, and presents none of that unpleasant appearance of newness so common in restored Churches. Here were noticed capitals of Early English date, sculptured with heads and animals—an unusual feature. Monuments to the Temple family, with quaint inscriptions, were also seen. At Burton Dassett, is an old stone building, for a beacon cresset, which could have conveyed an alarm from Nettlebed, near Henley-on-Thames, to the Wrekin, and from High Cross, in Leicestershire, to the Malvern Hills. A drive through Avon Dassett brought the party to the Church of Warmington, much of interest was here noted, especially, as in all these churchyards, are the old deeply-sculptured thick gravestone of Burton Dassett and Hornton Stone—along the lane by the old British Camp of Nadbury. At Hornton a large and unrestored Church was found, having features of Norman and plain thirteenth century work. A visit was then paid to Horley Church— notable for very tall arcades, and for a large fresco on the north wall representing St. Christopher. It also contains a small sweet-toned organ, which once belonged to King George III. The next Church visited was Hanwell, with the remains of Hanwell Castle, forming part of a large brick mansion, of which about a third stands, and is used as a farmhouse. The Church is of very early fourteenth century date, and shows many very elegant features. Its points of interest were explained by the rector, the Rev. V. Pearse, and are well worthy of careful study to the Architectural student. A remarkable feature is that the capitals of the nave-arcade are formed of human heads and busts. This completed the day's excursion.

WRITING to the Liverpool Mercury, Professor Herkomer says: "I have every reason to believe that a great number of Art lovers in Wales are awaiting with interest the realisation of my scheme for Art education in the Principality, and I am fully convinced that they have recognised the full-heartedness with which I took up the cause. It is, therefore, with positive pain that I have to declare that I am compelled to abandon it, on the simple but imperative ground of health. The further I got into my scheme the more I felt that every detail would have to be personally superintended for some time to come. Needless to say, this would have entailed the very strain that has been so strictly forbidden me. But much of the bitter disappointment which I feel would be dispelled if I could believe that my scheme would, at no distant period, be taken up and worked out by others, as far as practicable, and that my agitation for Art in Wales might yet bear fruit. I will, of course, adjudicate and superintend the Art section at Newport as promised. As for my scheme, I had planned Schools of Arts and Crafts, where



work should be done which was purchasable by the public. This meant Schools that were pre-eminently intended to be self-supporting when once fairly started. I should thus have opposed the present system of technical education on the most vital point. For such an original experiment Wales seemed to me admirably suited, because it afforded practically clear ground. Although my plan was to make things that belonged to daily life, I did not lose sight of the painter in my forms of tuition. But I intended to evolve him out of the craftsman. It would be futile here to give my programme of tuition in detail, but I am quite prepared to entrust the full scheme, as far as I have thought it out, to anyone nominated by Wales to carry it out."

ONE cannot but appreciate the spirit in which the Newcastle Daily Chronicle drew attention to Newcastle's indebtedness to its famous Architect, Mr. John Dobson, for many admirable works and ideas, and to a fact now forgotten by many, i.e., that among his many and various plans for the improvement of Newcastle, an aim he seemed constantly to keep before him, was a projected plan of a high-level bridge over the Tyne between Newcastle and Gateshead. At the time of the construction of the Newcastle and Darlington Railway, it was at first proposed to leave the terminus at Gateshead, and, though several plans and reports were submitted for a high-level bridge, Mr. Dobson was the first to suggest the novel and original project of a high-level bridge with a carriage and footway, and above that a double line of railway, to cross the river from Gateshead direct to the Central Station. There had been much opposition to the scheme of placing on its site in Neville Street, Newcastle, the Central Station which Mr. Dobson designed, for it had almost been decided to leave the railway at Gateshead, the passengers, at great inconvenience, to be brought to Newcastle by carriage. By bringing the railway by means of a high-level bridge from the south over the Tyne, all the local railway systems were made to converge at the Central Station. This was of undoubted benefit and advantage to Newcastle, and it was first conceived in Mr. Dobson's idea and plan. Mr. Robert Stephenson designed the high-level bridge, which was constructed from his own designs. The original idea of such a bridge was Mr. Dobson's, but the credit for the actual design and construction of the high-level bridge as we have it to-day belongs to the engineer, Mr. Stephenson. Mr. Dobson, himself anxious to do honour to his old friend, Mr. Stephenson, did coloured drawings of the latter's principal works, such as the Menai Bridge and the Viaduct at Berwick, for exhibition upon the walls of the dining-hall at the Central Station, when, in July, 1850, a banquet was given to Stephenson, attended by about 400 of the most influential of the gentlemen of the district.

ON two occasions the London County Council has endeavoured to obtain Parliamentary sanction for the construction of a tramway across Westminster Bridge and along a portion of the Embankment. Failure has attended each effort, the House of Commons throwing out the first bill, and the House of Lords rejecting the second. Having regard, however, to the recent development of the Council's tramway policy, and to the fact that by 1898 nearly the whole of the London Tramways Company's system will have become purchasable by the Council, it is considered desirable to seek powers for the construction of a line from the existing termini at Westminster Bridge Road and Albert Embankment, across the bridge, and along the entire length of the Victoria Embankment to Blackfriars Bridge. This is further than any previous scheme suggested the line should be carried, and the estimated cost is £22,000. The Tramways Committee proposes to seek the necessary Parliamentary powers next session.

WITH reference to the Burges monument in St. Paul's, Mrs. Edna Lyall writes as follows: "As a descendant of the Burges family, I

venture to ask space in your columns to protest against the conduct of the Dean and Chapter of St. Paul's. Acting in utter disregard of the express wishes of those who have a right to be consulted, they insist on removing from the place it has always occupied in the south aisle the monument erected to the memory of the late Captain Burges, R.N., who was killed at Camperdown, and intend to put it in the crypt. The monument was erected by the nation to the honour of a brave man who laid down his life for his country, and we cannot think that fair-minded Englishmen will, without a strong protest, allow the nation's tribute to an eighteenth century hero to be removed because a dean desires that the monument of a nineteenth century painter shall take its place. St. Paul's is wide, and may, surely, offer an unoccupied site for the memorial to Lord Leighton."

At a meeting of the members of the Strand Board of Works held on Wednesday, the Improvements and Parliamentary Committee reported, with reference to the proposed widening of the Strand, that the Bill of the London County Council as it now stood provided for the removal of the block of houses lying between the Churches of St. Mary-le-Strand and St. Clement Danes, bounded on the north by Holywell Street and on the south by the Strand. The effect of that would be to make the Strand at the eastern end of Holywell Street 146ft. wide, and at the western end 133ft., while the gradients would be bad, involving a drop from north to south varying from nearly 2ft. opposite Norfolk Street to upwards of 4ft. at the western end of Holywell Street. The Committee recommended that a representation be made to the London County Council that the Board considered that a much greater public improvement would be effected with little, if any, additional cost by the Council obtaining powers to purchase the whole of the block lying between the south side of Wych Street and the north side of Holywell Street, and to widen the Strand to a uniform width of 100ft. between St. Mary-le-Strand and St. Clement Danes, utilising the remaining area as a building site.—After a discussion the report was adopted.—On the motion of Mr. Beasley, seconded by Mr. Cooper, the question of making Little Newport Street an uniform width of 40ft. as a further improvement, consequent on the adoption of the scheme for the closing of Earl's Court on the Salisbury estate was remitted to the Improvements Committee for consideration and report.

AMONG the many fine stone buildings which are constantly springing up in the City, mention must be made of a recently completed block of offices in Walbrook, London, E.C. The old brick houses, Nos. 10, 11, and 12, Walbrook, which were erected shortly after the Fire of London, have been pulled down, and on the site Brook House, a fine block of offices, the elevation of which has been carried out in Portland stone, has been erected. A leading feature in the design, which was prepared by Mr. Delissa Joseph, of Basinghall Street, is a bold range of stone columns, springing from the base of the first floor, and occupying the height of two stories of the superstructure. A square stone porch at one corner of the building leads into a hall, from which a fine stone staircase gives access to the upper floors. There is also a hydraulic lift, which runs up the side of the building. The whole block contains fifty-two rooms, which are let out in suites as offices, and the rooms are one and all provided with large square windows, which afford a maximum of light. The building is of fireproof construction, and is provided with a range of lavatories on each landing. The electric light is fitted in every room. It is a noteworthy fact that every office in the block was let before the building was completed. The work has been carried out by Messrs. J. Allen and Sons, of Kilburn.

OLD pupils of Dr. Goulburn desire to place in Rugby Chapel some memorial of that kindly and witty scholar and generous head master. With the entire approval of Dr. James, it is

proposed to raise £250; to replace the west window in the south transept, placed there by Dean Goulburn himself, the colours of which, Munich work, have greatly faded; and to intrust the window to the well-known glass-stainer, C.E. Kempe, an old Rugbeian of Dr. Goulburn's time.

A CURIOSITY in the way of coffins is at present on view in an establishment in Liverpool, where it was constructed according to the design and order of, so it is said, an Admiral of the British Fleet. Instead of the ordinary landsman's oblong black cercueil, the Admiral's last mooring-place is in the form of a gaily-painted trim-built wherry. It is of strong build, and is in all respects constructed on the lines of an ordinary double-ended lifeboat, without, perhaps, quite as much shear as is usually found in such craft. This boat-coffin is carvel built and 7ft. long, and will be painted, like an old man-of-war, with black and white portholes. Life lines will be fixed round her, and when completed she will present a very tidy, seaworthy appearance. Two oars are to be supplied, and rudder and tiller will be duly fitted. The wood used is pine, West African mahogany, oak, and elm. The internal "get-up" is to be left for the undertaking furnisher, and will no doubt be of a fitting character.

At Bry-sur-Marne a monument has been unveiled to the memory of Daguerre, the inventor of the Daguerreotype, who was born at Corneilles-en-Parisis, but passed the last twelve years of his life at Bry-sur-Marne, where he died on August 10th, 1851. The monument had been erected by international subscription. It is composed of a base surmounted by an obelisk on which rests the bronze bust of Daguerre. The bust is the work of Mme. Elisa Bloch.

THE Cabot Memorial Tower, which is to be erected on Brandon Hill, Bristol, in connection with the four hundredth anniversary of the discovery of North America, will be a hundred feet in height, squarely built, and divided into two stages, each relieved by an ornamented balcony, which will afford convenient places for observation. A feature of the tower will be its emblematical panels, several of which will be contributed by an American committee, of which Mr. Bayard, the ex-Ambassador, is president. At the base of the monument a broad platform is to have projected spaces at the angles for the reception of the Russian trophy guns, which have stood on the top of Brandon Hill for many years.

"GREAT PAUL," which has been out of order for many months, is now repaired, and was rung before every service at St. Paul's Cathedral on Thanksgiving Day. It will be remembered that it sank in its socket owing to the metal bearings by which it is suspended having become affected by the summer heat of last year, so that it could not be swung. Messrs. Taylor's men, of Loughborough, have been at work upon it since the beginning of the year, and for a time at any rate the mischief has been remedied. The bell has been slightly raised, and the bearings have been strengthened with steel rivets, which it is thought will be less sensitive to climatic changes. It is now swung easily by four men, two on each side.

WHILE workmen were excavating in Northgate Street, Chester, last week, in connection with a street improvement, they unearthed a Roman relic of far greater interest and importance than any discovered by the Royal Archaeological Society. It is the bottom of a massive pillar, 3ft. in diameter, resting on a solid base 4ft. 6in. square. A huge broken pillar lies alongside. The fragment must have been part of a building of colossal proportions, and is engaging the earnest attention of Archaeologists.

THE London County Council is again considering the scheme for constructing subways under the streets to contain the wires and tubes belonging to gas, water, telephone, and other companies, the post office pneumatic tubes (now very extensively used), and tele-



graph wires, for the sanction of which a bill will by-and-by be brought before Parliament. The cost of construction will be borne jointly by the County Council and the various local bodies, while the companies using the subways will pay rent, to be fixed either by mutual agreement or by the Board of Trade. The benefit to all concerned will be immense, for as matters are at present any company which has wires or mains underneath a road may take up any part of that road just as it pleases. It is not bound to leave the road afterwards as it found it, but is merely required to make it passable, a rule which it does no more than merely literally obey. With subways, however, the roads need never come up at all, as there would be proper doors at intervals, through which access to the subterranean regions could be obtained.

SIR JOHN GORST has resigned his position as Chairman of the Committee on the Museum of the Science and Art Department, now sitting at Westminster. At the last meeting of the Committee attention was drawn to the fact that Sir John Donnelly, the head of the Department at South Kensington, had obtained from the official shorthand writer an extract relating to certain figures which had been laid before the Committee. This was objected to by certain members, who contended that it was a breach of the rules governing the appointment of Committees. Lord Balcarras proposed a resolution that the proceedings were irregular. To this an amendment was proposed by Sir M. M. Bhowaggee, who suggested that the application of the rule in the present instance would be an injustice, more particularly as the extract in question would have been issued in the ordinary way in the official minutes in less than twenty-four hours after it was obtained by Sir J. Donnelly. The matter was further gone into at the meeting on Friday, and an amendment, which, it is understood, expressed the opinion held by Sir John Gorst, being defeated, he immediately resigned.

ON Friday afternoon the Duke of Westminster presided at the annual meeting of the Royal Architectural Museum and Westminster School of Art. The number of pupils has increased, and it has been found necessary to build a separate room at a cost of £2322. A large part of this sum is still to be raised, and his Grace contributed £100 for the purpose. Mr. M. B. Adams said for the first time for twenty years they had received dividends. Out of fifty-three candidates who went up for the South Kensington examination in drawing from the antique thirty-six were successful, and of sixty-one for drawing from life only two failed.

THE Duke of Westminster presided at the third annual meeting of the National Trust for Places of Historic Interest or Natural Beauty, held at Burlington House, on Friday. There were also present the Marquis of Dufferin, the Hon. Mr. and Mrs. J. Lowther, Sir M. E. Grant Duff, the Hon. Gerald Ponsonby, Sir C. Cookson, Sir H. Howorth, M.P., and Canon Rawnsley. The annual report stated that the Society, both by word and by deed, had operated most successfully in saving from destruction or spoliation places and objects of historical interest and natural beauty, by purchase, as in the case of Barras Head, near Tintagel, by procuring the presentation to itself of a historic monument, as in the case of the Falkland memorial, and by protest, as in cases where it had succeeded in obtaining the modification or abandonment of injurious proposals. The cases in which the Council had acted by protest, or suggestion, were numerous enough, as the growth of the population was accompanied by almost daily danger to some building or place of historic interest or natural beauty. During its existence the Trust had accomplished much, and it had initiated a movement which was now found to correspond to a general need.—The Chairman moved the adoption of the report, and said they had been very successful in regard to their efforts in certain directions, but of course had met with some failures.

## IRISH CATHEDRALS.

### SLIGO.

ON July 1st the Cathedral of the Immaculate Conception, Sligo, was consecrated. The Cathedral was opened on July 28th, 1874, and was erected at a cost of £38,000, which was paid for out of the contributions of the people of the diocese alone, no outside collections having been made. The principal donor of the Cathedral is Mr. Peter O'Connor, of Sligo, whose gifts to the beautification of the edifice amounted to over £6000. The late Bishop of Elphin contributed £5000 of his own money to the enrichment of the edifice. The Cathedral, which was begun and completed during the prelate of the late Dr. Gilhooly, stands on an eminence in the centre of a spacious courtyard. This yard is inclosed by an iron railing, mounted on a limestone base, and is fitted with ornamental iron gates. The building has a place all by itself in Irish ecclesiastical Architecture. It brings us back to the style of the earliest Christian Churches. When the builders of the East made their first departure from the Classic style and established that known as the Byzantine, the Christians of the West also surrendered the strict formal style of Greek and Roman orders and established that known as the Latin style. This, subsequently modified by the Byzantine, led to the formation of the Romanesque. The Sligo Cathedral is modelled on buildings of the earliest period of this transition, in which the Byzantine and Latin are combined in the Romanesque. Its general style is simple and severe rather than soft or graceful. There is very little ornament, the leading characteristic being strength and solidity. The mouldings are of the plainest type, the cornices are without ornament, and the arcades which connect the columns are of the old Roman style. The building depends for its impressiveness upon its massive proportions rather than any elegance in its details. The external view at once shows the severe style in which the edifice is constructed. The material is limestone, in rough ashlar, with chiselled edgings, with cut limestone dressing. The quadrangular tower is surmounted by a four-sided pyramidal spire of solid masonry, which attains a height of 210ft. The tower is a three-story structure, and is lighted by narrow windows. At its basement is the grand western entrance, a doorway deeply recessed. Its semicircular arch incloses a tympanum, which is supported on a plain limestone column. The figures on the tympanum represent the Immaculate Conception of the Blessed Virgin. Over the doorway is a canopy in the Pointed style, and above that is a cornice, which runs round the entire building. Above the cornice is a niche, over which is a marble canopy, which projects considerably, and beneath which is carved a representation of the Crucifixion. The buttresses at the sides of the building rise tier above tier, like the Pointed style, and are connected by circular arches. In the recesses thus formed are the windows of the aisles—plain, circular-headed lights. The nave is lighted by ten clerestory windows, and the transepts by pairs of large round-headed windows at the ends, and circular lights above them. The portion of the ridge of the roof above the chancel is ornamented with a cheval-de-frise in metal, and at its ending over the apex of the apse, and just above the high altar, is a large figure of the Archangel Michael with a drawn sword. There is a porch entrance to each transept on its western side. The interior is in the same plain and simple style. The peculiarity of the building is at once brought home in a remarkable way on entering by one of the transept doorways. Each transept, though rising to nave height, is separated from it by an arcade of two arches supporting the gallery above the aisle. This gallery is continued over the aisles, and occupies their entire width, as in the Church of St. Germain des Prés, in Paris, and represents the gallery of the old Roman Basilicas. This cuts off the transepts from the rest of the building. The nave is separated from the aisles by seven columns on each side, supporting the six arches on which the gallery rests. These columns are circular, of cut limestone obtained

in Ballysodare, a few miles from Sligo. The bell-shaped capitals are also of limestone, and are ornamented with the egg and dart of the Roman ovolo mouldings. Two of these arches cross the transepts. The semi-circular recess which contains the chancel extends the width of the nave and aisles, and the ambulatory is separated from the chancel by a semi-circular arcade supported on six columns. The floor of the chancel is laid in mosaic. The roof is of groined vaulting. In the spandrels between the arches in the nave are large carved corbels which support long slender pilasters, from which the arched ribs of the roof spring. The roof over the body of the Church is in plain stucco. Over the chancel it is richly decorated. The flooring of the body of the Church is in timber, with tiled passages. The building is 227ft. long by 80ft. wide, across nave and aisles, and 115ft. across the transepts. Each transept is 33ft. wide and 17ft. deep. The height to ridge of roof is 100ft., the height of tower and spire 210ft. The Cathedral is rich in stained glass windows. There are fifty-eight windows, and only the ten clerestory windows are without stained glass. The large windows of the aisle and ambulatory illustrate the history of the human race from the creation of man. Each window is divided horizontally into three panels. The style is antique, in keeping with the ancient form of the Cathedral. The five stained glass windows over the high altar represent Our Blessed Lord and the Twelve Apostles. The Stations of the Cross are sculptured in relief in terra-cotta. The pulpit was designed by Goldie, and is composed of fine varieties of marble, white and coloured, and bears the coat of arms of Elphin. The high altar is of hammered brass. The altar-piece and the two panels in the reredos are alabaster. The altar table is one immense slab of Carrara marble, which is supported on onyx pillars, with brass capitals. The throne over the Tabernacle is surmounted with a canopy supported on porphyry pillars, and behind it is an immense statue in alabaster of the Immaculate Conception. The canopy or baldachino, resting on four columns of Aberdeen granite, covers the whole altar. It is of hammered brass, and is of a highly ornate design. The baldachino is the gift of Mr. Peter O'Connor, of Sligo, and was erected at a cost of £1500. In the ambulatory behind the high altar is a pieta containing a statue of Christ resting on the arm of the Virgin Mother. This is the prize statue that was shown at the great London Exhibition. The statues are in carved unpolished oak. The episcopal throne is handsomely carved in unpolished oak, picked out with gold. The Communion rail is of Caen stone, with Sicilian marble slab. The gates are of hammered brass. The other altars are in the transepts. The transepts, crossed by the gallery of the aisles, are cut off more than usual from the body of the Cathedral, and constitute separate chapels in a stricter sense than the word ordinarily suggests. The south transept at the Epistle side is the Chapel of the Sacred Heart, and the north transept is the Chapel of St. Joseph. The altars in these chapels are of Irish freestone, and are elaborately carved. The confessionals in the aisles are recessed in the wall, and they do not impede the passages. Beside the Cathedral is the sacristy, which is connected with it by a covered way. This is in keeping with the style of the Cathedral, and contains the necessary offices for the clergy, and a chapter room and large hall.

### BELFAST.

The Belfast Cathedral scheme, about which little has been said for some months, is again attracting some public attention. We regret that the committee has not received more encouragement in its efforts to erect a Cathedral worthy of one of the most important dioceses of the Church of Ireland. The main difficulty is, of course, funds. There is now little difference of opinion regarding the need for such a building. There are some who think other needs are more pressing, though they are quite in sympathy with the proposal, but the number of those who are opposed to the project on principle is comparatively small. Belfast, with more than three



hundred thousand inhabitants, ought to have a great central Church such as that contemplated in the scheme which is before the public; and without it the equipment of the Church of Ireland for its work in the city is defective. The plan prepared by Mr. Drew contemplated an expenditure of £100,000. This is doubtless a very large sum, and everyone recognises the difficulty of obtaining it; but there are many wealthy members of the Church of Ireland who have it in their power to reduce the difficulty to moderate proportions. The sum named was not extravagant; it is less than half the amount spent by Mr. Roe in restoring Christ Church Cathedral, Dublin. It was not intended to erect an edifice such as those which are among the glories of the Middle Ages, but a large and beautiful Church adapted to modern requirements. We still hope to see such a building erected, and we trust that the committee will not abandon the scheme. The sum asked for the first section of the building was £20,000, and up to the present only £8000 has been paid or promised. Canon O'Hara says: "If by January 1st, 1901, the £20,000 has not been obtained, and the building consequently not begun, subscriptions paid may be returned, and the project may be regarded as practically abandoned." Two other plans are described in the letter of the Vicar of Belfast for obtaining a large central Church at a comparatively small cost—£7000 for the first place, and £15,000 for the second, at the utmost. The second plan has found a considerable measure of support, but many members of the committee, and some of the largest subscribers, are unwilling to abandon the hope of seeing the original scheme completed. Some think that the adoption of either of the smaller schemes would postpone the larger one indefinitely, while others think it would prepare the way for it; and the vicar himself has some difficulty in deciding. Yet if the money for either of the plans described in his letter be forthcoming, he is ready to further consider the subject with a view to carrying out one of them. The need for a larger Church than any now in existence in the city is certainly urgent.

#### ARCHITECTS VISIT LOUTH.

THE members of the Architectural and Archaeological Society of the counties of Lincoln and Nottingham last week made a two days' excursion to Louth. On the outward journey Grimoldby, South Cockerington, South Somercotes, Skidbrook, and Saltfleet were visited, and the Churches of these places, with their many objects of interest, were inspected and much admired. At Saltfleet the party were particularly interested in the history of the old-time seaport town, which was partly destroyed, together with the Church, by the incursions of the sea, and which in 1359 furnished two ships of war and forty-nine men to the navy of Edward III. for the invasion of Brittany. After lunch, on the return journey, Saltfleet by St. Clement's and All Saints', Theddehorpe All Saints', Great Carlton, and Legbourne were all visited. At Legbourne, attention was drawn to the Priory of Cistercian Nuns, founded by Gilbert de Lekeburn before the reign of King John. The Church of All Saints was also inspected. It is chiefly built of chalk. The dinner at night was followed by a public meeting, at which the Mayor of Louth (Ald. H. D. Simpson) presented an address on behalf of the Corporation and burgesses. An interesting paper, entitled "A Description of the Fabric of the Louth Church, with a Glance at its History," was given by Mr. J. J. Cresswell, and Mr. R. W. Goulding gave a capital paper, entitled "The Lords of the Manor of Burwell." On the second day a visit was paid to St. James's Church (the parish Church) of Louth, the interesting features of which were pointed out and described by Mr. J. J. Cresswell, who the previous evening contributed a paper on the subject. To all intents and purposes it is a fifteenth century Church, built in the following order: The chancel, from about 1400 to 1445, the steeple from 1445 to 1500, the nave, or at any rate the westernmost part of it, at

some period between the completion of the chancel and the completion of the tower. Of the thirteenth century Church immediately preceding the present one, the north and south doorways remain, and a large quarter foil panel in the east wall of the south chancel aisle. The present arcades also belong to this earlier Church, but the pillars have been lifted some 3ft. or 4ft. and placed further apart, making the new nave 8ft. wider than its predecessor. The new Church was lengthened by the addition of a large bay and two heavy piers. The bases of the thirteenth century Church were revealed by the excavations of the late Mr. James Fowler, in 1867-8. On the back of an archstone of the thirteenth century work were remains of an earlier moulding, which brings the earliest evidence of a site back to the time immediately succeeding the Norman Conquest, and contemporaneous with Alexander, Bishop of Lincoln 1100. After a very full inspection of the Church, the party left Louth, and visited Keddington, where the Church was examined. At Alvingham the Church of St. Adelwold was examined. It is a small structure with a tower. From North Cockerington the party journeyed to Yarburgh, and spent a pleasant quarter of an hour in the inspection of the interesting Church of St. John the Baptist. This Church is an ancient structure, in the pointed style, consisting of a nave, chancel, north aisle, and a western tower containing three bells. On one side of the western tower is a representation of Adam and Eve, under the branches of a fruit tree, on the trunk of which is the dart of death. The Church of St. Clement's, at Grainthorpe, was next visited. It is chiefly noted for its fine tower with eight pinnacles. The stay at Marshchapel was prolonged in consequence of the importance of the Church of St. Mary. This Church was restored in 1864 at a cost of £5000. It consists of a nave, chancel, aisles, pinnacled tower containing three bells, and is fitted with open oak seats with carved ends. The Church also contains a magnificent chancel screen, and a beautiful monument, on which are kneeling figures of Walter Harpham and his wife and daughter. The two Churches of St. Mary and St. Bartholomew, at Covenham, were also visited. The Church of St. Bartholomew was originally an extensive cruciform structure, but it is now a small antique fabric. On their return to Louth the party inspected the small Church of St. Andrew at Utterby.

NEGOTIATIONS for the purchase of land for the new Fire Station to be erected at the corner of Strand Road and Irlam Road, Bootle, from Lord Derby, have been concluded, and the London and North-Western Railway Company is the purchaser of the site where the present station stands.

MR. JAMES WRIGHT, of St. James' Street, Derby, has taken Mr. Thomas Hides Tomlinson into partnership with him, and in future the style of the firm will be Wright and Tomlinson. We understand that Mr. Tomlinson has had upwards of twenty years' experience as a Land and Estate Agent, Architect, and Surveyor, at the Alnwick Castle Estate Offices, and in the Midland Counties.

A COMMITTEE of the West Bromwich Board of Guardians has been considering the advisability of extending the Imbecile Wards at the Workhouse. A proposal was made to spend £8000 in this direction in consequence of a report of a Local Government official that certain alterations were necessary. The scheme, however, is to be considerably modified, but even now the cost is estimated at over £6000.

A VALUABLE collection of coins and medallions has just been presented to the Queen's Park Museum, at Manchester, by Mr. Joshua Hampson. Altogether there are nearly 1400 specimens, representing the great seals of kings and queens of England, Roman emperors and senators, and Greek and Roman statesmen and philosophers, together with a quantity of casts, including one of Napoleon I. and another of the late Prince Imperial of France.

## Professional Items.

BARROW.—The new Conservative Club to be built in Abbey Road, Barrow, is from the design of Mr. J. Y. McIntosh. The main entrance of the club premises is in Abbey Road, and on the left of the vestibule is the secretary's office. From the entrance hall access is given by a broad staircase to the first floor, provided with a balcony. Committee rooms on this floor will be connected with an additional secretary's office. Corridors will lead from the hall to spacious reading-room, billiard-room, smoke-room, bar, lavatories, w.c.'s, and bicycle store. An assembly hall, capable of seating over 500 people, will be approached from Abbey Road. It can be entirely separated from the club premises. A spacious platform, with retiring room, will occupy the east end of the hall, and below the stage there will be cloak and dressing-rooms. The materials to be employed in the construction of the building are best local brick, faced with best Ruabon terra-cotta brick.

BIRMINGHAM.—In connection with the New General Hospital, Birmingham, the sanitary appliances of Messrs. Morrison, Ingram, and Co., Sanitary Engineers, Manchester, were chosen out of a selection of samples submitted by them and other leading Sanitary Engineers, and fitted throughout the institution.

CATRINE.—Mr. A. M. Browne, Gryffe Castle, Renfrewshire, a partner in the firm of Messrs. James Finlay and Co., has intimated his intention to build and equip an institute for reading in the village, and hand it over to the inhabitants.

COLWYN BAY.—The new promenade at Colwyn Bay is fast approaching completion. It will cost about £13,000, and is being constructed by Mr. Jacob Biggs, contractor, Farm Street, Birmingham. In 1895 the Colwyn Bay District Council acquired the foreshore from the Office of Woods and Forests for the sum of £1200, and they at once set to work to carry out this important improvement, which will be finished before the close of the year.

CREWE.—A provisional contract has been signed, on behalf of the Council and Colonel Meredith, for the purchase by the Corporation of forty-two acres of land, lying to the south of the Victoria Avenue, for the sum of £8700, for the extension of the sewage farm. It has been resolved to apply to the Local Government Board for sanction to borrow £7700 for the purchase and laying out of three plots of land for the purpose of children's playgrounds.

DERBY.—The extensive alterations which for some time past have been proceeding at St. Mary's Gate Baptist Church are now complete, and the building was re-opened on Sunday. The antiquated pews have vanished, giving place to others more suited to modern tastes, the rostrum and choir stalls have been entirely altered, whilst a new heating apparatus and the adoption of the electric light will do much to enhance the comfort of the worshippers. In addition to these changes a new organ has been purchased. Externally several improvements have been carried out, the most conspicuous of which are the new gates at the entrance. The total cost of the alterations is estimated at £2000.

FOLKESTONE.—The hotel which has been in course of erection at Folkestone for many months past, has just been opened by the Gordon Hotels, Limited. A dark red-brick and terra-cotta building, surmounted by a copper dome, standing on the topmost point of the Lees, it is the most prominent and by no means the least picturesque object which meets the eyes of the approaching Continental visitor by the Boulogne-Folkestone route. Internally it displays a variety of styles of Architecture and decoration, and is certainly the most luxuriantly appointed of all the Métropole Hotels. The Architect is Mr. T. W. Cutler.



**HEBDEN BRIDGE.**—The memorial-stones were laid at Birchcliffe New Baptist Chapel, Hebden Bridge, recently. The new Chapel is estimated to cost about £9000, the greater part of which has already been raised. It will be built of dressed native stone.

**KENNINGTON, S.E.**—The Prince of Wales on Friday opened the new public baths in Kennington Road. There are three swimming baths and ninety-five private baths, and it is hoped that they will provide sufficient accommodation for the 300,000 people in the parish. As Alderman Hubbard explained to the Prince and the Duke, 11,000 families live in one-roomed tenements, hence there is some necessity for public bath-rooms. The baths are to cost about £50,000. The first-class plunge is, next to the one at Islington, the largest artificial swimming pond in Europe. A quarter of a million gallons are required to fill it.

**LEAMINGTON.**—At a meeting of the Parish Church Completion Committee, a report was read from the Architect, which included estimates for the contemplated completion of the fabric. The first estimate of £3757 was for the whole extension up to the sills of the aisle windows. The second estimate, which comprised the whole extension complete, amounted to £10,768, with £486 extra for roof in oak. A further estimate for the completion of the tower amounted to £3800. It was directed that a contract for the first-mentioned scheme should be obtained from Messrs. Smith and Sons, Milverton, at a cost not exceeding £3750.

**MANCHESTER.**—The fountain which was put up in Albert Square in connection with the opening of the Thirlmere water supply on Oct. 13th, 1894, is about to be removed, and its place will be taken by a more permanent structure. The new fountain has been designed by Messrs. Thomas Worthington and Sons, Architects. Being Gothic in style, it will harmonise with the general surroundings of the square. It will be hexagonal in shape, and will consist of three basins, surmounted by a bronze dolphin, which has been modelled by Mr. John Cassidy. The lower basin will be of granite, resting on steps; the middle one will be of Bolton Wood stone, supported by small detached granite columns; whilst the upper basin will be of granite. The contract for the work has been let to Messrs. J. and H. Patteson, of Oxford Street, and is to be carried out by them under the direction of the Architects.

**MORECAMBE.**—Twelve memorial-stones have been laid in connection with a Primitive Methodist Assembly Hall, in Parliament Street, West End. The cost of the building is estimated to be £1150, and of this £320 has already been raised. The plot of land which has been purchased is also sufficient for a chapel, plans for which have been prepared by Messrs. Howdill, of Leeds.

**NEATH.**—The old tower of the Parish Church of Cadoxton-juxta-Neath, is about being restored under the superintendence of Mr. C. B. Fowler, of Cardiff. The cost is estimated at £300, and it is proposed to commemorate the Diamond Jubilee by adding three bells, making a peal of six, at an additional cost of £200. The tower is one of much interest, and is in Early Fourteenth Century style. It is proposed to "restore" only the portions which are perished and dangerous, preserving all the sound parts, and keeping the details of the lost features as near as possible to the originals.

**NEWCASTLE.**—At a meeting of the Infirmary Building Committee it was stated that thirteen Architects had intimated their acceptance of the invitation to send designs in competition for the new building. As soon as the negotiations with the Corporation for the site are completed, instructions will be issued. The premiums for the competition are as follows: First, the execution of the work at the usual commission; second, £150; third, £100, and

fourth prize, £50. It was agreed that the Architects should be allowed six months from the issuing of instructions to send in their plans. The following is the list of competitors: William Henman, Birmingham; T. Worthington, and Sons, Manchester; Simpson and Milner Allen, London; Gibson and Russell, London; Dunn, Hanson, and Fenwick, Newcastle; Oliver and Leeson, Newcastle; Armstrong and Knowles, Newcastle; Newcombe and Adams, Newcastle and London; Dyson, Newcastle; Marshall and Dick, Newcastle; Haswell, North Shields; Clark and Moscrop, Darlington; and F. Caws, Sunderland.

**NEWSOME.**—Corner-stones of a lecture room, class rooms, and other additions to Newsome Church were laid last week. Mr. Lockwood, Architect, prepared the plans which were adopted. The additions comprise a lecture room on the ground floor, which will be divided by a movable partition, so as to form two class rooms. The upper portion will consist of two class rooms or vestries. A recess will also be provided for the choir, which will allow for increased accommodation in the chapel to the extent of forty sittings. The contractors engaged on the work are: Mason, Mr. Stock, Berry Brow; joiner, Mr. J. Crowther, Wellhouse, Golcar; plasterer, Mr. N. Jessop, Berry Brow; slaters, Messrs. Jowett, Huddersfield; plumbers, Messrs. Taylor and Sons, Lockwood; and painters, Messrs. S. Kendall and Sons, Huddersfield. The probable cost is about £350.

**NORTHWICH.**—It has been found necessary to build, at a cost of £5000, a new Church at Winington, near Northwich. The building is capable of accommodating 320 persons. It is built of red pressed brick, the nave and chancel being divided by a Gothic arch of white stone. The nave is 69ft. long, and the chancel 34ft. 3in. A tower and spire have been designed for the north side, but for the present this portion of the work will not be undertaken. The structure has been built from the designs of Mr. J. L. Pearson, R.A.

**NUNEATON.**—On Thursday last the opening of a new Primitive Methodist Church and schools took place, the Architect of which was Mr. F. J. Yates, of Birmingham. The new building, which is in style a modern adaptation of the Gothic, will hold 500 worshippers, and the schools will contain 350 to 400 children. The site cost £230, and the contract was for £2250.

**PATRICROFT.**—The Barton Board of Guardians have adopted the minutes of the Workhouse Extension Committee, and recommended the following as the order of merit of the plans which had been selected for the erection of the new Union Hospital at Patricroft:—1, Sanitas; 2, Red Cross; 3, Aut Optimam aut Nihil. On the motion of Mr. Berry it was unanimously decided to open the letters accompanying the plans. It was stated that Messrs. Thomas Worthington and Sons, Lombard Chambers, 46, Brown Street, Manchester, had secured the first prize of £50 for the plans signed "Sanitas," Messrs. Booth and Chadwick, Patricroft and Manchester, take the second premium of £30 with the plans signed "Red Cross"; and the third premium of £20 was awarded to Messrs. Maxwell and Tuke, Manchester, whose plans bear the signature of "Aut Optimam aut Nihil." Mr. Berry, in reply to members, stated that after the Board had paid the premiums it was at liberty to accept what plans it chose for the erection of the new building in the grounds enclosing the new union workhouse.

**PETERHEAD.**—The formal opening of Port Royal Harbour took place last week. The area of Port Royal, as now extended and deepened, is nearly six acres, and the work has cost £32,000, including £12,000 for forming a quay wall in the South Bay. The quantity of rock excavated has been 160,000 tons, and the whole work has been carried out within a year.

**RAWTENSTALL.**—Three foundation-stones of a new fire station, which is being built in

King Street, Rawtenstall, by the Rawtenstall Corporation, were laid recently. The new building, which is estimated to cost £3000, will include engine room, recreation room, superintendent's room, and store-room on the ground floor, with dwelling-houses for the engineer and stable keeper. There will also be a square hose-drying tower, about 66ft. high at the north-east of the building, surmounted by a fire bell.

**ST. MICHAEL'S.**—A new boys' school, erected in Tyndall's Park, at the corner of Tankard's Close, was opened by the Mayoress (Mrs. Symes) last week. Last year provision for 128 girls and 147 infants was made, and in response to the demands of the Education Department no time was lost in obtaining a site whereon a building could be erected for the accommodation of 168 boys. The necessary arrangements were made, and a site was secured from the Tyndall trustees at a cost of £360. The school has been built by Mr. C. A. Hayes, from the designs by Mr. Gough; it stands on an elevated position close to the wall of the Fort.

**SEFTON PARK.**—A new Presbyterian Church has been opened at Smithdown Gate. The edifice has not yet been fully completed, the lecture hall, guild room, and other apartments being kept back, waiting further funds. The tower is approaching completion, but, in addition to this, boundary walls, pulpit, and choir stalls are still incomplete. The design of the building has been carefully adapted to the difficulties of site, owing to the nature of the foundation. The Church will accommodate about 600. The design is of the late Scotch decorated Gothic, and the interior dressings are of red brick, with plaster panels. The Architects are Messrs. Woolfall and Eccles, Castle Street, the contractors being Messrs. Morrison and Son, Wavertree.

**SHEFFIELD.**—Lady Stephenson last week laid the corner stone of St. Augustine's Church, in Brocco Bank. Mr. J. D. Webster, of St. James's Street, has prepared the plans, and his design is for a building in the Early English style of Architecture. The Church, which, apart from furnishing, will cost £7700, will seat 650 persons. The nave will be 104ft. long and 36ft. wide, and the chancel 36ft. by 28ft. There will be an organ chamber, and clergy and choir vestries. At the north-western angle of the nave there will be a tower, rising 95ft. to the top of the parapet, and the entrance porch will be at the south-west corner of the nave. The height to the square of the building will be 36ft., and to the apex of the roof 60ft. Stoke ashlar stone and chop-faced stone from Crookes are being used, and the roofs will be covered with dark Brosley tiles. The chancel floor will be laid in mosaic. Mr. James Fidler, of Eckington, is carrying out the contract. The Lord Mayor of Sheffield last week opened the recent additions to St. Joseph's Home. These consist of enlargement of the laundry, new dormitories, and ten new bath-rooms. The baths, which are in enamelled fire-clay, were supplied by Messrs. Joseph Cliff and Sons, of Leeds. The water for the baths is heated by means of the exhaust steam from the general steam boiler passing through a copper coil fixed in a large cylinder. This has been found to give an efficient supply, but should a large number of baths be required in a short time arrangements have been made to apply steam direct from the boiler. The whole of the hot water engineering and plumbing work has been carried out by Messrs. J. B. Corrie and Sons, of Sheffield. The total cost of the work amounts to £1900, and the contractors for the work are as follows: Mason and bricklayer, Messrs. D. O'Neill and Sons; carpenter and joiner, William Lynn; concrete stairs and roof layers, Messrs. Hodkin and Jones; plasterers, Messrs. Hudson and Doré; slater, Mr. W. Proctor; painters, Messrs. J. and J. Rodgers and M. A. Topham; all of Sheffield. The Architects for the work are Messrs. W. H. Lancashire and Son, Hartshill, Sheffield, under whose supervision the whole of the work has been carried out.



## SOCIETY MEETINGS.

**St. Albans Architectural and Archaeological Society.**—The members of this Society held a meeting in the Town Hall on Wednesday of last week to hear a paper by Mr. W. Page, F.S.A., dealing with the Parochial Chapel of St. Andrew, formerly attached to St. Albans Abbey. The Hon. Secretary submitted the annual balance-sheet, which was adopted. The Secretary stated that the Society was now in such a condition as to enable it to print the proceedings.—Canon Davys stated that the committee had had under consideration the next excursion of the Society. It had been suggested that the older members had already exhausted subjects of interest in the county, and it had been decided to go abroad for their next trip. Bedford was considered a most suitable place, not because the town itself was an attraction, but more on account of the interesting Church at Silsoe, a mile or two away. The date which seemed most likely to be convenient for the trip was August 18th.—Mr. Page then proceeded to read his paper commencing with a review of the early history of English Monasticism, explaining the origin of various orders. At first parishioners held certain rights in the Churches, but as time went on and the constitution of the orders, or additional rules, made the monasteries more exclusive, disputes between the monks and the laity became frequent and acute, resulting eventually (in most cases about the fourteenth century) in the matter being referred to the Bishop, and a composition being made between monks and the laymen, when these parochial Chapels were brought into existence. Turning to the case of St. Andrew's Chapel, the essayist said that it was probable that the inconveniences of the presence of the parishioners in the Abbey Church first made themselves apparent at the time when Abbot Paul de Caen, introduced the Constitutions of Lanfranc and other reforms. It was about the time of the re-building of St. Albans Abbey, commenced by Paul de Caen, that they first heard of St. Andrew's Chapel, and found it was dedicated by Herbert de Tosinga, who held the See of the Bishop of Norwich from 1094 to 1119. They could only speculate as to the size and form of this Chapel, for no remains of it had been found during recent excavations. Little more was known of the early English Church, but it probably extended westward in a line with the west front of the Abbey Church, being divided therefrom by an arcading of three bays and the tower arch at the west. How far north it extended it would be difficult to say. The Chapel was rebuilt during the second abbacy of John Wheathamstead, a reference to it being found in a will dated 1441, leaving 6s. 8d. to the fabric of the Chapel if it should happen to be built anew. There were frequent bequests from this time until 1462, and it appeared that the rebuilding commenced about 1454, and was completed in 1462, after which period the bequests were for the repair of the fabric. The origin of the decay of the Chapel was to be traced to the practice of the Abbots of St. Alban to let out or farm the wardenship, or vicarage of St. Albans, the warden making what he could by the tithes and offerings of the parishioners. So long as the abbot let out the Chapel, his tenant was always a cleric, but after the dissolution of the monasteries they found that the officers of the Court of Augmentations had let the Chapel to farm to Thomas Chadesley, who was the innkeeper of the George Inn, at the annual rent of £13 6s. 8d. Chadesley found himself unable to perform the combined duties of innkeeper and vicar, and had to procure assistance in the latter office. He found the management of the Church so much less profitable than that of the inn, that at the end of his lease he was indebted of £93 6s. 8d. arrears of rent, and was by the Court of Augmentation discharged of the said arrears. It appeared that from this period a chaplain was put in, and from 1550 to 1552 there were no profits from the Chapel, and as subsequently to the latter date all mention of St. Andrew's Chapel ceased, it might be inferred that it was pulled down before 1553. Mr. Page, by means of a

plan drawn upon a large scale, proceeded to show what was probably the style and extent of the Church.

**The Sanitary Institute.**—On Wednesday night last at the Holborn Restaurant a large number of the members and friends of the Sanitary Institute sat down to a dinner commemorative of its twenty-first anniversary. The Duke of Cambridge, president of the Institute, occupied the chair, and among others present were Lord Kelvin, Sir Douglas Galton (chairman of the Council), Sir R. Rawlinson, Dr. W. J. Collins (chairman L.C.C.), the Earl of Stamford, Sir Guyer Hunter, Sir A. R. Binnie, Colonel Jones, V.C., Dr. R. Farquharson, M.P., &c.—“The Sanitary Institute” was proposed by Sir Henry Burdett, who reviewed the important work done by the Sanitary Institute since its formation in 1876. The Institute had been placed in a sound and prosperous condition; the main objects being to secure to every man his birthright—namely, good water, good light, and good houses to live in.—Sir Douglas Dalton replied, and said the object of the Institute was to disseminate sanitary knowledge as affecting public health, to maintain a permanent museum of sanitary appliances, lectures, examinations for sanitary inspectors, &c.—Other speakers followed.

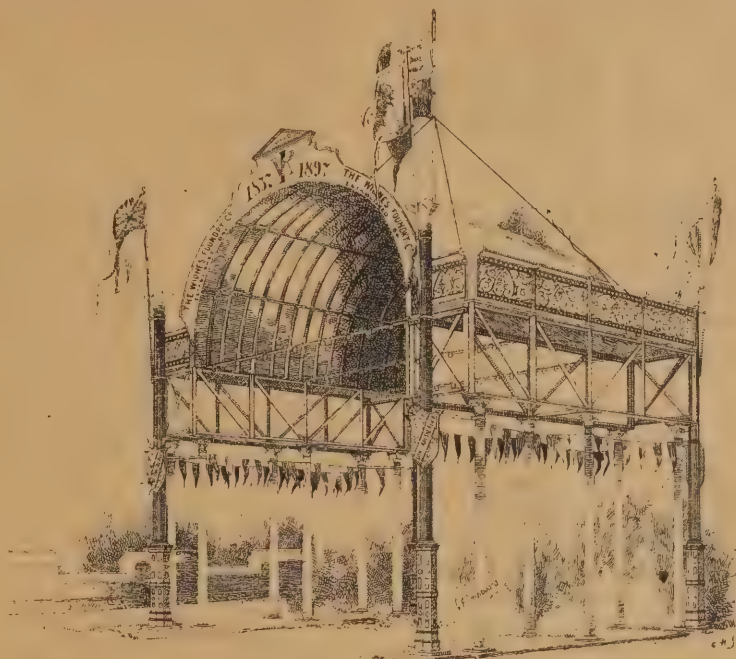
## Trade and Craft.

## HORSELESS FIRE-ENGINES.

There is now being constructed for use by the Boston Fire Department a horseless steam-engine of great size and power, having a contract capacity of 1350 gallons of water per minute, but the builders, in view of recent tests, are confident that this engine will throw 1800 gallons of water per minute. The heaviest fire-engine for horses weighs 10,000lb., its throwing capacity is 1100 gallons per minute, and at least three horses are required to draw it. The self-propeller can travel on a fair level road at a maximum rate of twelve miles an hour, and can climb any ordinary gradient—in fact, any one that a team of horses can surmount with a heavy load.

## A WONDERFUL ARCH.

A triumphal Jubilee arch of a somewhat remarkable character was put up at Widnes by the Widnes Foundry Company. The arch, which was designed by Mr. J. A. Inchboard, and which we are able to illustrate on this page, was composed of ironwork made for various contracts secured by the Company. A section for the Central London Railway



**The Institution of Mechanical Engineers.**—In 1847 the Institution of Mechanical Engineers was founded in Birmingham, which continued for many years to be its headquarters. In course of time, however, the institution moved its headquarters to London, where they still remain. Like some other professional bodies, the members of the Institute meet only at infrequent intervals, in the present instance four times a year. Three out of the four meetings are usually held in London, the summer meeting taking place in the provinces. This being the jubilee year of the institution, it has been decided that it shall revisit its old home, and this year's summer meeting will therefore be held in Birmingham. The sittings will be held in the Municipal Technical School, and will begin on Tuesday, July 27th, and on this day and on July 28th the reading and discussion of papers will take place. The afternoon will be devoted to the inspection of local works, besides which there will be alternative excursions to Wolverhampton and to Olbury or Tipton, where a number of the leading engineering and electric lighting establishments will be visited. On July 29th there will be two excursions, one to Stratford-on-Avon and the other to Walsall. The meeting will terminate on July 30th with an excursion to Coventry, where eight manufacturing establishments will be thrown open to the members for inspection, five of which are cycle works.

formed the arch itself, and columns and railings intended for the Edinburgh Waverley Station, Morecambe Pier, sundry South African works, &c., formed the supports and ornamental work. The flagstaves were an adaptation of tie-rods.

## FIRE AT A TIMBER WORKS.

A destructive fire occurred on Wednesday last at Roe's Timber Works, Derby. In a short time the greater portion of the premises were involved, and the efforts of the fire brigade, though promptly rendered, appeared to make little headway. The fire originated in the drying shed, and the rapidity with which it spread created a panic throughout the neighbourhood, the contents of 100 cottages being pitched into the streets by their terrified occupants. The actual damage done will amount to about £20,000, and is covered by insurance; but over 120 workpeople will be thrown out of employ for many months.

## INTIMIDATION AT LIVERPOOL.

In connection with the strike of plasterers now in progress in Liverpool, John Johnson, of Danube Street, Liverpool, a plasterer on strike, was charged with having intimidated a non-unionist plasterer with a view to compel him to abstain from working for Messrs. J. B. Johnson and Co., contractors, Crown Street, Liverpool, whose employ he had entered during the strike. A solicitor appearing on



behalf of the defendant admitted the offence, and expressed the willingness of his client to apologise to Messrs. Johnson and their employé and to submit to be bound over to keep the peace towards the employé. Upon the defendant stating in Court that he entirely associated himself with the apologies and assurance of abstinence from the repetition of the offence which his solicitor had proffered on his behalf, the magistrate ordered that he pay two guineas towards the prosecutor's costs, and be bound over, himself in £10, and a surety in £5, to keep the peace.

#### IPSWICH BUILDING TRADE DISPUTE.

According to the terms of the settlement, the majority of the men out on strike in the Ipswich building trade have returned to work. Several of the masters are naturally short-handed on account of so many men having left the town, but the vacancies have to some extent been filled by strangers who arrived shortly after the commencement of the strike, and the majority of whom were engaged on the understanding that they should have permanent employment.

#### MESSRS. HAYWARD'S DECORATIVE MATERIALS.

A few days since we paid a visit to the show rooms of Messrs. Hayward and Son, at 322, Regent Street, where an exhibition of mural decorative materials is now being held, and were shown some very pleasing designs and materials which should speedily find favour alike with the public and the trade. To cite only a few of the many highly artistic mural decorations to which we were introduced, we would especially draw attention to the rich hand-painted stencil design on flock by Mr. Pite, which has been denominated "Mazarine," which is admirably adapted for a dining room, and which has a very charming and totally unexpected effect when seen sideways. Another admirable design in low, soft tones, well adapted for a boudoir or morning room, is that known as "Thunberg," which is hand painted on a printed design, and is the creation of Mr. A. L. Gwatkin, the tints being blues and greens. Another good design was one in reds and yellows, by Mr. L. P. Wood, while a good staircase covering was a rich and bold design on a printed outline in rich reds. Other good effects are shown in the Fontainebleau paper by Mr. John Belcher, which is a scroll design in yellows on a grey ground; the "Chatsworth" frieze of Mr. Gwatkin, in which no fewer than seventeen stencils are employed; the "Costessy" frieze, by Mr. F. G. Rice, which is a small foliage in greens on a yellowish ground; the "Wynne" frieze, by Mr. Beresford-Pite, which is a bold design of red blossom and green foliage arranged in a scroll fashion, admirably adapted for large apartments; and the "Petunia" frieze, by Mr. L. P. Wood. Characteristics of this firm are that patrons are not confined to any set of stock patterns, but can have any colouring or design they may choose carried out, while, with one exception, their designs are confined to inanimate nature—in other words, scrolls and foliage, which are admirably exemplified in the "Furness" frieze by Mr. Pite, and the "Fig" frieze by Mr. Gwatkin, this last named being shown *in situ* in the show rooms. Another feature here worth mentioning is the "Dalmeny" frieze, which is the deepest yet made in the trade, being 48 in., which has been designed by Mr. Clements Heaton, and shows a very bold treatment. And here we would call the attention of the trade to the recently introduced jute wall coverings, in which the colours are stencilled in and chemically fixed, while a little thicker quality has a double design—one on each side—and, as this jute canvas is a cheap line, it should commend itself to those to whom economy is an object. Some which has been on the walls for six months shows no sign of deterioration in any of the tints. Messrs. Hayward will also be presently placing upon the market replicas of some of the before-mentioned designs on watered silk, the effect of which is very rich and "shimmering," on cotton velvet, on satin, and other similar materials, which will no

doubt be much in demand for high-class establishments, where good taste need not suffer for lack of means. Altogether the exhibition is rich, artistic, and interesting, and those interested in high-class decoration, whether in or out of the trade, should give Messrs. Hayward a call between now and the 17th inst.

#### MESSRS. ALDAM HEATON AND CO.'S NEW SHOW ROOMS.

Marching with the times, Messrs. Aldam Heaton and Co., the well-known Art decorators and furnishers of Bloomsbury, have opened new show rooms at 89, Mount Street, Grosvenor Square, which should certainly lead to a very considerable accession of business. In this new establishment, where two floors have been laid under requisition, the ceilings have been decorated in sections, each representing a complete ceiling design, in the various well-known stencil designs for which the firm is famous, some, of course, having filled-in figures. Beside these, there are designs for wall fillings, friezes, some of the narrow ones in low tones being very pleasing and effective, and curtains and hangings, a capital variety of schemes being shown, and all, for the most part, combinations of stencil patterns, which illustrate very effectually the enormous strides the art of stencilling, when backed up by taste and artistic knowledge, has attained to, and its great superiority over block printing where artistic results are desired. On a recent visit to the show rooms, beside the ordinary stock-in-trade of the establishment, which has been most effectively arranged, we were shown some wall papers with transparent effects, which have been put up on the staircase of a mansion near Windsor, and which should certainly win for themselves a large measure of popularity, and some designs executed in tapestry and mounted on couches and chairs. A very pleasing article of the latter description was shown as a copy from an old example, in which the curving lines of the arms and legs especially call for admiration. Other items worthy of notice are the painted pine wardrobes and dressing tables, which introduce a decidedly new and very effective style of decoration, which, we may mention, is executed by young ladies, while we were pleased to find that the firm were giving attention to gesso-duro decoration. Just now Messrs. Aldam Heaton and Co. are carrying out the decorating and furnishing of the Briton, the latest addition to the fleet of the Union line, and, from the specimens which we saw of the work in progress, passengers by that vessel will have very artistic surroundings. Among the furnishings on view were handsome bookcases, inlaid with marqueterie, as also are the writing tables; leaded lights for the dome of the smoking-room, portholes, &c., together with a solid leather wall covering, embossed and gilt, which will be put up in the first class smoking saloon; while last, but not least from the artistic point of view, was a handsomely carved frieze in pine wood. The above only constitute a few of the many pleasing objects which are to be seen during a stroll through these well-appointed show rooms, where admirers of the late Dante Gabriel Rossetti will not fail to notice his portrait of Mrs. Aldam Heaton when a young woman. Lovers of the choice and the Artistic should certainly make a point of calling at Mount Street.

A CONSIDERABLE portion of the chemical works of Messrs. Earp and Co., Runcorn, suddenly collapsed with a fearful crash last week. The building was erected six months ago for the manufacture and storage of borax. The works were in full operation when the accident occurred, and a number of workmen had narrow escapes.

AYR TOWN HALL and Burgh Court House has been burnt to the ground. The damage is estimated at £20,000. The fire was discovered in the roof, and although the municipal offices were saved, the flames attacked a range of buildings occupied by Corporation employes. The organ in the Town Hall was destroyed with the building.

## Enquiry Department.

### COACHING FOR SANITARY INSPECTORS' EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I have looked through your journal, of which I have taken since Vol I, No. 1, for the rate of Trade Advertisements, which I presume is the heading under which you would require us to advertise, but could not find it. I should be glad if you would forward me at your earliest convenience the information and, if not asking too much, the name of your correspondent "L. E." Stoke-upon-Trent, who asks for information which we shall only be too glad to supply.—Yours faithfully,

FRANK A. FURBER

We shall be pleased to send you the charges for trade announcements if you will send full address. Paragraph advertisements such as those appearing on page x. are charged at the rate of 1s. 6d. for four lines—about 32 words—and sixpence per line after. The names and addresses of correspondents are never disclosed.—ED.

MR. T. H. THOMAS has designed a new bardic crown for the Newport Eisteddfod. In the centre is a British shield-shaped space, supporting a model of the Gorsedd in burnished silver, crystals, or amber. Surrounded by engraved lettering, within the circle, is a band of archaic raised lettering, and above is the bardic sign. On either side there are Celtic ornaments, from which oak leaves and acorns taper to the ends, the tapering being broken by two studs. All the decorations are in strong relief.

THE railway bridge at Plawsworth caught fire last week, the cause probably being the falling of some hot cinders from a passing locomotive. The outbreak was confined to the wooden "decking" upon which the rails rest. Fortunately little damage was done.

ALTERATIONS, which will involve an expenditure of about £6000, have just been commenced at the Burnley Church of England Literary Institution.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BATLEY.—For the erection of thirty-five houses, Whitaker and Albion-streets, for Messrs. Talbot Bros. Mr. J. H. Brearley, Architect, Hanover-street, Batley:—  
Masonry.—S. S. Baines, Batley ... £2,700  
Joinery.—Hy. Brooke, Batley ... 980  
Slating.—Geo. Fawcett, Dewsbury ... 293  
Plastering.—S. Crawshaw, Batley ... 280  
Painting.—J. Walshaw, Batley ... 140  
Painting.—W. Kershaw, Dewsbury ... 80

BATLEY.—For the erection of ten houses, Denison-street, Purlwell, for Mr. George Box. Mr. J. H. Brearley, Architect, Hanover-street, Batley:—  
Masonry.—Edward Pickles, Batley ... £900  
Joinery.—Ephraim Sykes, Batley ... 250  
Plumbing.—Thos. Elliott, Batley ... 40  
Slating.—Saml. Crawshaw, Batley ... 80  
Painting.—J. M. Thornton, Heckmondwike ... 82  
Painting ... 23

BATLEY.—For the erection of five houses, &c., Princess-street, for Mr. David Midgley. Mr. J. H. Brearley, Architect, Hanover-street, Batley:—  
Masonry.—J. Oldroyd, Batley ... £600  
Joinery.—J. Richardson and Sons, Staincliffe ... 170  
Plumbing.—J. Firth, Batley ... 41  
Slating.—S. Crawshaw, Batley ... 48  
Painting.—J. M. Thornton, Heckmondwike ... 46  
Painting ... 20

BATLEY.—For the erection of store premises, Purlwell-lane, Mount Pleasant, for the Batley Co-operative Society, Limited. Mr. J. H. Brearley, Architect, Hanover-street, Batley. Quantities by Architect:—  
Masonry.—Joseph Oldroyd, Batley ... £730  
Joinery.—Geo. Bailey, Earlsheaton ... 500  
Plumbing.—Exley Bros., Batley ... 90  
Slating.—J. M. Thornton, Heckmondwike ... 79  
Plastering.—Jas. Lockwood, Staincliffe ... 28  
Painting ... 34

BATLEY.—For erecting four houses off Dark-lane, Batley, for John Woods' trustees. Mr. John H. Brearley, Architect, Batley:—  
Masonry.—T. Oldroyd, Batley ... £370  
Joinery.—E. Sykes, Batley ... 110  
Plumbing.—H. Wood, Batley ... 22  
Slating.—Kitchingman and Baye, Batley ... 30  
Painting.—J. M. Thornton, Heckmondwike ... 35  
Painting ... 20



**BATLEY (Yorks).**—For the erection of eight terrace houses, &c., East Bath-street, for Mr. James Newton. Mr. J. H. Brearley, Architect, Hanover-street, Batley. Quantities by Architect:—  
*Masonry.*—John Mortimer, Batley ... £1,050  
*Joinery.*—Thos. Illingworth, White Lee, Batley ... 350  
*Plumbing.*—Thos. Elliott, Batley ... 80  
*Plastering.*—Kitchingham and Raye, Batley ... 90  
*Slatting.*—W. H. Thompson, Batley ... 95  
*Painting* ... 44

**BIRSTALL (Yorks).**—For alterations, &c., to two shops, Market-place, for Mr. R. Hodgson. Mr. J. H. Brearley, Architect, Hanover-street, Batley:—  
*Masonry.*—H. Crosland, Staincliffe, near Dewsbury ... £150  
*Joinery.*—Jos. Clegg, Birstall ... 110  
*Plumbing.*—Jos. North, Birstall ... 50  
*Plastering.*—R. Barraclough, Birstall ... 30  
*Slatting.*—Jos. Rhodes, Birstall ... 22  
*Painting.*—Wm. Firth, Birstall ... 20

**BLACKBURN.**—For the erection of steam bakery, stables, &c., Blakely-street. Messrs. Simpson and Duckworth, Architects, Richmond-chambers, Blackburn. Quantities by the Architects:—  
*E. Lewis & Sons* £2,844 0 0 *Jas. Hilton* ... £2,542 7 6  
*Kenyon & Mould.* ... 2,535 0 0 *Jas. Parker* ... 2,520 10 0  
*Ing* ... 2,602 0 0 *Whittaker & Son* ... 2,520 10 0  
*Ginger & Cooper* ... 2,620 0 0 *Lloyd & Milward* ... 2,500 0 0  
*Jno. Gillibrand* ... 2,608 0 0 *Jas. Sharples* ... 2,492 0 0  
*R. Ibbotson* ... 2,580 0 0 *J. Tevitt & Sons\** ... 2,472 0 0  
*Higson and Sons* ... 2,548 0 0 \* Accepted.

**BEXHILL.**—For the erection of three shops and dwelling-houses in St. Leonard's-road, for Mr. W. S. Tinkley. Wm. Cooper, M.A.S., Architect, 21, Havelock-road, Hastings. Quantities by the Architect:—  
*Barter and Gasson,* Hastings ... £4,100 0  
*White, A. H., St.* Leonard's ... 3,723 10  
*Geary, J., St. Leonard's* ... 3,719 0  
*Hatton, F. G., St. Leonard's* ... 3,700 0  
*Padgham & Hutchinson, St. Leonard's* ... 3,700 0  
*Crutenden, H. E., St. Leonard's* ... 3,686 0

**BOLSOVER.**—For the rebuilding, restoration, and enlargement of St. Mary's Church, Bolsover, near Chesterfield, Derbyshire. Mr. Louis Ambler, Architect. Quantities by Messrs. Pinks and Watson, Parliament-street, Westminster, London:—  
*J. Fidler* ... £12,300 0  
*C. Trask and Sons* ... 12,970 10  
*E. Lacombe & Son* ... 16,640 0  
*Rudd and Son* ... 10,555 0  
*J. M. Thompson and Son* ... 10,551 0

**BROMLEY ST. LEONARD.**—For cleansing and re-decorating the Parish Church of St. Mary, Bromley St. Leonard, Middlesex, for the churchwardens. Messrs. Walter A. Hills and Son, Architects, 147, Bow-road, E.:—  
*A. W. Derby* ... £554 10  
*Vigor and Co.* ... 512  
*Jas. Robey (accepted)* ... 443

**BRYNAMMAN (Wales).**—For the erection of a Congre-

gational chapel. Messrs. Owen Morris Roberts and Son, Architects, Portinadoc:—  
*E. Thomas* ... £1,999  
*D. Rees* ... 1,780  
*J. Williams* ... 1,665  
*Howells and Jones* ... 1,650  
*Thomas and Evans* ... 1,630

**CARLTON (Notts).**—For the erection of co-operative stores. Mr. R. Whitbread, Architect, Carlton:—  
*H. Hickling* ... £1,375  
*S. Ingham* ... 1,352  
*J. Lewin* ... 1,275

**CHATHAM.**—Accepted for the supply and erection of iron hut for H.M. War Department:—  
*Humphreys, Ltd., Knightsbridge* ... £570

**COLNE (Lancs).**—For the construction of a chimney, Burnley-road, for the Corporation. Mr. T. H. Hartley, Borough Surveyor, Town Hall, Colne:—  
*Myles & Warner* £2,876 16 11  
*Geo. Hunter & Co.* £2,875 4 5  
*J. Byrom* ... 2,659 1 5  
*John Sefton* ... 2,500 0 0  
*A. Ripley* ... 2,312 8 10

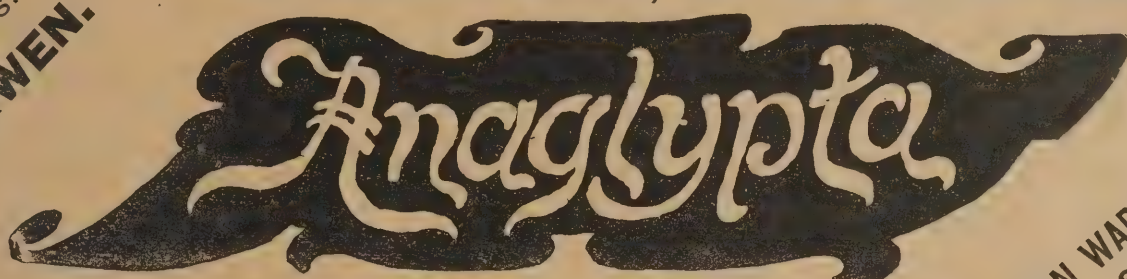
**CROMER.**—Accepted for the additions of a cookery-class room to the new Board Schools for the Cromer School Board. Messrs. Bottle and Olley, Architects, Great Yarmouth:—  
*J. White, Cromer* ... £375

**CWMAVON.**—For the erection of a new Vestry at Cwmauon, Port Talbot. Mr. J. C. Rees, Architect, Church-place, Neath:—  
*D. Lloyd* ... £545 0  
*S. Rees* ... 540 0  
*T. Jenkin* ... 540 0  
*W. Clarke* ... £533 0  
*Leverton Bros., Aber-* ...  
*avon (accepted)* ... 470 14

[Architect's estimate, £530.]

WORKS:  
**DARWEN.**

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF

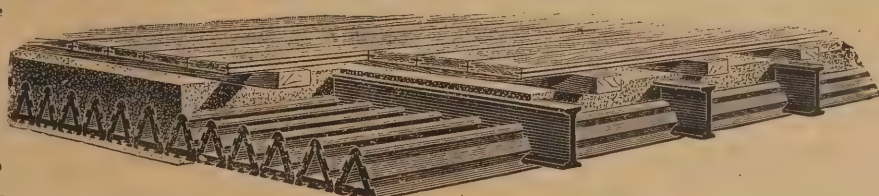


THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
 IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
 92  
 Great Russell St.,  
 W.C.

# HOMAN'S FIREPROOF FLOORS.

Used in  
 nearly  
 2000 BUILDINGS.



Roofs, Piers,  
 Bridges, Joists,  
 and Girders

CONSTRUCTIONAL STEEL AND IRONWORK.  
 GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS.**

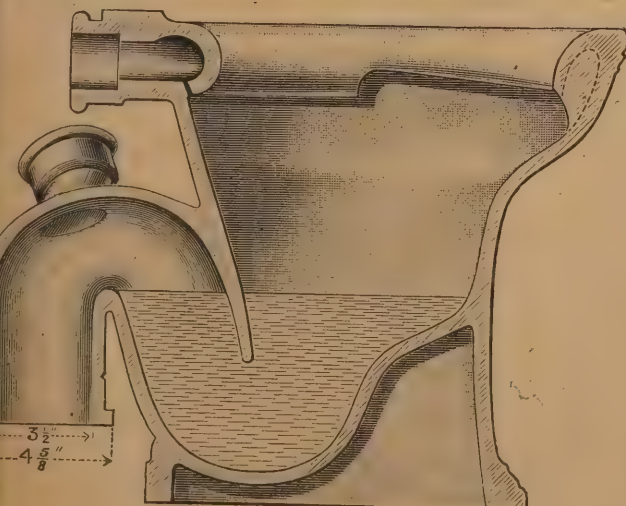
LONDON { Offices: 17, GRACECHURCH STREET, E.C.  
 Works: RATCLIFF, E.

MANCHESTER { Offices: 10, MARSDEN STREET.  
 Works: WEST GORTON.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



## SHANKS' PATENT "COMPACTUM" WASH-DOWN CLOSET.

LARGE WATER SURFACE, 8 in. by 6 in.  
 DEEP SEAL IN TRAP, 3 in.  
 THOROUGHLY FLUSHED WITH TWO GALLONS OF WATER.  
 PERFECT SEAT EXTENSION.  
 PORCELAIN SOLDERED JOINT.

Made in "Vitro-Porcelain," a new body, vitreous throughout, non-absorbent, and non-crazing. The best material for Sanitary Appliances ever introduced.

Prices and Particulars on Application.

SHANKS & Co., Tubal Works, Barrhead, near Glasgow.



**DEWSBURY.**—Accepted for the erection of two cottage homes, Healds-road, for the Union Guardians. Messrs. Holton and Fox, Architects, Westgate, Dewsbury. Quantities by the Architects:—

Excavating, Masonry, and Bricklaying.—Crabtree and Denton, Boothroyd-lane, Dewsbury	£825 0
Carpentry and Joinery.—H. Garthwaite, Wakefield-road, Dewsbury	300 0
Plumbing and Glazing.—F. Newsome, Northgate, Dewsbury	203 0
Slating.—G. Hargreaves, Eastbow, Dewsbury	66 10
Plastering.—S. Crawshaw, Field-lane, Batley	40 0
Painting.—N. Ramsden, Victoria-road, Dewsbury	33 19
Electric Wiring.—A. Hirst and Son, Bradford-road, Dewsbury	28 10
Total	£1,496 19

**DEWSBURY.**—For the erection of six terrace houses, Savile-road, Savile Town, for Mr. J. A. Brier. Mr. J. H. Brearley, Architect, Hanover-street, Batley:—

Masonry.—Edward Mercer, Ossett	£1,610
Joinery.—Geo. Bailey, Earlsheaton	680
Plumbing.—T. Bottomley, Dewsbury	280
Plastering.—Kitchingman and Raye, Batley	199
Slating.—W. H. Thompson, Batley	145
Painting	78
Total	£2,992

**EARLSHEATON (Yorks).**—For the erection of two houses and outbuildings, for Mr. Potter Garforth. Mr. J. H. Brearley, Architect, Hanover-street, Batley:—

Masonry.—R. Wainwright, Earlsheaton	£220
Joinery.—A. Marshall, Earlsheaton	60
Plumbing.—Ben Scott, Dewsbury	10
Plastering.—Kitchingman and Raye, Batley	12
Slating.—Geo. Fawcett, Dewsbury	23
Painting.—Geo. Fawcett, Dewsbury	12
Total	£337

**GATEHEAD.**—For the erection of mission church and vicarage, Westminster-street, Saltwell-lane. Mr. E. E. Clephan, Architect, St. Nicholas-chambers, Newcastle-on-Tyne. Quantities by Mr. George Bell, Newcastle:—

Mission Church.	Parsonage.
W. C. Tyrie	£3,264 0 0
Hiddell Bros.	3,072 2 0
Haswell and Waugh	3,186 0 0
Alex. Pringle	3,055 2 0
Isaac Bewley	2,568 13 10
John Ross	2,545 5 10
T. and R. Lamb	2,524 17 5
Turner Brothers	2,448 0 6
Total	£23,504 0 0

**GREAT YARMOUTH.**—For alterations to girls' department, St. George's school, for the Great Yarmouth School Board. Messrs. Bottle and Olley, Architects, Great Yarmouth:—

Builders.	Plumbers.
J. Ward	£244 3 6
J. Balls	241 0 0
F. Grimble	240 0 0
R. Eastoe	236 0 0
Total	£961 3 6

**GREAT YARMOUTH.**—For new boys' school, St. Peter's-road, for the Great Yarmouth School Board. Messrs. Bottle and Olley, Architects, Great Yarmouth:—

Builders.	Plumbers.
T. Howes	£4,500 0
J. F. W. Bray	4,488 0
J. Leggett	4,439 13
Carter and Wright	4,100 0
A. E. Bond	4,035 0
J. Balls	4,032 0
Total	£23,998 0

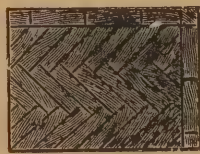
## THE SMOKELESS FIRE CO. LTD.,

Sole Proprietors of Marsh's Patents

FOR THE

## COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFESBURY AVENUE, LONDON, W.



### WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)  
For Churches, Schools, Offices, &c.

Estimates and full particulars on application to  
**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM JOINERY WORKS,  
Clapham Junction, S.W.

## THE BATH STONE FIRMS LTD.

BATH,

FOR ALL THE PROVED KINDS OF BATH STONE.

**FLUATE,** for Hardening, Waterproofing, and Preserving Building Materials.

**LADDERS, BARROWS, STEPS, TRESTLES, SCAFFOLDING, For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

**Plumbers.**  
T. Spencer £280 5 9  
J. Atherton 227 10 0  
G. W. Gooda 228 9 6  
G. Platt and Son 220 0 0

**HASTINGS.**—For alterations and additions to Hill View Wellington-road, for Mr. W. H. Atkins, Wm. Cooper, M.S.A., Architect, 21, Havelock-road, Hastings:—  
Barter and Gasson, Hastings, W. Hastings\* £124 12s  
\* Accepted.

**HASTINGS.**—For reconstruction of premises and building new clothier's shop to No. 86, Queen's-road, for Mr. J. B. Ward. Mr. B. Hambrow, Architect, 91, Milward-road, Hastings. Quantities by the Architect:—  
J. Simmonds and Co. £408 0  
D. H. Snow 399 0  
Barter and Gasson 395 0  
W. F. Vidler\* 354 0  
\* Accepted.

**KINGSWEAR (Devon).**—For additions to the Redoubt, for Mr. Smith. Mr. W. F. Tolitt, Architect, Gate House, Totnes:—  
R. T. Pillar £502  
John E. Short, Kingswear\* £473  
\* Accepted.

**LONDON.**—For construction of 12in. and 9in. sewers, at Bittacy Hill and Mill Hill, Hendon, N.W., for the Urban District Council of Hendon. Mr. S. Slater Grimley, Engineer:—  
London stoneware pipes. Wakefield's patent country pipes.  
H. Lee £6,855 5 0  
T. Adam 6,321 0 9  
J. Dickson 6,284 3 10  
Jos. Jackson 6,251 14 0  
R. Ballard, Ltd. 6,200 1 8  
M. Kitteringham 5,827 8 4  
Wilkinson Bros. 5,426 0 0  
Finsbury Park\* 5,282 0 0  
\* Recommended by the Works Committee for acceptance.

**LONDON.**—For new stone yard, store-rooms, and offices, in completion of Town Hall buildings, Clerkenwell, for the Vestry of Clerkenwell. Mr. C. Evans-Vaughan, Architect:—  
Perry and Co. £6,735  
J. O. Richardson 6,735  
G. Wall 6,682  
G. and A. Bywaters 6,649  
Dove Bros. 6,615  
W. Goodman 6,571  
Mowlem and Co. 6,357  
L. H. and R. Roberts 6,490  
C. Deering and Son 6,432  
B. E. Nightingale 5,493

**LONDON.**—For additions and alterations, St. John's Schools, Ealing. Mr. Robert Willey, Architect, 33, New Bridge-street, E.C.4:—  
Penny and Co. £3,410  
Myring 3,325  
Nye 3,275  
Down 3,219  
Foord and Son\* 3,161  
\* Accepted.

**LONDON.**—For rebuilding No. 47B, Welbeck-street, W., for the Architect, Mr. Robert Willey, 33, New Bridge-street, E.C.4:—  
J. Bennett £4,484  
Thompson & Beveridge 4,161  
Foord and Sons 3,943  
Webber £3,850  
Smith & Sons, Norwood\* 3,769  
\* Accepted.

**LONDON.**—For reinstating damage done by fire at No. 19, Ivy-lane, E.C.4, for the Hand-in-Hand Insurance Society. Mr. Robert Willey, Surveyor, 33, New Bridge-street, E.C.4:—  
Smith and Sons £390  
Halliday and Greenwood 989  
Clarke and Bracey\* £390  
\* Accepted.

**LONDON.**—For the construction of new roads at Islington Cemetery, East Finchley, for the Vestry of St. Mary, Islington. Mr. J. Patten Barber, M.Inst.C.E., Vestry Hall, Upper-street, Islington, N.:—  
W. J. Botterhill £1,584 0 0  
W. Griffiths 1,183 4 7  
F. A. Jackson & Son 851 0 0  
Wilkinson Bros. 834 0 0  
T. Adams 831 0 0  
G. Bell 829 0 0  
E. Nicholls £812 6 0  
R. Ballard & Co. 757 0 0  
C. W. Killig- back and Co. 740 0 0  
London, N.W.\* 701 0 0  
\* Accepted.

**LONDON.**—For alterations and additions to the Regent's-lane Schools, Custom House, for the West Ham School Board. Mr. William Jacques, Architect to the Board, Fen-court, E.C. Quantities by Messrs. P. L. Curtis and Sons:—  
F. Fulcher £1,428  
J. Noakes 1,180  
Read and Son 996  
A. Webb £207  
G. W. Smith 839  
W. J. Maddison\* 89  
\* Accepted subject to the approval of the Education Department.

**LONDON.**—Accepted for the erection of a club room and skittle-alley at the Grove Hotel, Dulwich. Mr. A. E. Mullins, Architect, 97, Barry-road, S.E.:—  
For Erection of Building.  
W. Askew, Nunhead £315  
Jackson and Son, Pentonville 235

**LONDON.**—For alterations, &c., at Nos. 1 to 10, Sarfey-road, Nunhead, S.E., for Mr. W. Dunn. Mr. Arthur E. Mullins, Architect, 97, Barry-road, S.E.:—  
Sharpe and Son £250 0  
Avis 215 0  
Tunbridge and Day 179 3

**LONDON.**—Accepted for new stone staircase from nave to crypt, at St. Mary Magdalene Church, Paddington. Messrs. Bucknall and Cowper, Architects, 35, Old Queen-street:—  
W. H. Handover and Son, Harrow-road £167

**LONDON.**—For cleaning, painting, whitewashing, and repairs to the Infirmary, Fulham Palace-road, W., for the Guardians of Fulham Union. Mr. A. Saxon Smith, Architect:—  
W. Lyford £2,445  
W. Brown 2,382  
Vigor and Co. 2,025  
T. Nye 1,815  
H. Wall and Co. £1,597  
T. Bendon 1,568  
J. Mackenzie 1,473

**LONDON.**—For repairs, alterations, painting, and decorations at the "White Swan" hotel, High-street, Deptford. Mr. J. M. Jones, Architect and Surveyor, 23, Finsbury-circus:—  
For Repairs, &c.  
J. Tyler £415  
Thos. Glanfield 407  
J. Henderson 420  
John Amos, Deptford\* 295  
\* Accepted.

**LONDON.**—For repairs, alterations, painting, and decorations at the "White Swan" hotel, High-street, Deptford. Mr. J. M. Jones, Architect and Surveyor, 23, Finsbury-circus:—  
Gus Fitting:—  
Steadman £60 0  
Weller 55 0  
Wynne £54 10  
Evans, Barnsbury\* 50 0  
\* Accepted.

## FLOORING BLOCKS.



Per 100 Blocks out of sizes.	YELLOW.		PITCH PINE.	
	At Wharf.	ex Ship within one month.	At Wharf.	At Wharf.
174 x 3 x 3	12 3	11 2	16	
174 x 3 x 2	8 9	7 11	11 8	
174 x 3 x 1 1/2	6 9	6 0	9 1	



## PRIME DRY OAK & PITCH PINE FLOORING

With Special Joint to conceal Nails—

1 1/4 x 4 Oak, 50/- Pitch Pine, 24/6 per square.

1 x 4 42/6 21/-

Above prices include desiccating.

## VIGERS BROTHERS

TIMBER MERCHANTS.

Head Office—67, KING WILLIAM STREET, E.C.

Mills—LOTS ROAD, CHELSEA.

Telephone No. 601 Avenue.

# LIFTS

Hydraulic, Steam, Gas,  
Electric, or Hand-Power.

## M.T. MEDWAY & CO.

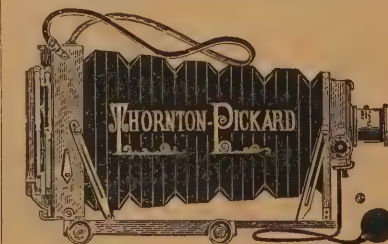
ALBERT WORKS,

ROLT ST., DEPTFORD, S.E.

SAFETY . . .

... ECONOMY . . .

... SPEED.



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.





**LONDON.**—For external painting at the Casual Works, Milman-street, Chelsea, S.W., for the Chelsea Board of Guardians. Messrs. Lansell and Harrison, Architects, Highbury.—  
J. Dorking and Sons £261 9 | R. E. Williams & Son, Clapham Junction\* £138 0  
W. F. Picken 183 0  
\*Accepted.

**LONDON.**—Accepted for the supply and erection of iron roofs, at the Foreign Cattle Market, Deptford, for the Corporation of the City of London. Mr. A. Murray, Engineer.—  
Humphreys, Limited, Knightsbridge £2,700

**LONDON.** For painting, whitewashing, and cleaning at the Infirmary, Cale-street, Chelsea, S.W., for the Chelsea Board of Guardians. Messrs. Lansell and Harrison, Architects, Highbury, N.—  
W. Bolton £1,082 0 0 | W. F. Picken £275 0 0  
The House Clean- G. Wade 749 0 0  
ing Company 960 0 0 | Gardner & Hazell 635 0 0  
The Co-operative G. Searle 597 17 6  
House Decora- J. McKenzie, Ken- 517 6 0  
tors 901 6 0 | sal Rise\*  
Barrett & Power 889 0 0 \*Accepted.

**MIDDLESBROUGH.**—Accepted for the erection of twelve houses, Holt-street, and ten houses, Lamport-street. Mr. W. G. Roberts, Architect, 61, Albert-road, Middlesbrough.—  
C. Zealand, 35, St. Paul's-road, Middlesbrough £1,980  
[Exclusive of ironmongery, hardware, and fire-grates, &c.]

**MIDDLESBROUGH.**—For the erection of two shops, Hurlington-road, for Mr. Linton. Mr. W. G. Roberts, Architect, 61, Albert-road, Middlesbrough.—  
Brickwork, Plastering, Joinery, and Slating Work. Wm. Sturdy, Brentnall-street £184

**MIDDLESBROUGH.**—For the erection of two shops, Hurlington-road, for Mr. Linton. Mr. W. G. Roberts, Architect, 61, Albert-road, Middlesbrough.—  
Plumbing, Glazing, and Gasfitting. Walton and Garthwaite, Corporation-road £27 6 4

**NORTH WALSHAM.**—For additions to the boys' department of the North Walsham School Board. Messrs. Bottle and Olley, Architects, Great Yarmouth.—  
J. White £595 10 | J. Batchelor, Stalham\* £438 10  
W. Wilson 497 10  
\*Accepted.

**PENTRE BROUGHTON (Wales).**—For the erection of a schoolroom, &c., for the Trustees of the Methodist Free Church. Messrs. Davies and Moss, Architects, 11, Regent-street, Wrexham.—  
S. Moss £762 0 0 | W. H. Wycherly and Co., Broughton, Wrexham (accepted) £630 0 0  
T. Williams 704 9 6  
R. Williams 684 0 0

**SALE (Cheshire).**—For the execution of sewerage works, &c. (Contract No. 13), for the Urban District Council. Mr. A. G. M. Beath, Engineer, 4, School-road, Sale. Quantities by engineer:—  
A. Taylor £276 12 2 | Simon Johnson £353 8 10  
J. Farrell 457 9 10 | George Bozson,  
C. Bracegirdle 427 18 5 | Sale\* 325 0 0  
William Wilson 415 0 0 | Thos. Rowland 282 13 8  
Matthew Naylor and Sons 400 0 0  
[Engineer's estimate, £2350.]

**SEVENOAKS.**—For the levelling, metalling, kerbing, tar-paving, channelling, and making good the Mount Harry-road, East, and the laying of about 2150ft. run of 9in. stone-ware pipe sewers, for the Urban District Council of Sevenoaks. Mr. Jabez Mann, C.E., Surveyor to the Council:—  
Thomas Adams £1,376 0 | Edmund Ties,  
John Jackson 1,942 14 6 | Mitcham Com-  
Sidney Hudson 1,895 15 6 | mon, Surrey\* £1,644 9 9  
\*Accepted according to schedule of prices.  
[Surveyor's estimate, £1,781.]

**SKWEN (near Neath).**—For extension and alterations at the Coedfranc School, Skwen, near Neath. Mr. J. C. Rees, Architect, St. Thomas's-chambers, Church-place, Neath:—  
T. Roberts £2,734 0 | Brynion, Thomas,  
Walters and Johns 2,590 0 | and Rees £2,220 0  
W. J. Bloxham 2,426 0 | D. Jenkins 2,170 0  
Evan Thomas 2,391 0 | David Bros. 2,170 0  
D. W. Rosser 2,230 0 | Thomas Watkins and Co., Swansea\* 2,069 5  
\*Accepted.  
[Architect's estimate, £2,225.]

**STENHOUSEMUIR (N.B.).**—Accepted for the erection of shops, &c., for the Equitable Co-operative Society, Limited. Mr. James Strang, Architect, High-street, Falkirk:—  
Masonry and Brickwork.—J. J. and P. McLachlan, Larbert. t.  
Carpentering and Joinery.—Simpson and Young, Larbert.  
Plumbing and Gasfitting.—Gilbert Brunton, Larbert.  
Slating.—Drummond and Crowe, Laurieston.  
Plastering and Cementing.—James Millar, Falkirk.  
Revolving Shuttles.—William Dickson, Edinburgh.  
[The total cost of buildings is about £2,000.]

**SWANSEA.**—For the erection of business premises, Caer-street and Goat-street, for Messrs. B. Evans and Co., Limited. Messrs. Jones and Rowlands, Architects, 58, Wind-street, Swansea. Quantities by the Architects:—  
Thomas Watkins £6,710 15 1 | Gustavus Bros. £6,335 18 7  
and Co., Ltd. 6,082 11 10 | Henry Billings 6,335 5 4  
Thomas Richards 6,490 6 5 | Lloyd Bros., Ar-  
D. Jenkins 6,490 0 0 | gyle yard,  
E. Groom 6,490 6 5 | Swansea\* 6,100 0 0  
Thomas Davies 6,403 12 10  
\*Accepted.

**WHITBY.**—For new Board school and master's house, at Glaisdale, near Whitby, for Glaisdale School Board. Mr. Edmund H. Smales, Architect, Whitby:—  
C. Winterburn £1,776 0 0 | Robinson Har-  
Wilfrid Atkinson 1,764 10 10 | land, 4, Fish-  
burn-road,  
Whitby\* £1,750 3 0  
\*Accepted.  
[Lowest separate tenders, £1,874 12s. 2d.]

**WOLDINGHAM (Surrey).**—For the erection of a private residence, for Mrs. A. C. Hekking. Mr. Edgar Stones, Architect, St. Lawrence House, Trump-street, E.C.:—  
Hicks and Burford £2,312 | J. and J. Ward 1,850  
Battley, Sons, and Hol- 1,869 | T. Crabbe 1,233  
ness\*  
\*Accepted subject to modification.

**QUANTITIES.**—The Central London Surveying Office, assisted by a Competent Staff, is prepared to promptly PREPARE QUANTITIES, MEASURE-UP WORK, &c., guaranteeing strict accuracy. References given. Address, SECRETARY, Walbrook-chambers, Walbrook, E.C. 13

Price 3s.

**GLOSSARY OF TECHNICAL TERMS** used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

**CIVIL SERVICE TECHNICAL EXAMS.**

—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

**SANITARY INSPECTORS' EXAMINATIONS.**—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required. For particulars and testimonials apply CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

# McNEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.) McNEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. McNEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works Kirkintilloch, near Glasgow.

## THE ST. PANCRAS IRON WORK COMPANY, ENGINEERS & IRONFOUNDERS.



Manufacturers of  
**IRON STAIRCASES**  
(Straight and Spiral),

**IRON ROOFS, FOOT BRIDGES,  
IRON DOORS,**

**VERANDAHS, BALCONIES,  
PORCHES, GATES & RAILINGS.**

**GENERAL WROUGHT & CAST-IRON WORK.**

LARGE SHOWROOMS AT

**The St. Pancras Iron Works,**  
PANCRAS ROAD, LONDON, N.W.  
(Close to King's Cross, St. Pancras and Euston Stations.)

BUILDERS' JOURNAL Reading Cases may be had on application to the Manager, price 1s. 9d.



London Agents: HENRY WARING, 130, Queen Victoria Street, E.C.



**R. I. B. A. EXAMS. PREPARATION**  
personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Ferchard House, 70, Gower-street, W.C. (close to British Museum).

### APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

### THE LONDON (TELEPHONE {Holborn. No. 1011.}) DRAWING & TRACING OFFICE,

98, Gray's Inn Road, Holborn, W.C.

(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS,  
PERSPECTIVES, SURVEYS,**

**COMPETITION DRAWINGS,**

Black Line **PHOTO-COPIES** and Blueprints.  
Quantities, Specifications **LITHOGRAPHED.**

**MODELS, DIAGRAMS, &c.**

TRACING and PRINTING Rooms, HATTON GARDEN,  
connected by Private Telephone.

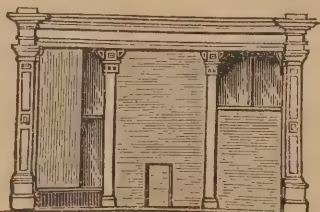
**BUILDER'S CLERK.—FIRST-CLASS**  
MAN WANTED, not for books, cash, or ordinary correspondence; help in the practical or administrative side required.—CHARLES, Building Contractor, Thelshford Works, Moseley, Birmingham.

## G. BRADY,

Manufacturer of Revolving Shutters

IN WOOD, IRON, OR STEEL,

WINDOW GUARDS, GATES, RAILINGS, &c.



## SUN BLINDS,

INSIDE AND OUTSIDE.

BLINDS OF EVERY DESCRIPTION WITH SPRINGS  
OR ROPE MOTION.

Works: **BROWNSFIELD MILLS,  
ANCOATS, MANCHESTER.**

**BRICKS. LIME.  
CEMENT.**

**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

### LONDON PLATE-GLASS INSURANCE CO. LTD.

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.  
MODERATE RATES. PROMPT REPLACEMENTS.  
SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited.

Liberal Terms for Business Introduced.

**PORTABLE HOISTING ENGINE,** Three  
Portable, 18in. Horizontal, four  
others, Deal Frame, Log and Deal, Joiner's  
Bench, Moulding Machine, Lathe, Saw-  
sharpener, Drilling Machine.

POVIS, BALE & Co., Appold Street, London.

### TO LOCAL SURVEYORS.—ASSISTANCE

in the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL. 21

### BOROUGH of SUDBURY, SUFFOLK. SURVEYOR.

The Town Council of the Borough of Sudbury invites APPLICATIONS for the APPOINTMENT of a BOROUGH SURVEYOR and INSPECTOR of NUISANCES, pursuant to the provisions in that behalf of the Public Health Act, 1875, at a salary of £150 a year.

The person to be appointed is to devote the whole of his time to the service of the Corporation.

Applications, in the handwriting of the respective candidates, which are to state the ages of the applicants (not to be under 25 nor over 45 years), and their qualifications, and which are to be accompanied by copies of recent testimonials, not exceeding three in number (which will not be returned), are to be sent home at my Office, 16, Frear's-street, Sudbury, under cover, marked "Borough Surveyor," on or before TUESDAY, JULY 20th next.

The person appointed will have under his superintendence about ten miles of streets and roads.

An Office is provided for the Surveyor by the Town Council in the Town Hall.

Personal application to any member of the Council is prohibited and will render any candidate ineligible.

Dated June 23rd, 1897.

By order of the Council.

W. BAYLY RANSOM,  
Town Clerk,

## THE Local Government Journal

AND MUNICIPAL, COUNTY, DISTRICT AND  
PARISH COUNCILLOR.

Record of Poor Law, Sanitary Progress, Official  
Contracts Open and Appointments Vacant.

THIS JOURNAL, ESTABLISHED IN 1872,

Furnishes List of Situations Vacant, Tenders Open  
under Public Bodies, and gives all information concern-  
ing Local Self-government.

IT IS A FIRST-CLASS MEDIUM FOR OFFICIAL  
ADVERTISEMENTS,

And is the Medium between

LOCAL AUTHORITIES AND CONTRACTORS,

Forming a most Valuable Medium for the  
Advertisements of articles suited to the  
requirements of Public Institutions; and  
comes before

50,000 MEMBERS AND OFFICIALS OF LOCAL  
AND OTHER PUBLIC BOARDS,

Who are engaged in carrying out the work of Local  
Government.

Every Saturday, Price 2d.

Post Free, Three Months, 2s. 6d.

S. EDGEUMBE-ROGERS, 2, Dorset St., Fleet St.

Jubilee Panel in Red and Buff Terra Cotta, commemorative of the  
60th Year of Her Majesty's Reign.

**BROWN AND DRAB GLAZED BRICKS.**  
(Largely used for Hospitals, Schools, &c.)

WHITE & COLOURED  
ENAMELLED  
BRICKS.

**STANLEY BROS. (LTD.) NUNEATON.**

GLAZED SINKS.

Salt Glazed Bricks.

Red and Buff Chimney Pots.

SEMI-ENCAUSTIC PAVING TILES.

Glazed Pipes, Roofing and Ridge Tiles, Blue Bricks, Kerbings, Copings,  
Garden Tiles, &c. ILLUSTRATED LIST ON APPLICATION.

**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON,** Loughborough, Leicestershire.  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!

**BATTERSEA POLYTECHNIC.**—The  
Governing Body require the SERVICES of a  
TEACHER of builders' quantities and estimating. Two  
evenings weekly for winter session.—Apply for par-  
ticulars to the SECRETARY.

**DRAUGHTSMAN REQUIRED;** also  
EVENING ASSISTANCE. Thoroughly expe-  
rienced in design of council offices and municipal work.  
Full particulars of past engagements, terms, &c., to  
E. E., care of Messrs. R. F. White and Son, General  
Advertising Agents, 33, Fleet-street, E.C.

**ARCHITECT'S ASSISTANT WANTED.**  
Must be a good draughtsman, able to prepare  
practical drawings from sketches and instructions, and  
undertake quantities and specifications if required.—  
Write, stating age, experience, and terms, to ARCHITECT,  
1, Balloon-street, Manchester.

### VESTRY of CLERKENWELL. SURVEYOR'S CLERK.

The Vestry of Clerkenwell require the SERVICES of  
a CLERK in the Surveyor's Department for a period of  
six months.

Candidates must be between 18 and 25 years of age;  
and preference will be given to those who have know-  
ledge of shorthand and have had some experience in a  
surveyor's office. The salary will be 30s. per week.

Applications, in candidates' handwriting, with copies  
of not more than three recent testimonials, to be sent  
in to the undersigned, not later than TEN a.m. on  
TUESDAY, the 20th inst.

R. E. PAGET.

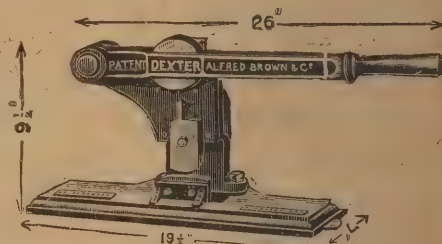
Vestry Clerk.

Town Hall, Rosebery-avenue, E.C.  
July 7th, 1897.

**ASSISTANT WANTED** in Architect and  
Surveyor's offices. Details, construction, general  
routine.—Reply, stating age and salary, GEO. ELKING-  
TON and SON, Architects, No. 95, Cannon-street, E.C.

### PATENT

### 'DEXTER' TILE-CUTTING MACHINE.



PRICE £3:3:0

Tile-cutting made easy and expeditious to any  
required shape for Roofing and Upright Tiling. The  
Machine will cut Staffordshire, Broseley, Terra Cotta,  
and Glazed Tiles for fitting irregular places, hearths, &c.

**ALFRED BROWN & Co.,**  
PATENTEES AND MANUFACTURERS,  
81, SMALLBROOK ST., BIRMINGHAM.

Terms and further particulars can be had on application.



# Surveying and Sanitary SUPPLEMENT.

JULY 14TH, 1897.

## WORKHOUSE PLANNING.

(Continued from page lxxxvi.)

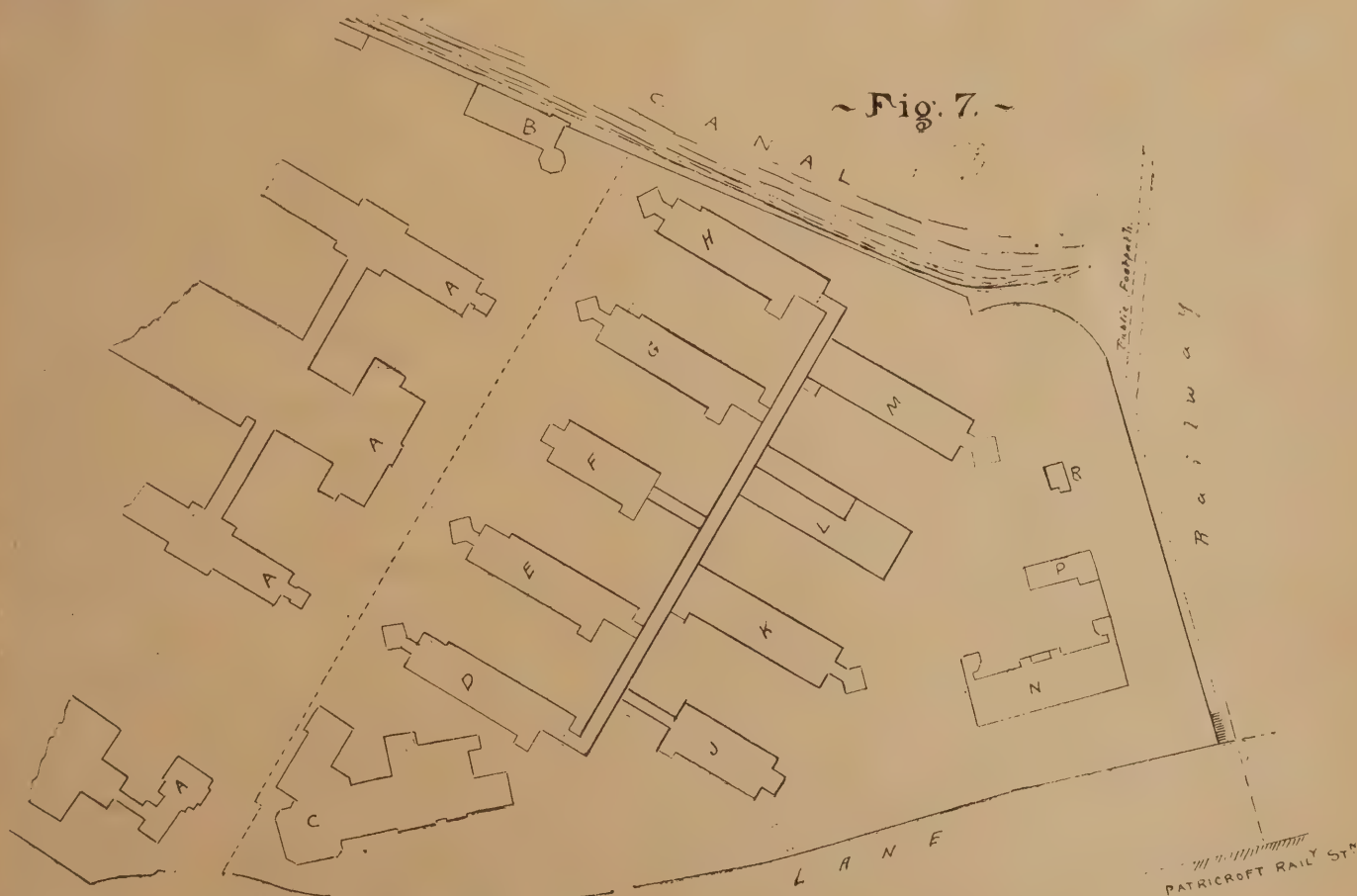
By GEORGE H. BIBBY, F.R.I.B.A.

### VI.—SCHOOLS—continued.

WHATEVER improvements may be made with regard to schools in connection with workhouses, it is clear that the condition

giving something less than 300 cubic feet of space to each patient. Every dormitory and ward, moreover, appears to have had a water-closet either actually within it or leading directly out of it, so it may reasonably be supposed that the atmosphere of the sleeping-rooms throughout was not of the purest. Bearing these facts in mind, it is not surprising to find that some of these same workhouses are now said to be overcrowded with only half the number of inmates in them for which they were originally constructed, and this too

requirements of each institution, care being observed that the cottages and apartments are neither too large or too small for the salaries paid to the occupants, and that the persons entrusted with the duty of teaching the children, while having every opportunity for observation, have sufficient means for obtaining retirement, quiet, and rest when released from their duties. In the following paper I propose to deal with questions relating to the sick and infirm wards of a workhouse, and to give some plans for these as illustrations.



of many such institutions at the present time is vastly better than was generally the case in former times. An authority upon the subject has written: "The children were very closely packed, two in a bed, and in the few 'sick' dormitories that were provided the patients were scarcely better off than the inmates in health, for it will be seen that a sick ward 10ft. by 16ft. 6in., and but little more than 8ft. high, was occupied by five beds, this

notwithstanding that, during perhaps the last twenty or thirty years, they have had extensive additions made to them in the shape of detached infirmaries or separate schools, and have been improved in various ways." The apartments to be provided for the use of the masters and mistresses, and the officials charged with the duty of teaching the various trades and occupations to the children, would be arranged in accordance with the special

### VII.—WARDS FOR THE SICK AND INFIRM.

THE buildings for the accommodation of the sick and infirm inmates of workhouses should be isolated, so far as practicable, from those appropriated to healthy persons: the wards for patients suffering with infectious diseases must be specially separated.

The areas and cubic spaces to be allowed



to each patient have not been very exactly defined by the Local Government Board; for instance, their instructions or suggestions show that the wards for the ordinary sick may vary from a 600 cubic feet allowance per patient to 850 cubic feet, and generally it may be admitted that the spaces to be allowed as a minimum might be considerably augmented with advantage to all concerned.

In this paper I do not propose to include the subjects of Infectious Hospitals, and Isolation Wards for fevers, &c., but shall deal with these later. The sick wards to be here mentioned are, with the exception of the Isolation Wards, all those named in clause 68 of the Local Government Memorandum in reference to the construction of workhouse buildings, and are classified as follows:—

1. Medical ordinary sick, males.
2. " " " females.
3. Surgical " " males.
4. " " " females.
5. Lying-in women.
6. Dirty and offensive cases, males.
7. " " " females.
8. Itch cases, males.
9. " " " females.
10. Venereal cases, males.
11. " " " females.
12. Children, males.
13. " " " females.

The wards for the ordinary sick of the medical and surgical classes are required to have per bed a wall space of 6ft., irrespective of that occupied by doors and fireplaces; the floor space must not be less than 60ft., and the cubic space 600ft.; these dimensions are also necessary for itch and venereal cases.

But for the patients in lying-in wards, a wall space of 8ft., a floor space of 80ft., and a cubic space of 960ft. is requisite, and these dimensions are also the minimum allowances for dirty and offensive cases.

For children's wards a wall space of either 5ft. or 6ft. is required, but in the first instance the ward must be 20ft. in width; if the wards be only 18ft. wide the wall space should be 6ft. per bed.

None of the before-mentioned figures appear to be at all liberal unless, perhaps, compared with those adopted so far back as the year 1834; the provision at that time for the sick in workhouses was limited to a few beds in one or two wards amongst the ordinary inmates (but with a little more floor area per bed); the sick and infirm appear to have been allowed a bed for each inmate and about 250 cubic feet of space, while 26ft. of floor area was given to each patient; the able-bodied slept two in a bed, with not more than 150 cubic feet of space to each person. Such provision has long since been condemned, and so far back as 1870 the Poor Law Board issued a scale for the cubic space in metropolitan poor law institutions, which required that the ordinary sick should have 850 cubic feet per inmate; lying-in women, 1200 cubic feet; offensive cases, 1200ft.; infirm, confined to one room, 700ft.; infirm, able to leave their dormitories during the day, 500ft., while healthy persons were to be provided with 300 cubic feet each, or 50ft. more than was formerly considered sufficient for the sick.

From the table before given it will be observed that there are no less than thirteen descriptions of sick persons to be provided for in a large workhouse infirmary, apart from those separated and lodged in isolation hospitals for fever, &c., and for whom distinct accommodation is necessary, that the medical officer may have proper means of classifying the patients. The requirements of country and town unions are in many respects variable, and the variations in the proportions of the different classes of sick must necessarily affect the planning of workhouse infirmaries in all localities.

A scheme recently prepared for a workhouse in the neighbourhood of Manchester provided accommodation for twelve surgical cases, forty-eight ordinary sick, eight dirty and offensive patients, twelve itch cases, twelve venereal, and a detached hospital for fever cases, these all being for male patients; the accommodation on the females' side was

similar, but in addition there was a lying-in ward for three patients, with one labour room; arrangements were made for separate wards for sick children of each sex.

In connection with this workhouse infirmary there was arranged an administration building, which contained on the ground floor apartments for a head nurse, a waiting-room with w.c., a dispensary, medical officer's room, store rooms, nurses' lavatory and w.c., kitchen, scullery, pantry and larder, serving rooms, coal store, &c., and separate staircases for male and female officials.

The first floor contained the head nurse's bedroom and dormitories, with cubicals for the assistant nurses, linen and store rooms, box room, baths and lavatories, and servants' bedrooms.

The second floor contained the bedrooms for the dispenser and other male officials.

For the fever nurses a detached cottage was provided, these officials being entirely separated from the nurses belonging to the main workhouse infirmary.

The Local Government Board state that in any case where the number of sick is sufficient to justify a special establishment, it is desirable to arrange the infirmary so as to be under separate management from that of the workhouse, and no infirmary should, as a rule, be arranged for more than from five hundred to six hundred patients; any such separate infirmary should always possess suitable apartments for a resident medical officer, also offices, surgery, and the rooms for the other necessary resident officers, such as matrons, nurses, and others, and the itch and venereal wards should be so arranged that the patients occupying them may not come into contact with each other or with the other patients. These wards, moreover, should be respectively provided with quite distinct water closet, bath, and lavatory accommodation.

In planning the wards for the dirty, offensive, and itch patients, it must be remembered that these classes often include persons brought down to a very low condition, not only by want and privations, but by the diseases from which they suffer, and the filthy conditions under which they have existed prior to their admission to the workhouse wards. It is therefore of great importance that the workhouse Architect should so contrive the wards for these classes that they should all be well isolated from ordinary surgical and medical wards. The filthy condition of some of the persons admitted to workhouses is such as to require the greatest care in their treatment, especially if also suffering from infectious diseases. These persons are, of course, not always of the uneducated classes, and it is a matter for surprise that some of these should fall, by misfortune or otherwise, into such miserable circumstances. Some thirty years since, I knew an Architect of great ability and good social position, his wife the daughter of a high ecclesiastical dignitary, himself the friend and companion of those then best known in connection with literature and Art, and the brother of a novelist of high repute; many years afterwards I learnt that he had ended his days in the apartments reserved only for those suffering from the foulest diseases in the workhouse infirmary of a great city!

Amongst the regulations of the Local Government Board the following are mentioned: Sick wards to hold one row of beds only should not be constructed, but, in the case of already existing rooms, when appropriated to the sick, they should have a width of at least 12ft., the gangway and fireplace being, if possible, on the side opposite the beds; day wards for the sick should afford accommodation at the rate of 20ft. superficial of floor space per patient for not less than one-half of those who occupy the day and night wards, but, if the sick wards are not less than 24ft. in width, the provision of separate day rooms (in the opinion of the Local Government Board) is not so necessary. As a general rule, the day wards may be on the ground floor, and should have a convenient means of access to the airing yards; but in large infirmaries some day room accommodation is usually required on the upper floors for those patients who may be so weak and infirm

as to be unable, by reason of weakness or infirmity, to use the staircases with safety.

The Local Government Board also have issued a memorandum to the effect that sick wards should be 20ft. in width if the fireplaces are at the side or in the end walls, and 24ft. in width if they are in the centre; they should be from 10ft. to 12ft. in height. In the case of small infirmaries a room or suite of rooms may be connected with a similar suite in the same line by the central part of the building, in which would be placed the apartments of the nurses and other officials; the walls of all sick wards should be plastered internally with some hard non-absorbent plaster, or should be painted to a height of 6ft. with some material which can be thoroughly washed and purified without vacating the ward; yards for the sick should be as open and cheerful as possible, but must be inclosed with such dwarf walls and palisades as are necessary for due classification, they should be furnished with seats and covered places of refuge in wet weather.

With a view of securing a cheerful appearance, the bottom of the windows should not be more than about 3ft. above the floor level, and to ensure adequate movement of air in the upper parts of the wards, it has been found advisable that the top should not be less than about 6in., at the most, from the ceiling or the wall-plate, as the case may be. The best arrangement of windows is found to be that which provides for one between every two adjacent beds, and one near to the angle of the ward beyond each end bed; movement of air and such ample light as tends to secure cleanliness is thus ensured in those parts of the wards standing most in need of such requirements.

Having regard to cheerfulness, to adequate means of lighting and ventilation, as also to the maintenance of an equable and sufficient ward temperature, it is considered, by an eminent authority, that in a well-constructed and efficiently warmed building the amount of window surface to cubic space should not vary much beyond the limits of one square foot to from 60 to 80 cubic feet, a proportion of about one square foot to every 70 cubic feet being, as a rule, the more advantageous; windows in the opposite side walls, whilst affording the principal means of ward ventilation, and constituting indeed the best means by which thoroughly, and in a short time, the entire ward air may be changed, do not suffice for this purpose. The space between the floor and the bottom of the patient's bed is found always to require special ventilation.

As a general rule, open fireplaces have under many circumstances been regarded as well adapted to ward purposes, and the additional means of ventilation they always afford may be looked upon as especially useful in the case of wards occupied by patients suffering from infectious diseases; at least one such fireplace has been found to be required for every 30ft. of ward length, and when this limit is approached those fireplaces which are provided with an air-chamber behind, by means of which warmed air from outside is passed into the ward, have been used upon account of the additional facilities they afford for maintaining a sufficient and equable temperature; where wards exceed 30ft. in length, stoves occupying a position in the central line of the ward, and having an open fireplace both in front and behind (or similarly situated closed stoves so made as to throw warmed air into the wards), have been used to maintain an equable and sufficient ward temperature.

The heights of the workhouse infirmary buildings are necessarily regulated to a considerable extent by the requirements as to cubical contents per patient, and in the arrangement of the buildings it has been found that the distance between the several pavilions, and between them and the administrative block, should, if possible, be equal to one and a half times their height, when the buildings are of equal height, and, if otherwise, at least equal to the full height of the higher of the adjacent buildings; also that the means of communication between them should be limited to a roofed passage, either entirely open at the sides or having permanent openings facing each other in the opposite



side walls; or again, to a roofed passage fitted with a central partition and being completely open on both sides of the partition, the persons using the passage walking, in windy weather, on the lee side of the partition. Such arrangements as these have been advocated by the writers of the Annual Reports of the Local Government Board and others concerned with workhouse construction and extension.

In Fig. 7 is given a recently suggested extension of the workhouse at Patricroft, near Manchester; the site left for the purpose lies between the existing workhouse buildings at A and a public footpath adjoining the railway, and is bounded on the west by a canal and on the east by a public road. The general workhouse engines and laundry are at B, the board room and offices at C (all these being existing erections), D is a proposed building for ordinary sick males, a corresponding block for females being arranged for at H, the buildings at F and J were intended for dirty cases, itch cases, and venereal cases, each being on a separate floor of a three-story building. The hospital administrative building containing the kitchens, apartments for nurses, &c., is shown at L, the blocks E and G were intended for imbeciles and imbecile sick patients, while K and M were intended for future extensions. The Isolation Hospital is shown at N, the fever laundry at P, and the fever nurses' cottage at R. Owing to the very restricted area of land, it would have been desirable that either the sick patients or the imbeciles should have been provided for in another institution, the surroundings being in various ways undesirable, and the proximity to the railway a considerable disadvantage. The Isolation Hospital at N would be at a distance of about 50ft. from the public footpath. In my next article I propose to deal with the Isolation Hospitals of Workhouses as a separate subject.

(To be continued.)

SANITATION AND WATERWORKS IN INDIA.

It is only within the last forty years that waterworks, as now understood, have been introduced into India," says the Indian and Eastern Engineer. "Of wells and tanks there have always been a large number, of all sizes and depths, but distribution by pipes was an unknown art, and clarifying or filtering was only effected by stirring up the water with the root of a rush, or by passing it through two or three large superimposed water jars containing sand, charcoal, or what not. The first work executed in India was the Vehar lake or reservoir, on the Goper river, near Bombay; this was begun in 1856, when the population was estimated at 700,000, whereas in this present year of grace it must be much nearer 900,000, or rather it was so before the outbreak of bubonic fever. The Vehar lake has a maximum depth of 84ft., covers 2.17 square miles, and is 180ft. above Bombay mean level. The impounding embankments are earth, with a central puddle trench, and are from 42ft. to 84ft. in height. The amount

of water available was estimated at 9800 million gallons, or less than four gallons per capita per diem. The 41in. main bifurcates, after passing through the dam, and the water is conveyed the fourteen miles to Bombay in two 32in. mains under a pressure of from 165 to 180 at the lower end. The works cost £650,000, and were

FIRST OPENED WITH ONE MAIN

only in March, 1860. These were supplemented by the small Tulsi reservoir in 1879, and by the enormous Tansa reservoir in 1892. This was begun in 1886. The dam is nearly two miles long, across two streams, and is of rubble masonry; the reservoir behind it covers nearly seven square miles, and has a catchment area of fifty-six square miles. The works cost £1,500,000, and the Bombay people can now have forty gallons per head per diem. The consequence of this abundance is that water is wasted to a frightful extent, and that the subsoil of the city has become sodden, and a very breeding ground for bubonic and other fevers. The only remedy for this dangerous condition of things is to connect all house drains with the main drainage, and to deliver all water, except at the public stand-pipes, by meter. At Sholapur, in the Bombay Presidency, a very efficient scheme for pumping water from an irrigation canal was opened in 1881, and cost nearly £22,000; the works at Madras and Nagpur

WERE NOT SO EFFICIENT,

but the latter has been improved, while nothing but a radical change will be of any use in the former town. At Lahore the water is pumped from a group of wells into a reservoir at the highest point in the city, and is thence distributed at a reasonable cost. The capital outlay on the works was £150,000, and they were finally completed in 1883. In 1884 the very successful waterworks at Karachi were first brought into use in their entirety. The water is got from a stream called the Malir, where it is collected in two 40ft. wells; from these it is led by a masonry conduit some eighteen miles into the reservoir, whence it is delivered by a cast-iron 24in. main at the inlet, narrowing gradually to 5in. The whole cost for supplying twenty-five gallons per diem to 100,000 persons was only £115,000, and as there is no expense whatever for pumping, it may well be considered one of the most

SUCCESSFUL INSTALLATIONS IN INDIA.

In the same year the Jahalpur works were opened. They involved the construction of a masonry dam containing over a million cubic feet of rubble masonry in superstructure and concrete founds; it is 1680ft. long, with a maximum height of 71½ft., provision having been made to raise it another 3½ft. The present capacity of the reservoir is 203,000,000 cube feet, and the work cost nearly seven lakhs of rupees. The above are all typical works, and the water from them is not filtered. In the Calcutta works, on the other hand, all the water is carefully filtered. Bangalore, Benares, Burdwan, Cawnpore, Dacca, Delhi, Hyderabad,

Jalgaon, Kirkee, Kolapur, Lucknow, Maraj, Mhow, Ootacanund, Pandapur, Poonah, Wellington, and many other smaller towns all have water supplied by works of varying importance and magnitude, and showing every variety of system. The sanitary works, according to modern idea, are of still later date. Still, at the present time there is hardly a town of any importance in which the drainage has not been taken in hand more or less successfully. But, like the many and sometimes very heavy works undertaken by municipal and other such-like bodies, no single report is issued from which the progress made in sanitation can be noted."

Surveying and Sanitary Notes.

In the Church schoolroom at Bilton, Harrogate, Mr. W. O. E. Meade-King recently held an inquiry on behalf of the Local Government Board with reference to an application by the Knaresborough Rural District Council for sanction to a loan of £3550 for sewage and sewage disposal works for the township of Bilton. Evidence in support of the application was given by Mr. James Smith, Clerk to the District Council, and the proposed scheme was detailed by Mr. D. Balfour, of Newcastle-on-Tyne.

At a meeting of the Sewerage Committee of the Aberdeen Town Council, a preliminary discussion took place on the large sewerage scheme recently drawn up by Mr. Dyack, burgh surveyor. The scheme, it will be remembered, involved a total cost of £160,000, but Mr. Dyack only pressed the adoption of a part of the scheme, involving an outlay of £75,000, with the view that the remainder of the scheme could be proceeded with at some future time. The largest item in the scheme, of which Mr. Dyack urges immediate adoption, is an outfall to the Don valley, at a cost of £33,775. This the Committee thought might well be delayed, especially as powers to proceed would have to be got from Parliament, and in this connection it was pointed out that powers would only be granted by Parliament for seven years, and that a number of years will pass before the less costly parts of the scheme are carried out. In this view it was urged that at the close of seven years the Council would again have to apply for powers in connection with the Don valley scheme, a proceeding which would be obviated if the Committee delayed the adoption of the scheme. As to the other parts of the scheme, no finding was arrived at, the members desiring to further familiarise themselves with the details of the scheme. The part of the scheme which the Committee thinks should be immediately adopted is as follows:—Low level sewer, £7670; high level sewer, from Old Ford Road to Skene Street, £9210; storm outfall at Esslemont Avenue, £130; storm water culvert, £17,080; Hutcheon Street sewer, £4180; total, £38,270.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
July 16	Coventry—Additions, Union-street Schools	School Board	G. and I. Steane, Architects, Coventry.
16	Horley—Additions and Alterations, School	Trustees	H. Hopkins, Southam-road, Banbury.
16	Thorne—House	Mrs. J. Coulman	H. B. Thorp, Architect, Goole.
16	Great Horton—Store, &c., St. Margaret's-road	Industrial Society	J. Drake and Son, Architects, Queensbury.
17	Arisaig, Inverness—Additions, &c., Hotel		D. Cameron, Architect, Inverness.
17	Bishop Auckland—Police Station, Birtley	Joint Committee	County Surveyor's Office, Shire Hall, Durham.
17	Bishop Auckland—Widening, Newton Cap Bridge	County Council	County Surveyor's Office, Shire Hall, Durham.
17	Hertford—Rebuilding Nash Mills Bridge	Standing Joint Committee	County Surveyor's Office, 41, Parliament-st., Westminster.
17	Morpeth—Bath Rooms, &c., Lunatic Asylum	Northumberland County Council	J. Cresswell, Moot Hall, Newcastle-on-Tyne.
17	Penygroes—School		E. Evans, 8, Castle-street, Carnarvon.
17	Thornaby-on-Tees—Tower, St. Paul's Church		Vicarage, Thornaby-on-Tees.
19	Chester—Restoration of Town Hall, &c.	Town Council	T. M. Lockwood and Sons, 80, Foregate-street, Chester.
19	Clown—Bricklayers' Work, Six Houses	B. Davies	B. Davies, Crown Inn, Clown.
19	Crewes—Shedding, Agricultural Society	Committee	T. A. Beckett, St. Werburgh's-chambers, Chester.
19	Baslow—Twelve Cottages	Urban District Council	V. R. Cockerton, Clerk, Baslow.
19	Minehead, Somerset—Constables' Quarters, &c.	County Council	Feathers Hotel, Minehead.
19	Radstock—Enlarging Working Men's Hall		Offices, Radstock Collieries, Radstock.
19	Wimbledon—Stabling, Dwellings, &c.	Urban District Council	C. H. Cooper, Council Offices, Broadway, Wimbledon.
19	Walsall—School, Croft-street, Birchills	School Board	Bailey and McConal, Architects, Bridge-street, Walsall.
20	Devizes—Engine House, County Asylum	Visiting Committee	Massey and Allpress, 25, Queen Anne's-gate, Westminster.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—Continued.</b>			
July 20	Lancaster—Four Shops	J. and C. Fell	J. Parkinson, 67, Church-street, Lancaster.
" 20	Oulton, near Lowestoft—Annexe, Infirmary	Guardians	A. Clarke, 126, London-road, Lowestoft.
" 20	Lincoln—Works, Offices, Stores, &c.	Corporation	R. A. MacBrair, City Surveyor's Office, Lincoln.
" 21	Felixstowe—Shelter	Urban District Council	Town Hall, Felixstowe.
" 21	London, W.—Coroner's Court, &c.	Hammersmith Vestry	Mair, 57, Fulham Palace-road, W.
" 22	Over Kellet, Lancs.—House	C. Fisher	J. Parkinson, 67, Church-street, Lancaster.
" 22	London, N.W.—Entrance Lodge	St. Pancras Gardens	Segrave, Browett, and Taylor, 9, Warwick-court, Holborn.
" 23	London, N.—Latrines, Fever Hospital	Metropolitan Asylums Board	Board, Norfolk House, Norfolk-street, Strand, W.C.
" 23	Swiland, Suffolk—Teacher's Residence	School Board	J. S. Corder, Wimbourne House, Ipswich.
" 23	Glamorgan—Police Stations at Mardy, &c.	County Council	Glamorgan County Offices, Westgate-street, Cardiff.
" 24	Bourton-on-the-Water—Hall, &c.		E. W. Kendall, Bourton-on-the-Water.
" 24	Carlisle—W.C.'s, Garlands Asylum	Lunacy Committee	G. Dale, 5, Lowther-street, Carlisle.
" 26	Manchester—Sixty Houses, Lodge-street	Improvement Committee	City Surveyor, Town Hall, Manchester.
" 26	Goole—Extension, Boothferry-road Schools	School Board	W. B. Andrews, 24, Boothferry-road, Goole.
" 26	Ross—Additions, &c., Mission-room		The Rectory, Ross.
" 26	East Ham—School Seating and Furniture	School Board	R. L. Curtis, 120, London-wall, E.C.
" 28	Cheltenham—Kursaal and Offices	Corporation	Borough Surveyor, Municipal Offices, Cheltenham.
" 28	King Cross, Halifax—Stables, Coach-house, &c.	J. Marsh and Co.	R. Horsfall and Sons, 15, George-street, Halifax.
" 28	Hove—Schools	School Board	Clayton and Black, 152, North-street, Brighton.
" 30	Crowborough—Residence, Workshops, &c.	Provincial Gas Works Limited	The Engineer, at Works, Crowborough.
" 31	Sheffield—Concrete and Brick Tanks	Gas Light Company	T. W. Stevenson, Company's Office, Commercial-street, Sheffield.
No date.	Thornaby-on-Tees—Completion of Tower	St. Paul's Church	T. H. and F. Healey, 42, Tyrryl-street, Bradford.
"	St. Pancras—Alteration to Schools	St. Pancras Guardians	C. P. Ayres, 14, High-street, Watford.
"	Harrogate—Stables, &c., Victoria Hotel	Bentley and Company, Limited	A. E. Kirk, Architect, 13, Bond-street, Leeds.
"	Dundrum, co. Down—Business Premises and Residence	J. McClafferty	J. J. McDonnell, Architect, 27, Chichester-street, Belfast.
"	Mount Pleasant, nr. Abertillery, Mon.—Eight Cottages	Griffiths Building Club, Cwmillery	Lansdowne and Griggs, Architects, Newport, Mon.
"	Killamrass, near Chesterfield—Six Houses		W. H. Wagstaff, C.E., Chesterfield.
"	Earl's Colne, Essex—Additions to Schools		H. A. Cheers, Architect, Twickenham.
"	Clacton-on-Sea—Block of Shops, Stables, &c.		J. W. Martin, Architect, Station-chambers, Clacton-on-Sea.
"	Castleton, Derbyshire—Wesleyan Chapel		H. W. Lockwood, Architect, Finstone street, Sheffield.
"	Hyde—Alterations to St. Paul's Catholic Schools		E. Kirby, Architect, 5, Cork-street, Liverpool.
<b>ENGINEERING—</b>			
July 17	Bishop Stortford—Repairing Engines, &c.	Urban District Council	Surveyor of the Council, Bishop Stortford.
" 17	Manchester—Sludge Tanks	Rivers Committee	City Surveyor's Office, Town Hall, Manchester.
" 19	Almaden, Spain—Boiler, Quicksilver Mines	Directors	Delegaciones de Hacienda, Barcelona.
" 19	Sunderland—Service Reservoir	Water Company	Company's Office, Fawcett-street, Sunderland.
" 19	Wombwell—Precipitation Tanks, &c.	Urban District Council	District Council Offices, Wombwell.
" 20	Newton Abbot—Boilers, Workhouse		S. Segar, Architect, Newton Abbot.
" 20	Whitstable—Gas-holder Tank	Gas Company	Secretary, Gas Company, Whitstable.
" 21	Biggleswade—Laying Pipes	Rural District Council	Surveyor's Office, Biggleswade.
" 21	Dartford—Extending Reservoir, &c.	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
" 21	London, S.W.—Laundry Machinery	Metropolitan Asylums Board	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
" 21	Sevensoaks—Footbridge, Leigh	Rural District Council	T. Hennell, 6, Delahay-street, Westminster.
" 22	Wakefield—Road Roller	Rural District Council	F. Massie, Tetley House, Wakefield.
" 22	Wortley—Water Mains, Liberty-street	Rural District Council	G. E. Beaumont, Workhouse, Grenoside, near Sheffield.
" 23	Bilsby, Lincs.—Outfall Tunnel	Commissioners of Sewers	W. Hoodless, Surveyor, Hogsthorpe, near Alford.
Aug. 28	Craiova, Roumania—Water Supply	Municipal Council	Mairie, Craiova, Roumania.
" 31	Cairo—Iron Bridge	Ministry of Public Works	Inspector of Irrigation, 2nd Circle, Cairo, Egypt.
<b>IRON AND STEEL—</b>			
July 20	Countdown Grange—Lamps and Pillars	Parish Council	J. Armstrong, Cammell Mill House, near Bishop Auckland.
" 20	Lincoln—Iron Tanks, Girders, Roof Trusses, &c.	Corporation	B. A. MacBrair, City Surveyor's Office, Lincoln.
<b>PAINTING—</b>			
July 16	Chartham—Painting, &c., Lunatic Asylum		W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 16	Winchester—Painting, &c., Workhouse	Guardians	Cancellor and Hill, 12, Jewry-street, Winchester.
" 17	Arnold—Painting, British Board School	Board School	J. R. Swift, Clerk to the Board, Arnold.
" 19	Bury—Painting Buildings, Railings, &c.	Recreation Grounds, &c., Committee	J. Cartwright, Borough Engineer's Offices, Bank st., Bury.
" 19	London, S.E.—Repainting Southwark and Blackfriars Bridges	Corporation of London	City Surveyor, Guildhall, E.C.
" 22	London, S.E.—Painting, &c., St. Saviour's Union	Guardians	G. D. Stevenson, 13, King-street, Cheapside, E.C.
" 26	Manchester—Painting Dwellings, Oldham-road	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 28	Ruabon—Painting, &c., Dee Bridge	County Council	E. W. Jones, Surveyor, Ael y Bryn, Wrexham.
<b>ROADS—</b>			
July 17	Luton—Supply of Slag	Rural District Council	J. Anstee, Surveyor, Dunstable, Beds.
" 17	Luton—Supply of Stones and Flints	Rural District Council	J. Anstee, Surveyor, Dunstable, Beds.
" 19	Spennymoor—Kerbing, &c.	Urban District Council	G. W. Rogers, Surveyor, Silver-street, Spennymoor.
" 19	Wimbledon—Paving	Urban District Council	C. H. Cooper, Surveyor to the Council, Broadway, Wimbledon.
" 19	London, W.—Wood Blocks, Pitch, &c.	Paddington Vestry	Surveyor's Office, Town Hall, Croydon.
" 20	Croydon—Repair of Alexandra-place, &c.	Corporation	J. H. Bradford, 2, Rickford's-hill, Aylesbury.
" 21	Aylesbury—Supply of Granite (500 tons), &c.	Urban District Council	Board's Chief Office, Old Charlton, S.E.
" 21	Lee—Road Works, Calydon-road	Board of Works	H. F. Coales, Council Offices, Sunbury-on-Thames.
" 21	Sunbury—Road Materials	Urban District Council	Borough Surveyor, Clarence-road, Southend.
" 21	Southend-on-Sea—Making-up and Paving Streets	Corporation	J. W. Holmes, Town Hall, Walthamstow.
" 23	Walthamstow—Making-up and Laying Concrete Flags	Urban District Council	A. Fawcett, Old Town Hall, Wakefield.
" 24	Sandal Magna—Channelling, &c., Doncaster-road	Urban District Council	L. Angell, Town Hall, Stratford, E.
" 27	West Ham—Making-up, Paving of Streets, &c.	County Borough	E. N. Hunter, Surveyor, Town Hall, Oswaldtwistle.
" 28	Oswaldtwistle—Making-up Melbourne-street, &c.	Urban District Council	
<b>SANITARY—</b>			
July 17	Cockermouth—Sewerage	Rural District Council	J. B. Wilson, Court-buildings, Cockermouth.
" 19	Hunslet—Removal of Refuse	Rural District Council	Union Offices, Glasshouse-street, Hunslet.
" 19	Walsall—Sewer, Rookery-lane	Rural District Council	T. T. Fisher, Leicester-street, Walsall.
" 21	Biggleswade—Sewerage Work	Rural District Council	The Surveyor, Council Offices, Biggleswade.
" 22	London, W.—Laying Drains, &c., Workhouse	Fulham Union	A. S. Snell, 22, Southampton-buildings, Chancery-lane, W.C.
" 26	London, S.E.—Underground Conveniences	Southwark Vestry	O. E. Winter, Vestry Hall, Borough-road, S.E.
" 27	Dover—Pipe Sewers	Town Council	H. E. Stilgoe, Town Hall, Dover.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
July 20	Howth—Presbyterian Church	£20 (merged £10)	Rev. J. Wilson, 4, Rhoda-villas, Howth, Co. Dublin.
" 21	Rugby—Plans for Municipal Buildings	30, 20 guineas	Urban District Council.
" 31	Bootle—Designs for Technical School	50, 30, 20 guineas	Corporation.
Aug. 13	Surbiton—Council Chambers and Offices	£30, £15	Urban District Council.
" 31	Bury, Lancs.—Plans for Art Gallery and Public Library	£75, £50, £25	Corporation.
No date.	Boscombe, Bournemouth—Plans for Hospital Enlargement		Building Committee.
"	London, N.—Competitive Designs for Offices		Tottenham School Board.
"	Huddersfield—Design for Victoria Tower	£21	Tower Committee.
"	Darlington—Altering, &c., the High Row	£20	Corporation.
1898	Brighton—Artisans' Dwellings, Local Competition	£75, £25	Corporation.
Jan. 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.





### Women Artists at Earl's Court.

Up to within the past few years—with one or two exceptions—there has been a unanimity of idea that women's Art work could not be considered seriously. Very naturally this created a feeling amongst women Artists that they would only be judged on their merits side by side with men; and, as a natural result, a feeling of opposition to Exhibitions of exclusively feminine interest crept in, and women who were taking up Art as the serious purpose of their lives, held aloof from any but open Exhibitions. With this sentiment still in a state of activity, although abated to some extent, the bringing together of such a collection as that which is being shown at the Victorian Exhibition must have been a matter of no small difficulty. There is all the more praise due to Miss Henrietta Rae (Mrs. Ernest Norman) for the way in which she has carried out her task. In the short and very direct preface Miss Rae ventures to submit a claim that the public have set before them "a fairly representative display" and, she continues, "we need none of us feel ashamed of the result." A walk through the galleries will be found to justify these remarks, for the collection is comprehensive and arranged with great judgment and skill. The largest number of pictures come from Miss Clara Montalba, who is always a welcomed exhibitor in any gallery in London. She, with her three sisters—Henrietta, Hilda, and Ellen—fill one room with their water-colours, oils, and sculpture. Miss Clara Montalba nearly always paints in and around Venice, finding in the ivory-toned buildings, clear sunny atmosphere and wide lagoons, with their waters reflecting the orange and yellow of the sails, her subjects. Such materials does she use in her "San Giorgio, Venice," and there is a wealth of vivid amber and gold in "The Piazzetta, Venice," a study of Architecture, a few people passing down the long street, and a fluttering mass of pigeons in the foreground. Fainter scheme of colour, greys merging into greens, as in "A Grey Day, Feltre," as delicate and subtle as a smoked pearl in its harmony. In the first gallery is a work by Mrs. Benham Hay, which is interesting. This work, "A Florentine Procession," was the only important one Mrs. Hay—whose Art career dated back to 1860—ever accomplished. Marian Collier and Alice Havers who were full of grand promise, though they neither of them lived to fulfil it, are both represented. The Newlyn Colony is strong. Mrs. Stanhope Forbes has two pastel studies—"Washing Day" and "One, Two, Three, and Away"—which are very clever and spontaneous, the latter especially, in which she has successfully overcome the difficulties of painting children as they frolic in an open field in the sunshine, the light playing all kinds of tricks on their little puckered-up faces. Mrs. Gotch is true to the traditions of the School in her large study of fisher-folk, "In the midst of Life we are in Death," which is pathetic in its realism without being sensational. Mrs. Stokes, in "The Parting," shows a somewhat unusual phase of her Art, the farewell being between a little lad and a calf, whose legs are tied ready for the market cart. Mrs. Swan, wife of the animal painter, has a pleasantly-harmonious work in "Por-

traits of Barye and Mary Swan," two youngsters garbed in blue, and hugging pet rabbits. Miss Blanche Jenkins, whose portraiture is very distinctive, has a delicate little model in "Lillies." Miss Maud Goodman ever paints little maidens with cherub faces and aureoles of golden hair, in quaint long dresses. Mrs. Swynnerton's "Cupid and Psyche" was painted some time ago, and shows none of that curiously rough technique which often tends to mar the beauty of her later work. Mrs. Alma Tadema's "The Ring" is reminiscent of much of her other work. Miss

in "Peat Marsh, Dartmoor," showing a well-composed, spacious, and luminous canvas, in which the distance and diffused light are both well rendered. Miss Wood is most successful when painting trees and marshy ground; her "Willows" has fine atmospheric qualities, the faint grey mist softening the green, and creeping in amongst the branches of the trees. The sculpture is not a particularly strong department in the women's work; but Miss M. A. Chaplin has some finely modelled dogs in "Spot," "Flora," "Basco," all favourite pets of Her Majesty.



Oriel College, Oxford. SKETCH BY J. HUTCHINGS.

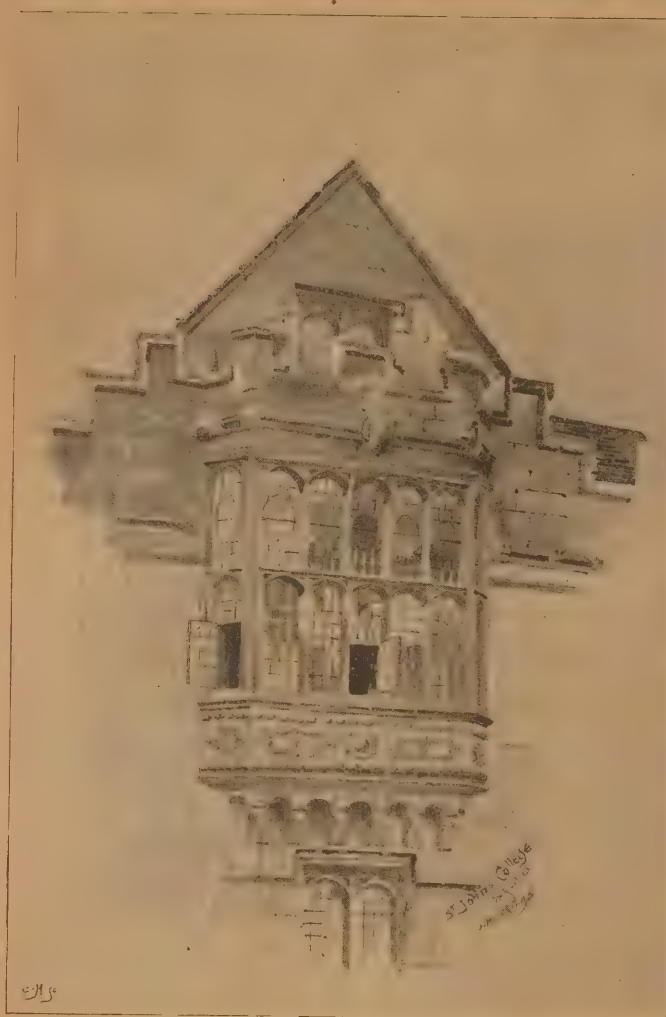
Alma Tadema's Art is at its highest in two studies of clouds, "Air, air blue and white," and "The Burning Star," which show beauty of colour, close observation, and rare execution. Miss Henrietta Ray, whose work probably betrays her sex less than any of her sister artists, has several large canvases on exhibition, many of them familiar to past visitors to Burlington House. Amongst them we noted the large "Ophelia," "Daphne and Apollo," "La Cegale," "Doubts," and "Summer," the last-named painted in 1896 only, and we venture to think one of the best studies of the nude this clever Artist has produced. There are but few landscapes in the collection; the two Artists who best establish their claim for recognition are Misses Annette Elias and Stewart Wood, the former

Miss Emmeline Halse shows freedom of handling in "Studies of Babies," which are firmly moulded without being rigid.

### Egyptian Antiquities.

THE Exhibition of antiquities and papyri found during last season's work in Egypt by Professor W. M. Flinders Petrie, Mr. Bernard Grenfell, Mr. A. S. Hunt, and Mr. J. E. Quibell, is to be seen at University College. The two rooms in which the antiquities are displayed contain the results of excavations made on three distinct sites—(1) Deshashch, fifty miles south of Cairo, where Professor Petrie explored a cemetery of the fifth dynasty; (2) Behnhesa, eighty miles south of Cairo, on the edge of the western desert,





ST. JOHN'S COLLEGE, OXFORD. SKETCH BY J. HUTCHINGS.

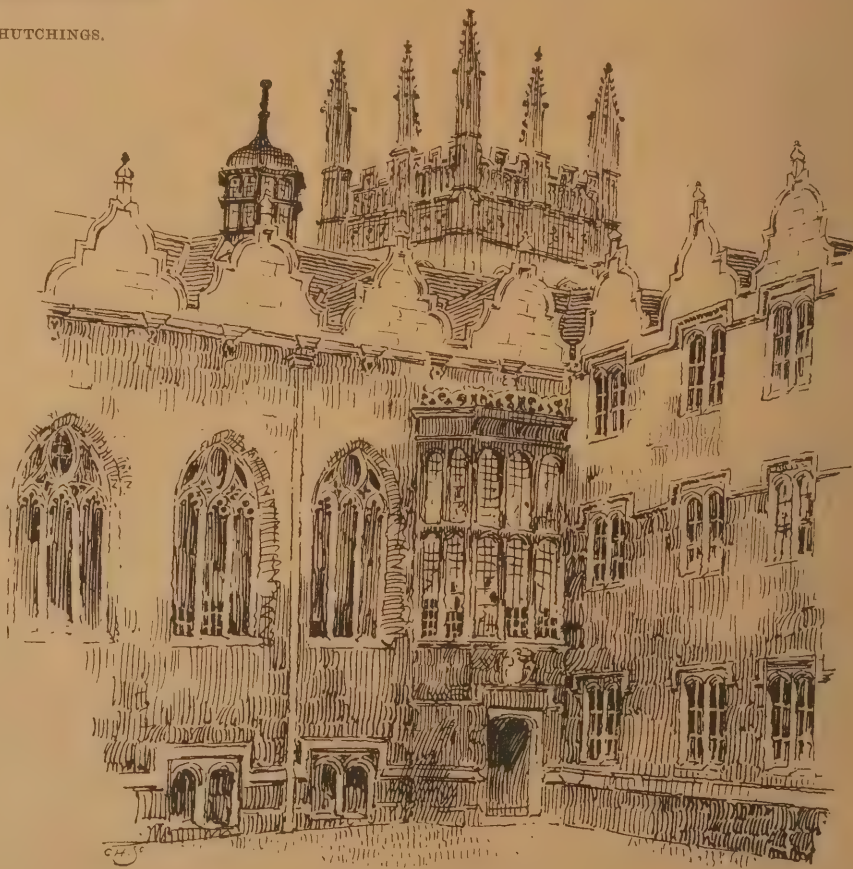
where Messrs. Grenfell and Hunt found great stores of Roman papyri; and (3) El Kab, between Luxor and Ashwan, where Mr. Quibell made important discoveries of remains dating back to so remote a period as the fourth dynasty. Of the objects which are attractive in themselves, quite apart from their antiquarian interest, the palm must certainly be awarded to the bowls of diorite and alabaster from El Kab, which are well placed near a window so as to give full effect to the beauty of the translucent materials of which they are made. One of the diorite bowls is exquisitely delicate in hue, and when seen against the light shows the perfection of its filmy muslin-white, flecked with splashes of black. The age of the bowls is fixed, by the occurrence of the name of "the King Sneferu" on the largest, as being about B.C. 3998 to 3969. They have every appearance of having been turned on a lathe, but whether this be so or not, the skill required to hollow out a bowl from so extremely hard a material as diorite must have been considerable, and indicates an advance in the mechanical arts which it is difficult to conceive was possible so long ago as nearly 4000 years B.C. Amongst the things of a later period than the Old Kingdom found by Mr. Quibell at El Kab, perhaps the most deserving of notice are several bronze statuettes of the 26th dynasty, not buried in a tomb, but on the site of a shop where they were sold. One of the statuettes represents Nekheb, the local deity of El Kab, whose importance is magnified by making the worshippers kneeling in front of him very small in proportion. In the same room as the El Kab finds are some figures of cats carved in marble and sandstone, believed to have come from Nankratia. In the second room are the antiquities brought from Deshasheh by Professor Petrie, and the papyri from Behnesa. On the walls are hung a beautiful set of drawings, by Mr. H. Carter and Mr. Sillemof, of the sculptures which adorn the temple

of Queen Hatshepsut at Deirel Bahri; and also an instructive series of Egyptian necklaces, arranged in chronological order. Connoisseurs in coffins will find much to interest them in the specimens from Deshasheh, dated about B.C. 3500. They are rectangular boxes, and really very remarkable examples of early carpentry. The corners have mitered joints, and the boards forming the sides are secured by leather thongs—a curious instance of the survival of the primitive method of connecting the different parts of a wooden construction by tying them together. The edges of the boards are not straight but curved, the object being to economise material, which was dear, by wasting labour, which was cheap. The joints of the boards are closely fitted, and they are fixed together with dowels and pins of wood. The most curious piece of carpentry is at the top, where a small portion of the board was either decayed or wanting, and a special insertion has been cut to make up the deficiency and fitted into its place with the greatest nicety. At Deshasheh Professor Petrie found a reed mat, with a pan for offerings placed

upon it, in front of the false door of a tomb, thus affording an explanation of the origin of the hieroglyph "Hotep" (meaning an offering thence to appease, and then peace). The hieroglyph represents the reed mat and pan in a conventionalised form, not easy to recognise until the objects represented are seen. The head-rest of "the royal noblewoman, the priestess of Hathor, devoted to the great god Mera," exhibited in this room, and dated B.C. 3500, is curious as affording what is possibly the earliest example of imitating the natural texture of wood with paint, by the process known technically as "graining." Thus modern house decorators have a precedent to justify one of the most detestable practices from an artistic point of view that ever was invented. Professor Petrie considers the gem of his collection to be the three-quarter life-size statue of Neukheft Ka, the ruler of the district, found in a "Serdab," or statue-chamber, of the great tomb at Deshasheh. It is one of the finest examples of the sculptor's Art which has reached this country from Egypt.

A SUBSIDENCE, which interfered considerably with the progress of the traffic from the City to the Strand, occurred last week, and upwards of 10yds. of the tar paving in the roadway by the side of the Griffin bulged considerably. This portion of the roadway has recently been a source of trouble to the authorities, who have used their best endeavours to effect an improvement, but so far, their efforts have not been successful.

The greater part of the premises of the Working Carriage Builders' Co-operative Society on the Rue Pouchet, Paris, was last week destroyed by fire. The damage is estimated at 1,000,000 francs. About sixty autocars under construction were entirely destroyed. The fire is believed to be the work of an incendiary, the outcome, probably, of the agitation among the Paris cabmen against the adoption of the autocars. Two arrests have already been made.



ORIEL COLLEGE, OXFORD. SKETCH BY J. HUTCHINGS.



## OXFORD.

ILLUSTRATED BY SKETCHES BY H. I. TRIGGS,  
J. HUTCHINGS, E. F. REYNOLDS, AND  
G. A. COX.

(Continued from page 345.)

## PART II.

**P**ERHAPS of all the Oxford Colleges Magdalen is the most famous to the world without; and to those within it must ever be remembered for the beauty of its chapel and its College building. Within Oxford, an artificial value, a scholastic and social value, is associated with the names of the various Colleges, and a young man, upon his going up, would for preference matriculate in Balliol or in John's; nevertheless, Magdalen Tower (and let the reader beware lest he pronounce it otherwise than "Maudlin"), standing conspicuous in its wonderful beauty upon the banks of the Cherwell just by Magdalen Bridge, is so closely associated with picturesque Oxford, and, indeed, with any reminiscence of Oxford as a place, that even to the graduates and Fellows, seeing only through the prejudiced eyes of the inner academic life, Magdalen must hold a certain sentimental significance and importance above any of the other Colleges. Nor does Magdalen rely only on its tower for this claim on the attention; the tower fulfils just such purposes as was once the primal object, and should still be the motive of all towers, namely, to commemorate, locate, and proclaim a momentous occasion, or an establishment about its base. The site of Magdalen is the most imposing and the most romantic and beautiful in all Oxford. It lies at the extremity of Christ Church Meadows, along the north bank of the Cherwell, which runs under the College walls, and which is barred to strangers by a heavy water gate. Behind the College lies a park with noble elms, where deer are kept, and beside this again, and but a stone's throw from the College, there stands what was once a mill, but which now has been rebuilt as a private house. The building partly stands over the little river, and a heavy rush of water foams through the archway into a pool below, and sends its murmur to mingle with that of the great trees about the College. This western corner of Christ Church Meadows is broken up into the hedgerows and plantations of the "Christ Church Walks," and here is the so-called "Addison Walk," where it is said that the famous poet and essayist used to wander when he was a poor unknown scholar of the University. It is a long, narrow walk, laid out in a straight line through the trees and thickets, but it does not require such suggestions as these to awaken the sentiment of the bygone

at Magdalen. Removed as it is from the near life of the town, more than is the case with the other Colleges (if, perhaps, we except Christ Church), it seems to be imbued beyond any other College with the romance and sadness which belong to them



QUEEN'S COLLEGE, OXFORD. SKETCH BY  
J. HUTCHINGS.

all. Perhaps it may be that the cloisters being inclosed within a base-wall, and the space within thus sealed as a thoroughfare, and, in a general way, to access of the members of the College, the unusual grass which grows richly there, and a few shrubs and small trees that seem rather to have been permitted to grow than to have been planted, accord with the crumbling outlines of the buildings forming the quadrangle, and remind the beholder of the association of rank growth and decayed stone work with which is associated the sentiments that hover round a ruin.

But though Magdalen shows the ill-usage of Time, as though his hand had been heavy upon her, and leads one to suppose that here next will Mr. Bodley be called to restore the walls which inspired him to his inimitable frontage on the "High," Magdalen is not one of the Colleges of early foundation. At the end of

the fourteenth century the forest and the moor still stretched away to the east gate of the city; neither were Magdalen Bridge nor the famous tower then built. Upon the site of the College there stood the old hospital of St. John. It was not till the end of the fifteenth century (about 1473) that the tower of Magdalen was built, and some hundred years after that beautiful tower at Merton, the general lines of which its own so much resemble. An interesting comparison may be made of the two towers from the perspective drawings which accompany this article. The drawings of Magdalen appeared with the previous number in last week's BUILDERS' JOURNAL, while a view of the Merton tower is published in these pages. Merton is a fine tower; it stands simply and unobtrusively among the roofs of its College, but it cannot compare with the richness and nobility of that of Magdalen. The latter must stand remarkable in many ways, and, in a matter of detail, not the least so for its octagonal angle turrets, in place of the buttresses we expect to see in a Perpendicular tower. This tower is remarkable also in that a design so restrained and simple, and so free from effort or obtrusiveness, should have been raised in a period of Gothic Art which is characterised by precisely contradictory attributes. Many will remember a certain notorious passage in the "Stones of Venice" in which Mr. Ruskin has elaborated the qualities that go to the fashioning of a noble tower. With characteristic, and therefore quite unconscious, unfairness he has typified an English Perpendicular tower as being all that is false and bad, and has placed it in literary and pictorial comparison with the famous tower of Venice, and yet, if we apply his eulogistic description of the latter, we shall find he is describing the beauties of Magdalen; and, if we regard the motives of Design which he formulates from the Italian building, we find it is an appreciation of those qualities which are most admirable in Magdalen. The tower of Magdalen is one of the few perfect and complete things in Architecture. Like the tower and spire of Salisbury, it stands through the centuries to



BALLIOL COLLEGE, OXFORD. SKETCH BY J. HUTCHINGS.



beautify the lives of successive generations, whether it is the analytical temperament of the Artist or the technical intelligences of the Architect that it inspires and strengthens in lofty ideal, or whether it is subtly telling its great unfathomable secret no less impressively to the mind untutored in the principles of architectural design. A modern writer has avowed his conviction that the great truths of the future will come to us conveyed from their creator in musical composition. We may say already that by the sister Art of Architecture there are a few great abstract lessons, not well to be formulated in the concrete terms of language, which now stand to be read by all who will.

But the charms of Magdalen are holding us too long in proportion to the many other Colleges of which mention should be made, and which will be found illustrated in these pages. It is interesting, however, to notice the well-known, oft-sketched open-air pulpit in the first quadrangle, and the unique feature in the gateway of the Founder's Tower of a flying arch which springs out from among the jamb-molds, and joins them again in the centre of the lintel, drawings of both of which were published with Part I. of this article. In the doorway to the Chapel the beautiful lily ornament in the cavity of the label mold should be noticed, and particularly the bosses of this label, sculptured in the form of angels, with their wings enfolding the molding above. The angel on the right hand of this doorway is an example of Gothic sculpture which for delicacy of finish is very rarely met with. Nor should the briefest visit to the College call

for disregard of Mr. Bodley's masterly designs. He has manipulated these Mediæval forms with a precision and an identity of impulse that alone, were he known for no other work, would establish him as one of the greatest of living Artists.

And, after Magdalen, "Christ Church" is the name that most readily rises to the memory, for here is not only the great College of memorable foundation, but the old Norman Cathedral, which is a perfect storehouse of treasures—old stalls, brasses, glass, monuments, not to forget the fine organ case of a later date, designed by Wren. There is also to be seen much good modern glass by Sir E. Burne-Jones, and there is a very curious old "watching loft" in the north choir aisle, constructed of oak upon a stone basework. Of the great quadrangle it must ever be regretted that it was not finished. The colonnade of the cloisters would have completed a magnificence which now is only hinted at. All proposals to add the intended cloister are, however, thwarted by the consequent darkening of the ground floor front sets, which are at present none too well lighted.

The famous vaulted staircase was only completed in 1640, taking the place of a former structure. It must stand as one of the finest examples of Perpendicular vaulting and fan tracery in existence. The actual staircase and the lamps seem, according to Eastlake, to be due to Wyate, and more latterly the tower above has been restored by Mr. G. F. Bodley.

All Souls' College, dating from 1437, is a most interesting College. It fronts on to the "High" and the beautiful gate tower, which may

be quoted as an example *par excellence* of the typical Oxford gate tower, is of a beautiful and perfect simplicity. All Souls, it may be noticed, is a Fellows' college. In the Chapel there is some good glass, and there is also a fine Elizabethan lecture-room on the east of the quadrangle. The windows are lead-glazed, the wall high panelled, and the plaster ceiling is arched, with a design patterned in ribs and touched here and there in the ornamental parts with colour. This room was once the library. New College has fine buildings, and gains from its picturesque and romantic situation upon an angle of the old city walls. These old walls with semi-circular bastions form two sides of the small secluded grounds beyond the quadrangles. The first quadrangle is of noble proportions, and over the whole mass of the grey College buildings there hangs a sombre, dim religious light. The picturesque covered bridge sketched in these pages leads from the College buildings to the old brew-house. "New" is famous still for its brew. The chapel is famous for some very bad glass, and for some that is as good as any in England. The bad glass is comprised in the chapel proper, where it is to be seen designs by French pupils of Reubens upon the south, and of the English on the north. The second have shown the inferior of some very poor designs. In the ante-chapel, however, is such glass, as has been said, which is hardly to be seen out of England. We do not refer to the Reynolds window at the west end, though this, through misconceptions which have now been completely exploded, is still admired by some people whose likes and dislikes are not regulated by knowledge or by their intellects. The Reynolds window may be a fine painting—it certainly shows fine drawing; but pictorial painting on glass is not decorative design in coloured glass. Anyone who will compare the silvery lights and the transparency and the brilliancy and subtle contrasts of the colours in the windows upon the north and south of the ante-chapel with the dull amber and sienna and the voluptuous outlines of the Reynolds window, while holding in mind the place and the purpose of these works of Art, can have no doubts as to the rightness of the former and the wrongness of the latter, unless he be completely untouched and unimpressed by the sentiments and the motives of Mediæval Art.

The largest bell in France has been hung in the belfry of the Church of the Sacred Heart in Paris. It weighs 28 tons, and can be heard at a distance of twenty-five miles.

At Birmingham, the new General Hospital was opened by Princess Christian, as the representative of the Queen, on the 7th inst. It was announced that the building, which has cost £210,000, was opened free from debt.

The Links and Parks Committee of the Town Council of Aberdeen has resolved to erect in Duthie Park a granite statue of Hygeia, the Goddess of Health, in commemoration of the late Miss Duthie's gift of the park to the city. The cost of the statue, with pedestal, is estimated at £400.

LORD ROSEBURY'S new house in Edinburgh makes fair progress. It has turrets of the old Scotch baronial style, and is decorated with an earl's coronet and the letter R carved in stone. The new mansion is being reared in the midst of a thickly-populated district, but it will have a splendid view of the Firth of Forth.

THE new brickworks (the Non-Porous Brick and Tile Company), at High Carr, Chesterton, were opened last week. The buildings, fitted throughout with the most modern machinery by Messrs. Fawcett and Co., Leeds, are capable of turning out 30,000 bricks per day, and the clay is certified by experts to be unequalled.

THE Bishop of Salford has opened the newly erected Roman Catholic Church in M'Leod Street, Nelson. The edifice is called St. Joseph's, and has been erected at a cost of about £4000. The ground floor is made for the purposes of a Voluntary day school, and provides accommodation for about 600 mixed scholars. The chapel is above the day school, and will accommodate nearly a thousand persons.



ST. JOHN'S COLLEGE, OXFORD. SKETCH BY J. HUTCHINGS.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





GARDEN FRONT, ST. JOHN'S COLLEGE, OXFORD. SKETCH BY G. A. COX.





MERTON COLLEGE, OXFORD. SKETCH BY H. I. TRIGGS.



LIBRARY  
OF THE  
UNIVERSITY OF MICHIGAN



## MOSAIC.

By HARRY THOMSON.

BY mosaic, in the usual acceptation of the term, is to be understood the Art of producing a Design or painting by the joining together of small pieces or tesserae of hard substances either naturally or artificially coloured. Thus stone or marble chips put together will form a natural mosaic, having its colouring and veining preserved throughout its texture; and again, glass and clay, artificially coloured, present a mosaic from the fact of the colouring matter being burnt through and through the material. Supposing, however, the stone or marble mosaic were painted, or that the glass or clay had on the surface a coat of vitrified paint, the result would no longer be mosaic, but rather a surface painting penetrating no deeper than the surface. It is as well to keep this distinction in mind, especially in an age when the artificial shoulders its way side by side with the real. Before glancing at the history of mosaic as an Art, it may be advisable that we should understand its practice—a practice which, though simple in theory, is beset with difficulties in its general application.

## STONE AND MARBLE

are frequently found in pavements, and from the enduring qualities of the material employed, seem best suited for use in such a situation. The expense, however, of cutting and shaping stone and marble deters us from employing these materials to any but the most limited extent. I may mention, however, an ingenious use to which marble chips are put to suit the demand of certain modern requirements. Marble chips are thrown on a bed of cement, and, during the process of setting, are ground flat with something like a garden roller, and finally the whole surface is ground and polished till it presents the appearance and sheen of solid marble. Italian labour, for reasons which will be understood, enjoys a monopoly of this form of Art. Glass artificially coloured (that is to say, having the colour distributed throughout its texture by being melted in the furnace) has been, and still is largely used, its use, however, being confined to walls or wall pictures, although instances are not uncommon where this material has been used for covering pavements or floors—notably in some recently excavated houses in Pompeii, where the tesserae or pieces of glass are extremely minute in size. This description of work is called Glass Mosaic, and may be used alone or in conjunction with stone, marble, or clay. Baked clay, or clay having colouring matter added to the material previous to its pressure in moulds, for the production of small cubes, and submitted to the action of heat in the furnace, is known by the name of

## KERAMIC MOSAIC.

Its use has been very general of late, but in surface effect is very inferior to the lustrous quality of glass, and the strong though low toned quality of marble and stone. Add to this its liability to blacken in a smoky atmosphere, and a serious objection will be urged against its application to outdoor decoration in towns. Stone, marble, glass, and clay, therefore, are the materials usually employed in the practice of mosaic, and I might even add shells, pearls, and gems, or shining bits of metal, having the colour throughout, from the surface to the back. The tesserae, or chips of these materials, are arranged together to form a design or picture, the whole being held together by cement, and becoming, when set or hard, one solid mass. The cement commonly used by the ancients consisted of slaked lime and powdered marble, mixed with water and white of egg. This dried or "set" almost immediately, and so intensely hard that the Artist found it an impossibility to make alterations without destroying great portions of his work. To compose the bed a layer of stones and flints, with cement, was placed on the wall. Upon this was spread a coarse concrete of smaller stones and lime, which was well beaten and pressed down. The third layer was composed of lime and particles of broken bricks worked to a flat surface, and on

X X



CHRIST CHURCH, OXFORD. SKETCH BY J. HUTCHINGS.

this last layer was traced the outline of the Design. Having at hand small pieces of stone, marble, or glass, previously broken to the required size by means of a pointed hammer or chisel, the Artist arranged these tesserae on the wall one by one, filling the spaces between with liquid cement. Afterwards, when completed, all the inequalities were reduced by friction, and the whole surface brought to one uniform level. As you will see, working in this way, the

## DIFFICULTIES WERE VERY GREAT,

and the progress necessarily very slow—so slow, in fact, that a comparatively small work would take the Artist years to produce—a very fine calling for a man wishing to correct in himself the defect of impatience. The modern method of working practised chiefly in Italy is this: A plate of metal usually of zinc, having a margin rising about  $\frac{3}{4}$  in. from the under portion of the plate, is placed on a level table and a mastic cement composed of powdered stone, lime, and linseed oil spread over the bottom of the tray to the depth of about  $\frac{1}{4}$  in. When set this is covered with plaster of Paris to the level of the margin. On this is traced the outline of the picture to be made. The Artist then selects a portion and removes with a chisel just so much of the plaster of Paris as will admit of the insertion of the small pieces of glass, selecting his colour from trays, in which are kept thousands of varieties of colour. The pieces of mosaic are moistened with a little cement, and are bedded in their proper situation. A still more modern method will be described further on when I come to speak of Salviati and his

work. Our description of mosaic will be incomplete without some reference to window glass treated in mosaic fashion, that is to say, composed of small pieces of self-coloured glass held together by binding strips of metal, the design being conveyed by form and colour without any surface assistance from paint or enamel. For want of a better name this class of work is known by the term

## "MOSAIC GLASS,"

in contradistinction to the term of "stained glass," which usually refers to glass in which the design is eked out with a surface painting of enamel. Something more will be said of this modern Art when I come to speak of the work of John La Farge and the American school of mosaic glass workers. Enough has been said to give you a fairly good idea of the practical working of mosaic, and, having thus far had a previous understanding of our subject, we may now proceed to examine slightly its history as an Art. As the history of the manufacture of glass is practically the history of mosaic, for the reason that glass mosaic gives to the picture such translucency and range and depth of colour, and the fact that glass mosaic was introduced at a comparatively early date in the history of the Art, it will suffice for our purpose if we take for our starting point the manufacture of glass chiefly in its application to the Art of mosaic, premising that it is already understood that by mosaic is meant a material which is coloured throughout its texture. From the earliest times it must have been an instinct with man to lay together parti-coloured pebbles in patterns, and as natural to him as tracing figures





NEW COLLEGE, OXFORD. SKETCH BY J. HUTCHINGS.

and symbols with a stick in the sand, or carving in wood or stone. It would be idle, however, and uninteresting to attempt to trace the growth of such an Art, though there can be little doubt that its practice, in a more or less crude form, dated from very remote times. The instinct displayed in the laying together of pebbles would seem a very natural one, and, as an illustration of this theory let me refer you to the labours of our railway officials, who, emulating the suppositious example of our forefathers, still continue to indulge a natural craving for Art expression, by the embellishing of railway stations in the putting together of differently coloured stones to form the name of the place, thus satisfying at once a love for the useful, and a desire for the artistic arrangement of pleasantly contrasting surfaces. Taking leave of theories, fanciful and otherwise, let us see what history has to tell us. Some have said, and perhaps with truth, that the Arts and Sciences may have been cultivated by older races than the Egyptians, but few monuments of the Art of these nations have been left for us to study, and whatever exists gives no proof of the cultivation we see expressed in

#### MONUMENTS OF EGYPTIAN ART.

It is reasonable to suppose that the knowledge of the Art of glass-making, if not actually discovered in Egypt, was at least fostered there with other refined Arts. A story illustrating the origin of glass-making, and which, I dare say, most of us have read in our school books, is somewhat to this effect:—"Some

storm-driven Phœnician mariners, while boiling their food on the sands at the mouth of the River Belus, a small stream running from the foot of Mount Carmel, in Galilee, where the herb Kali was growing abundantly, suddenly perceived that the sand, when incorporated with the ashes of the plant, melted and ran into a vitreous substance." A fable most likely, but pleasantly illustrates the ease with which glass can be made, though the fact that glass melts at a fierce heat in a closed furnace militates somewhat against its truth as a story. It is certain that the sand about this spot was well adapted to the manufacture of glass, and, probably the glass houses of Tyre and Sidon were supplied from this locality, which fact may have given rise to the tradition. The Egyptians were certainly well acquainted with the Art of making glass and the practice of mosaic as a sister Art. Among the ruins of Memphis we find the earliest traces of glass. Of these have been found pieces of turquoise blue, probably used for the glazing of pottery vases or figures. Mummies are found which have necklaces composed of beads of glass. Tombs have been unsealed in which were discovered crowns, armlets, and jewellery of a most delicate description. Many of these relics are mosaic in character, the better class showing fanciful arrangements of valuable diamonds and precious stones set in filaments of gold, the beauty of the workmanship, and its refinement being such as to make a modern artificer feel abject despair from a conscious inability to compete with such rare excellence. Mummy cases composed of burnt

earthenware have a covering of glaze which is a true glass, and some, probably inferior mummy cases, have a coating of cement with patterns traced in lines and here and there filled in with pieces of coloured glass sunk in the cement in mosaic fashion. Mosaic in the form of glass was also used in conjunction with tiles and bricks in the decoration of walls, and in the cornices and capitals of columns. In some monumental sculptures the figures are in relief, portions of the garments and backgrounds are incised and inlaid with coloured glass mosaic fitted into the incised portions; the features and flesh in glazed ware appropriately coloured, the hair and head-dress being in mosaic, embroideries on draperies too are shown by inlaid glass patterns. Glass was used universally in Egypt in every conceivable fashion, to form hieroglyphics for the inlaying of stone, wood, or metal. Stone figures are found which are covered with glass inlay in natural tints, and so far had the Egyptians carried their love for this form of decoration as to even ornament crocodiles and domestic animals with earrings and other devices in glass. From all this we may gather that mosaic work, in a more or less modified form, was in very general request and practice throughout Egypt, and that to the Egyptians belong the merit of having invented these processes of working, a merit which the Greeks acknowledged in becoming their pupils and imitators. The Art of mosaic

#### ATTAINED GREAT PERFECTION

under the cultured direction of the Greeks, who, however, gave their preference to clay rather than glass for the reason probably that a purity of form could be much more easily obtained in clay than glass, appealing more strongly to a Greek sense of beauty. The Greeks were form worshippers rather than colourists. Nevertheless, it would seem that from an early date walls and pavements were ornamented with glass in preference to stone and marble, because by its use tones and shades could be obtained which it would be impossible to get in other materials. The use of mosaic in panels in walls probably originated in Greece, and the subject, whether on walls or pavement, was generally extremely simple in Design and orderly in the arrangement of its parts, the motive usually mythological or theatrical, and the heads, figure or animal subjects, in most cases, surrounded by arabesques of beautiful Design. About this period we trace the introduction of gold grounds applied afterwards so extensively to mosaic work. In the Temple of Diana, at Ephesus, have been found gilt discs which were covered with a thin layer of glass to preserve the gilding, possibly the germ of what we call the Early Christian Mosaic Art. Greek mosaic is, as may be supposed, severe in treatment, and the figure subjects, animals and what not, very sparingly introduced, the cutting and grinding of the mosaic being very perfect as a rule, and symmetrically disposed, costing an almost incredible amount of labour which was, fortunately for the Artists concerned, a matter of very little moment in an age when mechanical slave-labour was rewarded mainly by kicks and blows. The characteristics of Grecian Mosaic Art are then mainly these: simplicity of design, a reticence in colour, amounting almost to a negation of colour, and a general perfection of execution. The Romans, in their turn, easily assimilated the Art of the Greeks, employing Artists of that nation as their tutors, and in the demand for Art production the Art of working in mosaic received more perhaps than a due share of recognition. So great indeed seems the hold of that almost passion which the Romans entertained for the splendour of mosaic, that as an impress of the vitality of that feeling, the practice of the Art remains till to-day an industry peculiar to Italy. As with the Greeks, so with the Romans; at first glass was used only for the brighter colours which could not be obtained in marble or clay, but as the desire for magnificence increased, and the practice of the Art attained greater perfection, glass took the largest place in decoration. Thinner bits of glass in imitation of porphyry and marble were backed with stone to give the material



strength. In some instances white enamel was vitrified behind the glass in order to

#### THROW UP THE COLOUR.

Roman habitations were full of works in mosaic glass. It seems, however, when pictures were spoken of it was long thought mosaic alone was meant, but it is now proved that enamelled pictures, that is to say, glass painted with fusible glass enamel and vitrified or burned in, were sometimes used and inserted in the wall in common with mosaic pictures framed usually in marble. The wonderfully minute mosaics frequently found in beads and amulets, and sometimes in pavements and walls, have excited much conjecture as to their production, but like many other marvels, the method when discovered seemed very simple. In Pompeii and Herculaneum slabs for pavements and wall decoration were dug up in which were found pieces shaped like the petals of flowers, stars, and rosettes placed in the middle of a piece of lavender opaque glass. Specimens extremely minute in character have been discovered. One, a bust in the Slade collection, has on the forehead a lock of hair which seems no thicker than a silken thread, yet on examination under the microscope is found to consist of nine threads of opaque and transparent glass. This glass is of the kind called "mille-fiori," and was used in the ornamentation of drinking vessels, vases, and in mosaic work. The mode of production was by arranging long slender glass rods of various colours together so as to form a pattern, a flower, a picture, or the letters of a name, and then fusing these rods together in the furnace. While still hot the rod or cane thus formed was pulled or stretched till the pattern became microscopically small, always, however, owing to the ductility of glass, retaining its form and distinctness. Anyone may make this experiment for himself by holding a tube of glass above a flame, and stretching the glass, when it will be seen that the hole in the middle is never lost. Ancient writers on Roman mosaic divide its practice into four classes. (1st) Tessellated, consisting of small pieces of marble composed of pieces about  $\frac{1}{2}$  in. square. (2nd) Sectile or sliced work, made up of different slices of marble placed together. (3rd) Pictile mosaic, composed of small pieces of mixed flint and burnt clay. (4th) The opus vermiculatum, which was applied to the decoration of figures, ornaments, and pictures, all portrayed in their true shades and colours by a judicious arrangement of small cubes of coloured marbles, glass, and brilliant gems. The manufacture and working in mosaic continued in Rome till about the ninth century when the work seems to have been discontinued.

(To be continued.)

We understand that the N.A.P. Window Company's casements are being used in the Liverpool School Board offices.

IN our last issue we gave an account of Brook House, Walbrook, recently erected from the designs of Mr Delissa Joseph. We learn that the whole of the elevation above the 1st cornice is in Corsham Down stone supplied by the Bath Stone Firms Ltd.

THE fine old Church at Rothley has just received an addition to its beauties in the shape of a very costly stained glass window, the gift of a native of the parish. The colouring of the window is exceptionally beautiful, and the work has been very effectively carried out by Messrs. Heaton, Butler, and Bayne.

A LEADEN bulla of Boniface IX., who was Pope from 1389 to 1394, was recently dug up when a grave was being made in the churchyard at Trusthorpe, on the Lincolnshire coast. A similar bulla of the same Pope was found in Louth Church about twenty-eight years ago, when internal alterations were being made.

At a recent meeting of the Mablethorpe Urban District Council, it was decided to spend the sum of £1000 in making a new promenade, and in carrying out other improvements on the sandhills facing the sea at Mablethorpe. The erection of a sea-wall is also contemplated, as well as the provision of suitable accommodation for visitors.

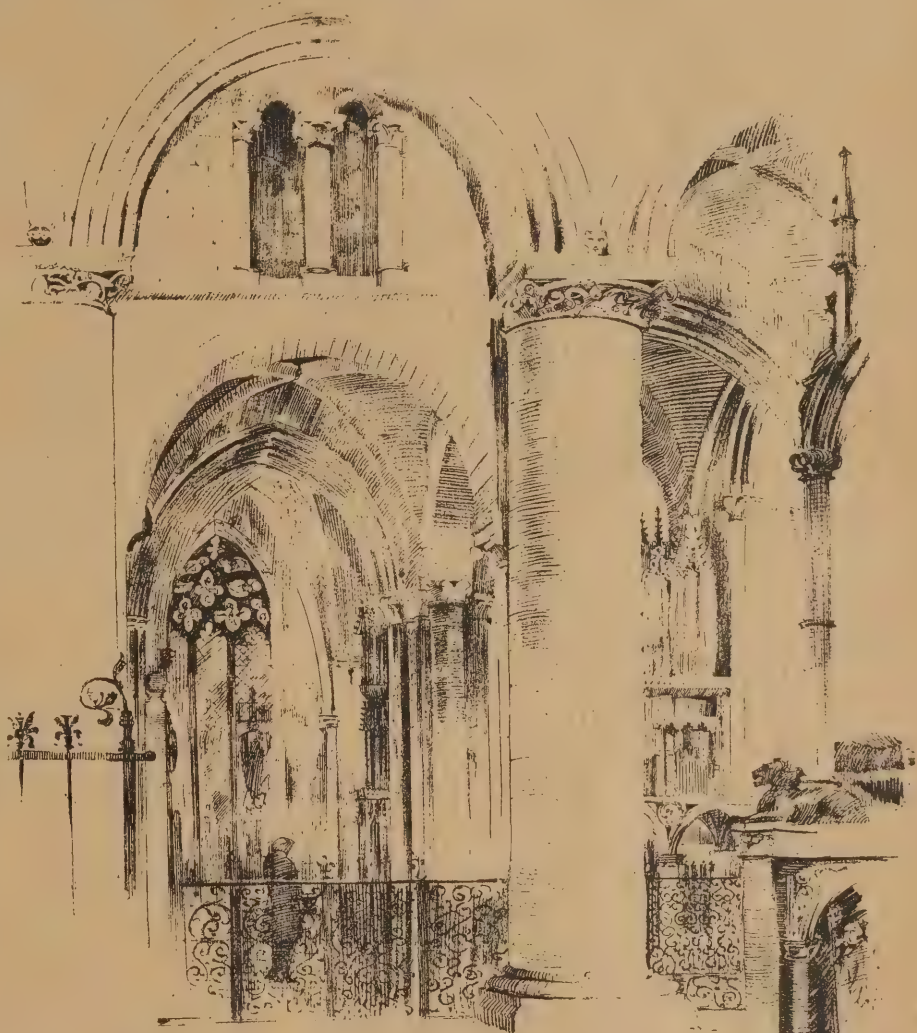
X X 2

### PROFESSOR MAX NORDAU ON THE SOCIAL FUNCTION OF ART.

TRANSLATED BY H. WILSON.

THE following most interesting lecture on an aspect of Art hitherto but little studied was delivered recently at Turin by Professor Nordau. Without ourselves adopting the point of view, there is much to stimulate thought and kindle a new interest in Art, even for those who live by and hope to live through it. Professor Nordau's conception of Art is, we think, a little coloured

patible with any pitiful preoccupation as to the likes and dislikes of the public. The fancies of the hour are but ripples on the surface of the collective thought of humanity; the real currents, the true springs of emotion lie deep. It is in seeking for these and reaching down to them that the Artist learns to succeed; not by attention to conflicting, bewildering, misleading, surface changes. Again, Professor Nordau lays stress on what he calls the democratic side of Art. Surely there is some misconception here. Art springs from the people as flowers from the soil, and as the latter are only the embroidered fringe



Base of Column

Sketch of Norman Choir

Christchurch Cathedral - Oxford

CHOIR, CHRIST CHURCH CATHEDRAL, OXFORD. SKETCH BY H. I. TRIGGS.

by the common delusion that the Artist lives only to please the public at large. It is true that the Artist hopes to please in order that he may gain greater opportunities for the exercise of his faculties, but his first aim, his prime preoccupation, is the expression of himself. The more truly he can do this—the more nearly he gets down to the unconscious sources of passion, emotion, sympathy—the more completely he can symbolise and realise his own humanity, with all its aspirations and sufferings, the wider will be the circle affected by his Art, the more universal its appeal. But such an aim demands unremitting activity; single-hearted devotion to the means of its attainment. It is utterly incom-

on the earth's garment, the visible expression of higher activities, so the Artist, in his turn, is, so to speak, a sport, the expression of the higher activities of the social organism; a more or less accidental product of the environment in which he is found; the sum of a number of unknown forces collocated and co-ordinated in one individual life. Art is kingship in Craft, not eminence in dexterity. It is lordship in sympathy, not the dominion of the unknowing. Again, it is impossible to follow the Professor when he makes of Art a kind of subtle sycophancy, a dainty flattery, a saying of smooth things. Still less can we assent to the doctrine that Art is easy of attainment. Senses, a human heart, and



familiarity with masterpieces will not alone make a critic. Familiarity too often breeds ignorance, and it is only through the patient study and sympathetic analysis of the beauty of Art, through continual effort to escape the bondage of conventional feelings face to face with masterpieces, that we can attain to any real appreciation of them or of the power that produced them. This is necessarily impossible for the majority of men. These and a few other objections apart, which each reader will readily discover for himself, the lecture is one of the most thoughtful and stimulating which have recently appeared.—The partisans of "Art for Art" will smile at the title "The Social Function of Art." Can Art, they will say, have another mission besides that of pleasure through beauty? Surely a work of Art is an end in itself. No other end can it know. Now the history of civilisation, Art, and psychology proves that such a theory is false and presumptuous. Only in the early ages of human history is Art the purely subjective manifestation of a being endowed with a special sensibility and emotivity which leads him to create a work of Art in order to escape from an emotion become so deep and enduring as to amount to an obsession. The primitive men who covered the rocks of the caverns of Mouthe with drawings of animal, who engraved the image of the mammoth on the well-known ivory tablets of Magdalen in the Dordogne, who created the sculptures and the drawings of Bruniquel in France, of Schaffhausen in Switzerland, &c., only drew, engraved, and carved for their own satisfaction. They considered none but themselves. These were the first, but also the last, purely subjective Artists, the only ones who gave themselves up to Art for Art. To find an example of this in our own day we must look in the nursery, in the classrooms of elementary schools—in the child through atavism the primitive Artist lives again. His drawings, if they are not perfect, are always depressive. The child marks down the distinctive features of phenomena, those which make the greatest impression on him. He obeys authentic impulses, and his artistic creations gush out in truth from the secret fount of his emotions. But with civilisation the manners and the methods of the Artist change. What was once inspiration becomes profession. The Artist, while still ever seeking to alleviate the nervous tension which oppresses him, becomes ambitious; and the preoccupation of success takes the place of the necessity of escaping the internal obsession. So that at the very moment in which a work of Art is conceived, we find the Artist face to face with a new element, the consideration of the known or supposed tastes of the society whose approbation he desires. Society, which thus acquires a place in the spirit of the Artist and in his creations, demands then that the Artist shall labour for it and no longer for himself. His specific activity must adapt itself to the general plane of the social organism of which he forms a part. And a manifestation which was once a purely subjective function acquires a social character. It is obvious, further, that other instincts, tendencies, and primitive appetites share with Art the latter destiny of being transformed into social forces. Civilisation has exactly this character, that it takes the emotions of man and uses them as motive forces to produce results which are not always within the scope of such emotions. Thus, the sentiment of love serves as a basis for marriage, and gives a guarantee of juridical and economic stability to the position of the wife and children: so also the common sympathy of mankind is developed into the instinct of association, and conduces to the growth of collectivity of divers kinds. Side by side with other forces even the special faculties have been made to serve social

interests. The history of Art proves this. All known works serve a social end. They glorify God, the king, the city. They raise the prestige of religion, the government, the fatherland. The Artist labours simply and solely for the Church and for the palace. He is required to ornament the Church and the cloister, to re-invigorate the faith of peoples, to strengthen the power of the citadel, to glorify the monarch or his ancestors. We must go to the Renaissance to find at the side of religious dynastic and aristocratic Art, the beginnings of an Art that was purely aesthetic. When Mantegna painted the Muses on Mount Olympus, or Lionardo, Monna Lisa, they no longer desired to excite the faith or confirm the fidelity of subjects, they desired to enrich and rejoice one sole life, that of a moneyed and noble mæcenas from whom they had received the commission. Spurred on by a primordial necessity, that of his own maintenance, the Artist had until now put himself in the service of such Church or Government which could, or would, satisfy that need, and, in recompense, was made a soldier in their cause. The mass, the crowd, the people, found in Art none of their own human emotions, only the voice of fear, of respect, of subjection to a religious or civil authority. It was reserved for a free people, the people of Holland and Flanders, to initiate a different kind of Art. Here the Artists began to speak of the humble and obscure, and thus the *genre* Painting made its entry into the world. This modest art of simple and unassuming philosophy marks, nevertheless, a decisive moment. Art ceased finally to be only the homage rendered to the king or to the Divinity. This is the reason that Louis XIV. proscribed from his presence the democratic canvases of Teniers, Van Ostade, of Hals, of Gerard Dow, in the historic phrase: "Take all these grotesques out of my sight." But the march of time continues. Evolution goes on. Modern democracy makes its entry into the world, transforming all the conditions of society. Art also feels its effects, moral and economic. Its jurisdiction and its market has changed. The tribunal which decided on the merit of an Artist and his work was the narrow circle of moneyed mæcenas, then possibly princes, prelates, and the people of their courts. The right of judgment has now passed to the critic, to the critic by profession who suggests his own opinion to the mass, and imposes it upon the powerful. He is disinterested, thence his criterion is higher and more wide. He brings to his service a convenience of philosophic and aesthetic considerations unknown to priests and kings. The market of works of Art is to-day quite other from that in the past. In 1673 the first *Salon* was founded in Paris; and museums accessible to all are now open. Henceforth the Artist may labour according to his individual inspiration without waiting for commissions. That he may become known, he has now a place where he may exhibit his work to thousands of people, who will criticise him, and, perhaps, buy his pictures. He creates now for the great public. So the critic has become his judge, the crowd his mæcenas. Universal suffrage, having dethroned the Church and uprooted the Throne, remains the only patron of the Artist. The great revolution is, then, complete; the Artist now labours only for the crowd. Although, like the mæcenas of other times, like the princes, like the priests, the people demand that Art shall please, and flatter it, it demands also a superior satisfaction, it demands a remedy for the unrest, the spiritual uneasiness which oppresses it. Whence comes this *malaise*? It is an effect of that specialisation which is one of the most notable phenomena of modern life. The workman has become a machine, even less than a machine, a mere wheel, a simple peg. His whole being is constricted. His intelligence suffers. All his faculties, save

that he exercises daily, are paralysed and lost. Man is being degraded almost to the level of a polypus, an unreflecting zoophyte. The man of the Renaissance, on the other hand, who fascinates us all so much, was a complete creature wholly and harmonically developed. Modern man may envy, but never equal him. He must cower back into his little corner. Hypertrophy of a single faculty, atrophy of all the others, such is the destiny to which he feels himself condemned without remission. This state of things can never change. Division of labour offers too great advantage to collectivity for the latter to renounce it in favour of the individual. All feel painfully the reverse of the medal presented by Progress. A philosophy of genius, which the super-man proclaims has mastered the minds of our youth, precisely because it responds to an aspiration towards a completer individual life. And what makes anarchy attractive, even for sound consciences and tender hearts, is exactly the promise it gives of a greater total expansion of human personality. When workers demand their eight hours, the programme of the three eights of sleep, work, play, it is not at all, as malevolent minds conceive, that they may have more time to drink, but that they may have some few hours in which they cease to be pieces of mechanism; in which they may feel themselves to be men and live the great life of the world. But by what means can we restore to men, that they have lost by specialisation and division of labour, the harmonic and integral development of the various human faculties? In a far-off future, science may perhaps accomplish this miracle; then we shall see workmen gaining their livelihood by manual labour during one part of the day and spending the rest on the high peaks of thought and knowledge, as did Socrates, the mason, and Spinoza, the lens-maker. But science is difficult of access, the way thither long and rugged, and integral existence by the mediation of science is only possible to men who have attained already a higher level of development than is common among the people. On the other hand, Art at once admits the crowd to its intimacy. It does not demand, like science, a long initiation. It suffices to have senses and a human heart. After a little familiarity with masterpieces, all, or almost all, are able, if not to appreciate the technical and philosophical merits of a work, at least to feel its fascination and be thrilled by the emotion it excites. Art, then, can give to humanity to-day that of which it has the greatest need—the means of attaining the ideal life. This is the great, the sublime, function of Art in a democratic society founded on a civilisation whose characteristic feature and condition consists in a rigorous specialisation, and in division of labour pushed to the farthest limits of development. Art lifts man from the sphere of industrialism. In the field of Art man held in bondage by a machine or by his instrument of observation becomes the free, the universal man, the man living the life of the world. The function of Art in modern society is that it delivers the prisoner from the narrow prison-house of a special trade, and enables that being, reduced to the level of a piece of mechanism, to find again his human dignity.

THE undertaking of the Shoreditch Vestry in establishing combined electric lighting and dust destruction apparatus has proved a complete success, for within ten days of the opening of the station the equivalent of 7,870 lamps (eight c. p.) has been ordered. The applications in hand include one for 200 horsepower for electric motors. Under the new system, the destruction cells, fed with parish refuse, are providing the whole of the steam required for the plant installed without the use of coal.



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
July 21st, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Highways Committee of the London County Council has presented a report relative to the lighting of the Victoria Embankment and Waterloo and Westminster Bridges by electricity, and recommended the Council to take all necessary measures for establishing, at a cost not exceeding £22,000, an installation for that purpose. The recommendation was agreed to on the understanding that the Committee should report further to the Council as to the details of the proposed installation.

FRENCH sculptors have declared war against the Italian boys who offer for sale in the streets plaster copies of their works. This form of piracy not only interferes with the legitimate business of Artistic reproduction, but, by substituting a caricature for a true model, brings discredit upon the original. Since 1863 the manufacture of fraudulent imitations has been treated as a criminal offence, but it is exceedingly difficult to bring the charge home. A careful watch is kept upon the half-starved urchins whose wretched appearance serves to attract customers, and if they are accosted by suspicious persons, warning is at once given, when every trace of illicit practices vanishes at once from the workshop. The police, moreover, are hampered in their movements by the provisions of the penal code, which forbid them to take action except at the request of the author or his assignee. It is to this point that the efforts of the Artistic brotherhood are being directed.

AN important discovery of ancient British remains has been made at Danesdale, near Driffield, by Canon Greenwall, of Durham, acting under the auspices of the East Riding Antiquarian Society. At Danesdale are a number of mounds, which have been hitherto popularly known as "Danes' graves." Canon Greenwall has come to the conclusion that these graves, numbering 178, are not Danes' graves at all, but belong to an age at least a thousand years before the Conquest—that is, to about 2000 years ago, before the Roman invasion. In one of the tumuli laid bare were found not only the bones of an ancient Briton, but the iron tyre of his chariot, the iron bit and trappings of his horse, and a bronze pin, beautiful in design and enamelled. Thirteen graves were opened, all containing evidence, greater or less, of their ancient origin. The objects of interest found are to be deposited in the York Museum.

PRELIMINARY work in connection with the second block of the new Admiralty buildings has now been got through. The old houses in Spring Gardens have been cleared away, excavations have been made, and the foundations have been laid. These, as previously explained, take the form of a huge concrete tank, rendered necessary by the watery character of the soil, which at one time formed part of the bed of the Thames. In this tank, now completed, the walls of the new building are beginning to rise, and it is computed about three years will be required for the completion

of the new block. The old building will, in the meantime, undergo repairs, and on the Horse Guards side will be brought into harmony with the new structure by the erection of a dome corresponding to that which is so prominent a feature of block No. 1. The old and the new portions will then be connected by a handsome corridor running across from one to the other on the north side of the Horse Guards Parade, thus forming the fourth side of an open quadrangle.

THE structures known as dolmens, are Mr. W. C. Borlase points out in a sumptuous work he has just prepared on "The Dolmens of Ireland," chambered tombs and shrines. They are built of roughly-worked or natural stones set upright and roofed with a flagstone, thus forming a vault, and in the majority of cases they have been covered with a cairn, or mound sometimes heaped up as a large tumulus, which in the long course of time has been carried or washed away, leaving the structure exposed. A good example of a typical dolmen exists in "Kit's Cotty House," near Aylesford in Kent, and Cornwall is rich in specimens. Their distribution is shown in four maps, one for each province, the details of their character filling the whole of the first volume, and a portion of the second. Then, leaving the field for the library, Mr. Borlase proceeds to classification of the several types, and to comparison of the dolmens of the British Isles with the thousands scattered from the Atlantic to the Ganges. The concluding section treats of the Irish names and superstitions associated with stone monuments, and with sacred sites generally; and of the complex question of the dolmen-builders' ethnological affinities.

CONSIDERABLE headway is being made in the building operations in the large area abutting upon Deansgate, Manchester, which will be known in the near future as the depot of the Great Northern Railway Company for the receiving and forwarding of goods. The property acquired for the goods station, warehouse, and offices covers an immense area, hitherto mainly occupied by small dwelling-houses with a frontage of shops which fringed Deansgate. The sweeping away of these habitations will, no doubt, be a benefit to the city, and the replacement of the old shops by modern erections, with some architectural proportions and pretensions, will be a distinct improvement to the southern portion of Deansgate, and will bring it more into harmony with the upper end, which contains many handsome business premises. For considerably more than twelve months the property taken over by the railway company has been in course of demolition, and only a few buildings maintain their front against the ruthless and devastating march of the end of the century builder. Ivy Street is the point where the works commence, and thenceforward for more than a quarter of a mile the three sets of rails, which branch from the main line to the Central Station, are carried over seven massive viaducts; and gradually decline and diverge until they reach the level of the roadway in Deansgate, where there will be twelve sets of rails all told. The site of the goods station and the new buildings is bounded by Deansgate, Peter Street, Watson Street, and Great Bridgewater Street, the width being 260ft. Apart from the goods yard there is the warehouse, which will have five floors, and will be 280ft. long and 240ft. wide, and in front of this, facing Peter Street, will be the offices. A thousand men are at present engaged upon the works, and five months have been occupied in laying the foundations. For such a vast superstructure as it is intended to erect it is imperative that a solid and safe base should be secured, and in most cases the sinkings for the brick piers have been carried to a depth of 30ft., where rock has been found. These piers are composed of brick, cement, and concrete, and vary in thickness from 9ft. to 50ft., the latter being necessary to support the viaducts. In preparing for the works some important buildings have been demolished, these including the old Wesleyan Chapel in Great Bridgewater Street, the Central Board School in Gregson Street, the

burial ground in Trumpet Street, from which a large number of bodies has been removed to Philips Park Cemetery, several warehouses, and fourteen public-houses. The cost of the whole undertaking, including the contract for the new buildings, which is £346,000, is estimated at something like £1,000,000. The works were commenced in February, and will not be completed until two and a half years hence.

MR. G. FRAMPTON has, it is said, been commissioned by Mr. Passmore Edwards to execute a bronze medallion of Leigh Hunt, which is to be erected in the public library at Shepherd's Bush. This medallion will be similar to the portrait of Charles Keene, which Mr. Frampton is at present exhibiting at the Royal Academy. —The Hon. John Collier has completed his portrait of the Speaker in his State robes, which is to be placed in the Inner Temple Hall. —For the gallery in the Speaker's house Professor Herkomer has undertaken a portrait of the late occupant of the chair, Viscount Peel. This picture has been subscribed for by past and present members of the House of Commons.

COLONEL YORKE's report to the Board of Trade upon the accident at Coldrenick Viaduct, on the Great Western Railway, when twelve workmen lost their lives, has just been issued. The accident occurred during the work of replacing the wooden viaduct by a more modern structure. During the work at the seventh span of the new viaduct the staging suddenly collapsed, and twelve men were precipitated into the valley below. Colonel Yorke says that the disaster was solely due to the omission to take the most ordinary precaution to ensure that the platform was strong enough to support the weight likely to be brought upon it. The judgment of Ganger Pearce, who selected the timber for staging, was hopelessly at fault. It should not have been left to him to select the timber. Both Pearce and Blewett had every confidence in the staging. The report further says:—"Mr. Lloyd, in my opinion, failed to form a correct estimate of his duties, though it must be said in his favour that these duties had not been clearly explained to him. He relied upon the foreman on the one hand, and upon Mr. Gibbons on the other, and his statement to me shows that he did not make sufficient use of his own eyes. But knowing as he did that the men under him had more practical experience in this class of work than himself, and were themselves to work upon the scaffoldings and platforms that they erected, he should not be too severely blamed if he left them to look after their own safety in place of making this a special duty of his own."

At the monthly meeting of the Metropolitan Public Gardens' Association, 83, Lancaster Gate, W., the Earl of Meath, chairman, presiding, it was announced that the Association had completed the laying-out of St. James's Churchyard, Pentonville, by means of a grant of £600 from the City Parochial Foundation, and that the ground had been opened to the public by Captain Penton, the freeholder, that St. Matthew's Churchyard, Bethnal Green, was approaching completion, that St. Nicholas playground, Deptford, would be completed and opened shortly. Progress was reported with regard to the laying-out of the East Street site at Walworth, and it was stated that the Association had received a gift of a handsome drinking fountain for this ground from Mr. L. H. Isaacs. It was agreed to renew a previous offer to lay out Christ Church Churchyard, Blackfriars Road, and a disused burial ground in York Road, Walworth, provided their maintenance was secured. It was reported that the Bill enabling contributions to be made by various public bodies towards the acquisition of Churchyard Bottom Wood, Highgate, had passed the House of Commons, and had been read a second time in the Lords, and that the Select Committee had decided that twenty-five acres must be provided as a public open space in lieu of the Metropolitan common land the East London



Water Company proposes to take at Tottenham. It was agreed to support schemes for the preservation of vacant sites near the Essex Road, Islington, and in Wandsworth, Bromley, and other localities; and to offer prizes for the best designs for durable yet artistic drinking fountains costing not more than £50 and £100 respectively.

MR. WILTON LEE has completed the historical painting representing the laying of the foundation-stone of the new Westminster Cathedral, which is now on view at Messrs. Graves' Gallery. The vast amount of labour entailed by this great canvas (which has occupied the Artist constantly for nearly two years) may be judged from the fact that the picture contains some 700 figures of persons of eminence in the ecclesiastical and social world, who were present at the function; and for each one of these the painter had special sittings. The scene presented is the memorable procession to the high altar, the figure of Cardinal Vaughan, vested in mitre and cope, and bearing his crozier, standing out boldly in the foreground. Cardinal Logue is also strikingly portrayed, and the leading ecclesiastics and members of the Catholic nobility, grouped around, are all easily recognisable. Mr. Lee has been commissioned to paint the scene at the grand function which will attend the opening of the Cathedral.

THE President and Council of the Royal Academy have just announced their intention of electing a Cousins annuitant on August 3rd. The Cousins annuities, of which there are six or seven, owe their origin to the late Mr. Samuel Cousins, R.A., the engraver, who bequeathed, for their foundation, stock to the value of £15,500. Candidates for these pensions, which are worth about £80 a year, must be "deserving Artists, painters in oil and water-colours, sculptors, Architects, or engravers, in need of aid through unavoidable failure of professional employment or other causes." Of these annuities and the other charitable funds dispensed by the Royal Academy little is heard by the outside public, for the names of the Burlington House pensioners, among whom are numbered several once popular Artists, are never divulged. It is not generally known either that any Artist who has once exhibited at the Royal Academy is regarded as having a certain claim upon the charities of that institution should he fall upon evil days. A large sum is devoted yearly to this purpose. In 1894 no less than £1185 were disbursed in charitable donations to former exhibitors (non-members) and their families.

At the Exhibition of the Sloane-street Decorative Needlework Society, one of the most interesting and invaluable tapestries in the world may now be seen. This tapestry belongs to the York Museum, and was made as early as the year 1588 at the town of Weston, in Warwickshire. In that year Squire Sheldon, of Weston, was determined to introduce into England the art of tapestry weaving, and with that object he sent one Richard Hicks to the Low Countries to study the process, and to bring back workmen to the looms, which he set up at Weston. This tapestry is a map of Warwickshire, and is 13ft. high by 17ft. 3in. broad, exclusive of a border of 17in., which appears to be of later manufacture than the map itself. The north of this map is to the east, and the uppermost name in the left-hand corner is Swadlingcote in Derbyshire; on the right Stonesfield is the corner name, and on the lower left Fulbrook and Sudley Castle, Gloucestershire. On the north-western corner are the compass and scale of miles, above which, in the north-east corner, are the Royal Arms of England, under the house of Tudor with the Garter and supporters, lion and dragon. At the opposite corner, south-east, is a long description, quoted from Camden's "Britannia," in a square corner adorned with bears; and below this, on the south-west, the arms of Sheldon with quarterings, impaling Markham, also with quarterings. As to from what survey these maps were taken, the Rev. W. K. Bedford, M.A., is of opinion that they

were based on Saxton's maps. The spelling he admits, savours of Flemish artists, and the Orientation of the north was also a prevalent habit with Dutch geographers. The detail in this map, however, is in many cases so minute and particular that it is impossible to resist the conviction that personal observation played an important part in its formation.

As soon as Parliament is prorogued Professor Church, F.R.S., will, at the request of H.M. Office of Works, submit the two famous frescoes by D. Maclise, R.A., in the Royal Gallery at Westminster—"The Death of Nelson at the Battle of Trafalgar," and "The Meeting of Wellington and Blucher at Waterloo"—to the same restoring process which he has adopted with so much success to the other pictures at Westminster. It will be remembered that towards the close of 1895 Professor Church made a report to the Office of Works as to the cleansing and other operations which he had carried out in respect of the famous frescoes in the upper waiting hall and in the House of Lords. He also pointed out that there was no obvious change or deterioration in any of those which had been dealt with by him in the previous year, but that he feared that Maclise's two great pictures in the Royal Gallery could not fail to be further injured unless means were devised for preventing the occasional condensation of moisture upon their surfaces.

THE only Church, so far as we are aware, within the Arctic Circle is a structure of seal-skin and whalebone at Blacklead Island, Cumberland Sound, erected under the auspices of the Church Missionary Society. For about twenty years the Rev. E. J. Peck has laboured among the Eskimo, taking long journeys over the ice to reach them, crawling into their ice-huts, and teaching them by a lamp made of stone, filled with seal oil and wick made of reindeer moss; but in 1894 a new departure was taken. As the Eskimo lived in sealskin tents, Mr. Peck suggested a similar structure for a Church. So a building 20ft. long was put up for worship, the bones of whales being used as a framework. The "parsonage" house, behind it, is 20ft. long by 12ft. wide; it is in two compartments, one of which is kitchen and schoolroom, and the other sitting, dining, and bedroom combined. Canvas was subsequently substituted for sealskin. The parsonage house is also covered with canvas, and battens of timber are nailed over it to keep the canvas in position and render it warmer. On the arrival of the vessel the missionaries have so many things to store in the little house that the boxes sometimes overflow into the Church.

MR. VAN WISSELINGH generally contrives to bring an element of great interest into all his exhibitions, and the present collection, which is small, mainly consisting of four large works by Corot, well maintains his reputation in this respect. These canvases are intended for the panel decoration of a room, and are curiously unlike much of this master's work in impressionism of effect. They are all sylvan scenes, in which the principal elements consist of sky and tree studies, the decorative value of which must be seen to be understood. The colour is lighter in tone than that which the Artist usually employs, the blues running towards silver in their luminous delicacy; the greens of a light soft tone, which exactly harmonises with it. In one picture only do we get the full green and brown which is characteristic of Corot's woodland foregrounds; and in this canvas the sky is flecked with small floating clouds, the light seeming to palpitate and glow in its intensity. On another wall is a beautiful Isabey, a street brawl. There is a wealth of colour in the costumes of the combatants, which the dark background of houses and the semi-gloom brings into greater prominence. Above it hangs a delicately soft and tender sea and beach scene by J. Maris. The black and white drawings of J. F. Millet are of unusual fineness of line, and a winter scene in chalks, although somewhat lacking interest conveys the impression of a snow scene with chilling realism. To keep the Millets company are one or two of Professor Legros' strong

etchings, which have the virility and power which immediately stamp them as the work of a master. Deschamps and Rousseau are both represented by single canvases, the latter's study of a stormy evening being especially beautiful—in colour, the splendidly-realised effect of vibrating light, and grace of composition. The Deschamps is a Turkish scene, attractive, but in no way remarkable for its colour.

A SELECT COMMITTEE of the House of Lords, of which Lord Wantage is chairman, last week had under consideration the London County Council (Improvements) Bill. Mr. Freeman, Q.C., stated that the Bill was to empower the carrying out of three distinct improvements in various parts of London. The first, which was unopposed, was the construction of a suitable approach to the north side of Tower Bridge, similar to that which had been sanctioned and was now being constructed on the south side of the bridge. The next was the widening of Tottenham Court Road at the Oxford Street end by sweeping away the block of houses forming the east side of Bozier's Court, the effect of which would be that, after the carrying out of the work, the western side of Bozier's Court would become the western side of Tottenham Court Road. This improvement, counsel explained, was designed to relieve the constant block in the traffic that occurred at this locality. The chief opposition to this part of the scheme came from the Oxford Music Hall authorities, who objected to the hall being included in the area over which the betterment charge—for the betterment principle was incorporated in the Bill—was proposed to be spread. In the House of Commons it had been decided to include in the improvement area only the property adjoining or abutting upon Bozier's Court on the west side. The principal entrance to the music hall was in Oxford Street, but it had an entrance in Bozier's Court. The Council held that that entrance was part of the music hall; that it abutted on Bozier's Court; that the widening would considerably improve the entrance by giving it more publicity and affording better access; that it would therefore improve the music hall, and that therefore they were entitled to include it in the betterment area. On the other hand, the music hall authorities contended practically the only thing that abutted on Bozier's Court was the entrance, and that the hall would not be improved by the removal of the buildings. The remaining improvement was the widening of the Strand by the removal of the block of buildings between the two Churches of St. Mary-le-Strand and St. Clement Danes, forming the south side of Holywell Street. Evidence was then taken for and against the proposals, the opposition chiefly coming from the Oxford Music Hall. Eventually the Committee found the preamble proved, and directed that the Oxford Music Hall must be included in the betterment area.

It is just over two years since Mr. Woofindin died at Sheffield, leaving his residuary estate (the net value of which may be taken at about £100,000) upon trust, as to one-third part thereof, for almshouses, to be called "The George Woofindin Almshouses," and as to the remaining two-thirds parts, for a Convalescent Home, to be called "The George Woofindin Convalescent Home." The selection of sites and sanction of the Court of Chancery to the purchases and other preliminaries have necessarily required considerable time and thought, but the trustees have now so far advanced matters that they are able to give the broad outlines of their schemes. As regards the almshouses, the site selected is at the junction of Ecclesall Road and Brocco Bank, just below the new Church now being erected, and opposite the entrance to the public park at Endcliffe Woods. The area is about one and a quarter acres, with southern aspect, and includes a belt of trees, and has winding through it the Porter Brook, both advantageous for the ornamental laying out of the grounds. The trustees have concluded that the funds will be sufficient to provide and endow about twenty cottages for six married couples and fourteen



single inmates. The site selected for the convalescent home is situate at Whiteley Wood, with a southern aspect, overlooking the Whiteley Wood Valley, and contains about sixteen and three-quarter acres, and will have two general approaches from Fulwood Road and Whiteley Wood, with private footway entrances into the park, and rights to connect with the public sewer in the valley; also rights of carriage-way, &c., over the Whiteley Woods private roads. Important building restrictions have also been arranged with respect to the land lying immediately on the east and west sides of the site, and also in front on the opposite side of the valley. As regards designs for the buildings, &c., for both institutions, the trustees have decided to arrange for a public competition, which perhaps will be confined to the members of the Sheffield Society of Architects and Surveyors, and it is expected that everything will be in readiness to start building operations early next year.

THE members of the Society for the Promotion of Hellenic Studies at their annual meeting heard the not unsatisfactory report that, although the session just ended presented no very striking features, the work of the Society had been quietly and effectively carried on. A year which has discovered the "Logia" and the fragments of Bacchylides, including some complete poems, can hardly be called barren, and, as Mr. Jebb remarked, we are only yet on the threshold of the possible discoveries in Egypt. One of the most interesting incidents in an exceptionally interesting meeting was Mr. Cecil Smith's account of the work which, despite untoward circumstances, has lately been done in Athens and Melos. The Greco-Turkish war, it would seem, interrupted what would otherwise have been the most prosperous year in Hellenic excavation. Nevertheless, many important "finds" have been made—among others a further "ostrakon," bearing the name of Themistocles, and what may prove to be the site of the gymnasium of Kynosarges. A change of the law concerning antiquities, by which intending excavators in Greece will in future be required to purchase their land outright, seems likely to hamper the work of the British School at Athens, especially as proprietors have a way of believing that their land necessarily contains statues of gold. Thanks, however, to a yielding ephor, three tentative excavations have been started in Melos, and some interesting results obtained, in spite of the new law. Mr. Smith described minutely a realistic bronze statuette of the Mycenaean age, which is the largest yet found of that period. Dr. Waldstein, Dr. Sandys, and Professor Lewis Campbell were among the other speakers.

At a recent meeting of the Commissioners of Sewers Mr. Morton complained strongly of the heavy charges made by the Electric Lighting Company to private consumers, and said that the Commissioners had been badly advised in entering into the agreements in reference to the supply of the electric light in the City, and had been "taken in" all round. Some people might have made £100,000 or £200,000 out of the contract by speculation, but it was a bad bargain for private consumers. In reply to questions, Mr. Morton and others said that every effort had been made to induce the Electric Light Company to reduce their charges, but to all they had received the same reply, that it could not be done at present.

In addition to the pillar base, &c., discovered in Chester a few days ago, there has just been unearthed a Roman pillar which, from its dimensions and position, may have belonged to the base spoken of. It is 2ft. 7in. in diameter at the end, where it tapers somewhat, and where there are three holes chiselled in the position of the eyes and nose. The column projects about two yards from under the passage of the adjoining Woolpack Inn, and is evidently of considerable length, a hole bored alongside through the earth not reaching the other end. In front of the pillar was a stone wall which formed the side of a passage leading out of the Old Lightcake shop.

## Views and Reviews.

### ROCKS, ROCK WEATHERING, AND SOILS.

This treatise on rocks, rock-weathering, and soils, is a book which it has been both pleasure and profit to peruse. It purposes to deal with the principles of, and the phenomena attending upon, rock degeneration, and for this purpose it has been found necessary to first discuss rock-forming minerals, the origin, structure, and composition of rocks; the condition of the rocks before they began to disintegrate or decompose. After the description of the process of decay, an examination is made of the nature of the *débris*—the resultant materials. The entire book runs to 398 pages, and is divided into five parts. The first part, occupying 56 pages, is devoted to the constituents, physical and chemical properties, and mode of occurrence of the rocks. The second part, of 117 pages, deals with the various kinds of rocks, which it divides into the Igneous, the Aqueous, the Æolian, and the Metamorphic. The third part, the *raison d'être* so to speak of the rest of the book, consists of 113 pages, and is concerned with the weathering of rocks. It gives first the principles involved in rock weathering, the action of the atmosphere, of water and ice, of plants and animals, then a consideration of special cases, afterwards the physical manifestations of weathering and the time considerations. Part four consists of a few pages dealing with the transportation and redistribution of the rock *débris*. Part five, of 100 pages, deals with the Regolith, a name given to the resultant *débris* of weathering while in an unconsolidated state, including what is popularly known as soil and subsoil. From this we can see the general scope and character of the work, which is illustrated by photographs and explanatory diagrams. What strikes us at first, in the general arrangement of the book, is the comparatively small part devoted to the gist of the matter—113 pages out of a total of 398. We should think the author might have seen his way to some compression of the introductory parts I. and II., while we would have gladly seen more on the subject of the transportation and redistribution of the rock *débris*. There seems to us a certain lack of harmony, a difference in character between certain parts of the book which leaves us in doubt as to whether it is intended for professed students of geology or for more general readers. Some of it is eminently readable, while some is not. What we mean is that some of it, say generally, Part II. and portions of Part I., is more in the nature of a text book, giving an immense mass of information and facts, the tabulated results of chemical analyses, with the mineral and chemical composition, the structure, colour, classification, and nomenclature of every known variety of rock; all of which cannot possibly be read straight through and carried in the mind at once; while, again, other parts provide easy and most fascinating reading. We should have imagined that a book intended for the use of the geological student might have dispensed with much of the preliminary description of the various kinds of rocks; as it might have been considered that such students would have been conversant with much of the information given. On the other hand, for the general student or the casual reader, all this is, perhaps, too hard, and too technical, and would only be used for reference. Would it have been possible to have provided a general introduction, referring broadly to the general formation, composition, and mode of occurrence of the rocks—just sufficient to give the reader the point of view, to put him in sympathy with his subject, and then place the more detailed information, the tables of analyses, &c., in an appendix for reference when necessary? We speak, of course, more from the point of view of the general student, who wishes to gain a knowledge of the broad principles and facts, and to be acquainted with the inferences and conclusions drawn from them by the best minds in every branch of human endeavour, but who has neither the

time nor the necessary training to follow the reasoning in detail. We observe the author's prefatory remarks, and give our opinion with all respect to his superior knowledge of his subject. We can say without hesitation that this book appeals to us in a way that a scientific treatise rarely does, and for the reason that it somehow touches and quickens the imagination; not altogether by the inherent interest of the subject, but also by the spirit in which it is approached. It is a pleasure to us—and a pleasure that is keener by its rarity—to find in a scientific work things presented in a way that appeals to the Artist—to feel an appreciation of the poetic side of nature. We can imagine at times that we are listening to a brother Artist; a man with an appreciation of Nature's proportions and harmonies, with an eye for form and colour, and a sense of the bearing of his subject on human life and emotions; one who can feel the ghastly cruelty of Nature, as well as her smiling beneficence. This is, perhaps, why we have taken exception to the general form in which the subject is presented. It is a way we Artists have among ourselves. When we come, however, to consider the various descriptions of the different processes in Nature which are scattered through the book, we can but express our appreciation. Take, for example, the description of the action of sand drifting before the wind—the principle of the sand-blast; or, again, that of the relative rapidity of weathering among eruptive and sedimentary rocks—of particular interest to the Architect; or the description of the filling up of lakes of glacial origin, or of the formation of sea-coast swamps, or the few lines giving the origin of silicified logs. All these are presented with a simplicity and clearness which enable us to grasp instantly the whole operation; to realise to ourselves a vivid mental picture; as if we had been there, and had seen the whole process going on before our eyes. This the writer accomplishes without any attempt at "fine writing," and it argues a considerable literary skill. We notice the author seems to concur in the generally accepted geological time periods. It is not for us to presume to judge between the geologist and the physicist, who is not prepared to allow the unlimited periods of time which are assumed. We can only hope that the truth will speedily prevail, as this is one of those things that tend to cast a doubt on the conclusions of all scientific study. To the Architect in particular, whose Art requires before all others a sound physical basis—a comprehension of the construction of the earth as a whole—these differences of opinion between men who are working on different lines for the same ultimate end, are both distracting and unsettling. There is no need for us to insist on the value—or, rather, the necessity—to the Architect of the study of geology, and the knowledge of the properties of the materials with which he works. Not the least important of these properties is their varying weathering capacities. We commend this book as giving a concise and lucid explanation of the reasons and the principles which govern the various phenomena of weathering in the rocks used as building materials.

"A Treatise on Rocks, Rock Weathering, and Soils." By George P. Merrill. New York: The Macmillan Company. London: Macmillan and Co. Limited. 1897.

A NEW mission hall is to be erected in York Street, Hulme. The new building is estimated to cost about £800.

THE Glasgow Corporation proposes to spend from £8000 to £10,000 on the erection of public halls for Cowlares and Springburn.

As soon as the electric light has been installed, the clock-tower at the School Board offices on the Embankment will be illuminated at night.

THE foundation stone of the new cancer wing for Middlesex Hospital, in Nassau Street, was laid by Princess Christian on Thursday, the 15th inst. The new wing has been designed to accommodate thirty-six female patients with the necessary staff.



### OPENING OF THE NATIONAL GALLERY OF BRITISH ART.

WHEN the great building in the Grosvenor Road, now newly christened the National Gallery of British Art, is opened to-day by the Prince of Wales, London will possess a new picture gallery of high rank and ample proportions, wholly devoted to the works of British painters and sculptors. It is hardly necessary to point out once again that the nation owes this important addition to its public buildings and its Art treasures to the generosity of Mr. Henry Tate, who has not only borne unaided the entire expense of the imposing Art Palace which has so rapidly risen from its foundations, but has presented with it to the nation what is, on the whole, a splendid collection of pictures, and, above all, constitutes a nucleus round which, in time, other collections and other gifts of pictures will no doubt group themselves. In fact, this is already the case. An anonymous donor has only now presented what is, at any rate, a unique curiosity in British Art. This is a life-size equestrian portrait of a young lady, in more or less seventeenth-century costume, mounted on a beautiful silver-white palfrey. The horse, the enframing Architecture, and the foreground are by Landseer; the young lady and the attendant squire, or groom, grouped in the Van Dyck fashion, are by Millais. Moreover, Mr. Watts has given, for the inauguration, the whole series of didactic allegories exhibited this winter at the New Gallery.

#### THE BUILDING ITSELF.

though its surroundings are at present in a somewhat chaotic state, stands boldly and well. It is designed with greater attention to proportion and to harmonious balance of the general masses than most modern galleries of its type to be found in England. Wisely, considering what the London atmosphere works in a few years, there has not been any attempt at elaborate surface decoration of the outside. Such sculpture in the round and sculptural ornamentation as there is may be pronounced to be appropriate and decidedly above the average. The gallery is a Corinthian structure in the Græco-Roman style, the chief exterior feature of which is the lofty central block, with a well-proportioned Corinthian portico surmounted by a pediment, which is adorned as yet by pedimental sculpture. At the extremity of either wing are pavilions having an order of Corinthian pilasters raised on pedestals and terminating in pediments. These serve to give additional impressiveness and variety to the exterior elevation. Within they furnish octagon picture galleries, in which Mr. Watt's new gift will find a place. The main Architectural feature of the interior is a central octagon sculpture hall, with four entrances and four semi-circular niches of classic aspect for sculpture. There is a genuinely monumental character about this great hall which serves to bind together the several galleries radiating from it, even though it may be deemed to take up a disproportionate amount of room in a building of this moderate size, and yet to afford but a limited amount of space.

#### FOR THE DISPLAY OF SCULPTURE.

The models of this central octagon—for the proportions and the general conception, though not for the Architectural mouldings and the sculptural adornments—have been such Italian buildings of the fine Renaissance period as Bramante's Chapel of St. Satiro, at Milan, and still more the beautiful Oratory of St. Bernardino, by San Michele, at Verona. If the modern English example were not unduly heavy in the keystones of the arches, the capitals, and the entablature—somewhat course, in fact, in the whole working out—it would deserve still higher praise than has been accorded to it. There are seven picture galleries, three of them being 50ft. long by 32ft. wide, the Long Gallery attaining the dimensions of 92ft. long by 32ft. wide, and the Square Gallery 32ft. by 32ft. These are all fairly proportioned without being actually splendid or imposing in aspect. They are

well—almost too well—lighted from the top, the result being an illumination, on a July day, of a certain violence, which leaves no defect in a picture, no injury inflicted by time, or resulting from technique, unseen. Still, this defect is one on the right side, which it should be easy to mitigate. The walls, with the exception of the octagons, are covered with a figured, leather-like paper of a deep, rich plum-colour, which is assuredly already too dark, and will, in the course of a few years, be something like black. The octagons are at present covered with a green paper of sufficiently agreeable tone, but it is understood that this will be replaced by one of a bright red tint, in order to meet the requirements of Mr. Watts. It is in some ways a disappointment, to find that, spacious as the new galleries are, they are

#### ALREADY NEARLY FULL.

The contents are furnished as to something like a quarter by the Tate collection itself, to which, as to the La Caze collection in the Louvre, a separate gallery has been given. The Chantrey Bequest Gallery, removed from South Kensington, fills already about one-half of the whole space, the remaining quarter being occupied by the pictures now removed from the British section of the National Gallery. It is clear that, except in so far as Mr. Tate himself, or other private donors, may choose to enrich the Gallery of British Art with further gifts, it must depend almost entirely upon the additions to be made from year to year by the Royal Academy, under the Chantrey Bequest, there being no special grant at present under which the trustees and directors of the National Gallery can purchase any such additions. Here a point of the highest importance at once arises. The new gallery is a gallery of British Art, and as such is presumably meant to be representative. The Royal Academy—unless we are greatly mistaken—can only purchase under the Chantrey Bequest pictures which have appeared at one of its own annual summer exhibitions at Burlington House. This includes, for instance, Sir E. Burne-Jones, who no longer exhibits there, and does not happen to be represented in the Tate section of the collection. Now, the Pre-Raphaelite master, whatever opinion we may form as to the character and scope of his Art, is undoubtedly a representative figure among modern British painters, and he should not be omitted from any such gathering of British paintings as the present one. Moreover, there are other painters just tolerated within the walls of the Royal Academy who are nevertheless wanted to make such a display as this complete, and who nevertheless are little likely to find a place in the new British Gallery under the present conditions. Such representative men of the new schools of painting are those Glasgow impressionists, Mr. Guthrie and Mr. Lavery; then such enthusiastic seekers after novel truths as Mr. Lorimer, Mr. Frank Brangwyn, Mr. Stott of Oldham, and others who could be named. The New Pinakothek of Munich delights to honour Mr. Lavery, the Luxembourg exceptionally favours Mr. Lorimer and Mr. Brangwyn, Mr. Guthrie triumphs at the Champ de Mars and the Munich Exhibitions. In London the merits of these gifted young painters are much more grudgingly recognised. And then again, where comes in, under such an arrangement as that now foreshadowed, the arch-priest of the more refined modernism, Mr. Whistler—an adopted child in Art of Britain, and a master whom all schools alike now recognise? We recommend these points to the serious consideration of the Trustees and Directors of the National Gallery, of which central establishment the new British Gallery is a branch.

#### THE TATE SECTION

of the collection contains, with some things which are undoubtedly not worthy to be held forth to the world as representative specimens of British painting, a number of magnificent pictures, by the possession of which all Britain is made the richer. The thanks of the nation, unstintingly offered to Mr. Tate, will, no

doubt, be to him more than any official or other distinction that may be conferred upon him, well deserved as any such honour would be. A fine group of Millais's most characteristic works represent him as he is represented in no other permanent collection. Here we have the exquisite "Ophelia," a flower of his earlier pre-Raphaelite time, and a work in delicacy of execution worthy to rank with the fine productions of fifteenth century Netherlandish Art. Then the infinitely pathetic "Vale of Rest," which must count as one of his masterpieces, and the popular "North-West Passage," which, among the performances of that middle time, in which a bourgeois realism takes the place of the earlier imaginativeness, is certainly most remarkable. Other examples are the prosaic but finely-painted "Knight Delivering a Lady," the "St. Bartholomew's Day," and the quite late "St. Stephen Martyred." In another gallery, among the Chantrey Bequest pictures, appears the lamented master's latest work, "The Apparition." The Tate group of pictures includes, further, three of Mr. Orchardson's most characteristic works, "Her First Dance," "The First Quarrel," and "Her Mother's Voice." George Mason's delightful "Girl Driving Calves," until recently in Lord Leighton's collection, is also here. The last-named master's very imposing decorative canvas, "The Sea Giveth up its Dead," originally intended for St. Paul's, occupies a central position at the end of the gallery. More of such pictures are wanted in a public collection such as this, though merit is not exclusively to be measured by vastness of proportions. A graceful portrait by Hoppner, presented by Mr. Tate, is singularly out of place in its present position. Would not the generous donor consent to its being placed in the National Gallery, among its natural companions? Where, by the way, is Frederick Walker's famous "Philip in Church," which was generally supposed to form part of the Tate gift? A further enumeration of the contents of this section must be reserved for a future occasion, there being at present no catalogue to assist the memory of the visitor.

#### FROM TRAFALGAR SQUARE

have been removed, among a great number of other things, the "Virgin and St. John," of Dyce; the "Annunciation," "Beata Beatrix," of Rossetti; the "Christ Washing the Feet of His Disciples," of Ford Madox Brown; the "Harbour of Refuge" and "Vagrants," of Frederick Walker; the "Sunset Landscape," of George Mason. But why not the "Yeoman of the Guard," of Millais, and the great group of Landseers, which would be much more in their place here than in their present position at the National Gallery? MacIise, Egg, Leslie, Ward, Elmore, Frith, and many other painters of the same class, have definitely found a home in the new building. The Chantrey Bequest pictures, until quite lately hung at South Kensington, are so familiar for the most part as to need no new description. Here the moderns bravely hold their own. Mr. Sargent's "Carnation, Lily, Lily Rose," shining out among its neighbours, fills the whole room with its decorative brilliancy. Mr. Swan's "Prodigal Son," his first popular success, and perhaps still his best picture, looks better here than it did at South Kensington. The beauty of the conception is well served by the beauty and significance of the solemn colour. Spacious, and of the truest atmospheric effect, shows Mr. Adrian Stokes's large "Landscape with Cattle." All will remember Sir E. Poynter's genuinely classical "Visit to Æsculapius," Mr. Watts's spiritual "Psyche," Mr. Orchardson's only partially successful "Napoleon on Board the Bellerophon," and the late Vicat Cole's vast river piece showing the Thames below London Bridge. A protest must be raised against the hanging among the Chantrey Bequest pictures of Mr. Calderon's "St. Elizabeth of Hungary," which, though purchased by the Royal Academy, has not, unless we are greatly in error, hitherto publicly appeared among them. In the first place it is but a feeble, vacuous performance at the best. Next, the misinterpretation, or too liberal construction, of a



Latin text has caused the Artist to represent the sweet crowned saint of Hungary in most unseemly fashion, kneeling entirely naked before the altar of a chapel, under the eyes of a company of grave ecclesiastics and other spectators. Great offence was given by the picture when it first appeared, indignant protests were raised when it was purchased under the Chantry Bequest. There can be no doubt that the storm will be renewed with increased vehemence if the authorities persist in keeping the picture where it is. We have already said that the two octagon galleries will contain the

#### NEW GIFT OF MR. WATTS

to the nation, consisting of the didactic allegories which he himself classes as the most important section of his life work. When they were a few months since at the New Gallery, we had occasion to remark that we were unable to form the same high estimate of their value, judging them, as pictures must after all be judged, mainly from the pictorial standpoint. Their poetic and didactic significance is, no doubt, a high one, yet too much has been sacrificed, the boundaries of the Art have been too boldly overstepped, in order that the painter may at the same time be the preacher. These criticisms are by no means intended to apply to all the allegories, seeing that among those now presented are versions of the famous "Love and Death" and "Love and Life," besides the pathetic "Sic Transit" and the superbly-painted as well as intensely pathetic "For he had Great Possessions." These last are in every sense an important addition to the national treasures, for which every lover of what is noble in Art will offer grateful thanks to the veteran master, for whose generosity and single-mindedness it would be hard, indeed, to find a parallel, however far we look back. We shall return with pleasure to the collection when it is more definitely arranged, and the sculpture as well as the painting is in its place.—It has been officially announced at Downing Street that Mr. Charles Holroyd has been appointed by the Treasury to be Keeper of the National Gallery of British Art.

THE Liverpool Museum authorities have acquired the magnificent collection of flint implements which Mr. Seton-Karr brought home from Egypt.

IN the King's Library of the British Museum there will be on view during July an exhibition of some 300 MSS. and books dealing with the life of the English Church. The exhibition has perhaps more literary than artistic interest, but many of the exhibits contain fine specimens of illumination and wood-cutting.

A PROJECT is on foot for the restoration of the tower of Owston Church, near Doncaster. This Church is one of the most ancient and interesting ecclesiastical edifices in Yorkshire, and underwent partial restoration in 1866, but the tower has given way in the foundations, and Mr. Pearson has estimated that its restoration will cost £650.

MRS. PASSMORE EDWARDS has laid the foundation-stone of the new wing to the home at Pegwell Bay, Ramsgate, presented by her husband to the Working Men's Club and Institute Union, Clerkenwell. The enlargements have been undertaken by the union at a cost of about £5000. The new buildings will include accommodation for thirty-two additional beds, a laundry, and series of sanitary offices.

THE Secretary of State for Foreign Affairs has received despatches from Her Majesty's Consul-General at Christiania reporting that tenders are invited for the following:—By the Norwegian State Railways Administration, for the delivery of seventy-five narrow-gauge open trucks, the delivery of 100 covered goods vans, the delivery of 132 tons of stranded galvanised fencing wire, No. 5, and 96,400 iron fencing posts. Tenders for any of the above should be sent in by the 21st inst. Such further particulars as have been received with regard to these contracts may be seen at the Commercial Department of the Foreign Office any day between the hours of 11 a.m. and 6 p.m.

## Professional Items.

ABERDEEN.—The Building Committee of John Knox Free Church has approved of the plans prepared by Mr. George Coutts. A vestibule 11½ ft. wide is provided from which stairs ascend to the galleries. Nine feet is taken off the existing inside length of the Church, to make up for the reduction in the sittings, and to give more space than at present to each sitter, the accommodation required to be provided by the erection of galleries along the two sides and at one end. The plans show a much better arrangement of the seats than at present, with ample accommodation for 538 sitters on the ground floor, and 369 in the galleries, besides a large space for the choir and a baptistery, giving a total of 950 sittings. The front elevation will be hammer-blocked Kemnay ashlar, with channel-jointed pedestals and pilasters, which will be of rock-faced ashlar, with square moulded corner pinnacles and terminals on top. The other elevations will be of square-nicked rubble, for pointing. The walls and ceiling will be heightened; there will be nine windows on each side, a large wheel window in the north gable behind the pulpit, and seven exit doors. The heating is to be by hot water pipes on the Perkins system, and the ventilation by twenty air inlets in the side walls, and three exhaust ventilators in the roof. A new session-house and rooms for deacons' court and other meetings is to be erected on the open ground at the back of the schoolroom. These are also to be used as class-rooms, but the plans of them have not yet been prepared.

The structural alterations and improvements at Her Majesty's Theatre which have for some time past been in progress are now completed, and the building was reopened on Monday. The alterations made have been chiefly in connection with the entrances and exits to the theatre. The plan of reconstruction was prepared by Mr. Frank Matcham, and the work has been superintended by Messrs. Brown and Watt, Architects, Aberdeen.

The plans of the following new buildings in Aberdeen have been passed: Two houses on the east side of Albury Road, for Mr. Alexander Marr, per Messrs. D. and J. R. M'Millan, Architects; three dwelling-houses on the east side of Commerce Street, for Mr. Alexander Keith, per Mr. John Rust, Architect; dwelling-house on the west side of Chapel Street, for Mr. J. P. Farquharson, per Messrs. Brown and Watt, Architects; alterations and additions on the west side of Back Wynd, for Mr. William Jackson, per Mr. R. G. Wilson, Architect; two dwelling-houses on the north side of John Street, for Messrs. Scott and Sellar, per Messrs. W. and J. Smith and Kelly, Architects; alterations and additions at No. 12, Garden Place, for Mr. David Smith, per Messrs. W. and J. Smith and Kelly, Architects; additions at Chestnut Row, for the Belmont Laundry Company, Ltd., per Messrs. Jenkins and Marr, Architects; two dwelling-houses on the north-west side of Broomhill Road and corner of Hammerfield Avenue, for Mr. William Walker, per Messrs. W. C. Davidson and James Watt, Architects; two dwelling-houses on the east side of King Street, for Mr. David Milne, jun., per Mr. David Milne, engineer; alterations in connection with property on the west side of Fore Close, Torry, for Mr. James Farquharson, Peterhead; two dwelling-houses on the south side of Belvidere Place at its junction with Craigie Loanings, for Mr. Alexander Anderson, per Messrs. Brown and Watt, Architects (amended plan); five dwelling-houses on east side of Great Northern Road, for Mr. William Murray; dwelling-house on south side of University Road, for Mr. George Howie, per Messrs. Henderson and Son; fourteen dwelling-houses in Rubislaw Den South, for Mr. John Morgan; alterations and additions in connection with workshop and stores at Thomson's Court, Regent Quay, for Mr. George Gorrod, per Mr. William Smith, Architect; workshop on the north side of Links Street, for Mr. John Fyfe, per Messrs. Brown and Watt, Architects; two dwelling-houses on the north side of

Fonthill Road, for Mr. William Meff, jun., and Mr. Peter Dey, per Mr. Alexander Melville, Architect; two dwelling-houses on the north side of Fonthill Road, for Mr. John Stephen and Mr. William Melville, Architect, respectively, per Mr. Alexander Melville, Architect; addition to stores on the north side of Virginia Street, for Mr. William Yule, per Mr. William Smith, Architect; rebuilding of shed on the north side of Great Western Road, for Mr. James Fyfe; dwelling-house on the east side of Holland Street, for Mr. David Dunn, per Mr. Duncan Hodge, Architect; additions to Bathing Establishment at sea beach, for the Town Council, per Mr. John Rust, City Architect; dwelling-house on the south side of Church Street, Woodside, for Mr. William M'Kenzie, per Mr. George Mackie, surveyor; shed on the north side of Station Road, Woodside, for Mr. George Jamieson, per Mr. George Mackie, surveyor; dwelling-house on the west side of Ann Street, and alterations in connection with existing dwelling-houses on the west side of same street, for Messrs. J. and J. S. Watt; two dwelling-houses at the corner of Albury Road and Albury Place, for Mr. Alexander Marr, shipbroker, per Messrs. D. and J. R. M'Millan, Architects; two dwelling-houses on the south side of Fonthill Road, for Messrs. Stuart and Murray, builders (amended plan); alterations in connection with Ferryhill Free Church, Fonthill Road, for the Deacons' Court, per Messrs. D. and J. R. M'Millan, Architects (amended plan).

ASHTON-ON-MERSEY.—The foundation stone of a nurses' home at Ashton-on-Mersey has been laid by Lady Brooks. The new home is an extension of the movement commenced in Ashton-on-Mersey in July, 1889, and the scheme will be carried out at a cost of about £2000. A large proportion of this sum has been already subscribed or promised, and the movement has also been greatly helped by the gift of a site by Sir William Cunliffe Brooks.

BARNESLEY.—The Congregational Chapel, Sheffield Road, a new building erected at a cost of £1400, was opened last week. It takes the place of the old Independent Chapel, built in 1778. It has been built from designs of Mr. Geo. Moxon, and is of stone, in an early Gothic style. Approached by steps, the chapel is entered through vestibules. It has two aisles, and the open pews, like all the woodwork, are of pitchpine, stained and varnished. The building is well ventilated and lighted, and will accommodate between 400 and 500 worshippers. In addition to the cost of the new chapel, £100 is to be spent in making the old chapel suitable for a Sunday School, so that £1500 in all is needed.

BELFAST.—A large suite of buildings has been erected by Messrs. Wm. Cowan, Limited, for the purpose of a bonded warehouse on a site adjoining Great Patrick-street and Academy-street. The Architects were Messrs. Grange-Watt and Tulloch. The building is lighted by electricity, this portion of the contract having been placed in the hands of Mr. George Combe. The gas engine, which is one of the largest high-pressure engines brought to Belfast, has been supplied by Messrs. Crosley and Co., Manchester. The premises are 78 ft. long by 68 ft. in width, and are five stories in height; the total floor space is about two-thirds of an acre. In addition to the usual offices and space for vatting purposes, there is accommodation for about 10,000 casks. There are two large vats, which have respectively a capacity of 5000 and 3000 gallons. In the construction of the building about 300 piles were used for the foundations, and half a million of bricks were required, as well as some 500 cubic feet of timber. There is a commodious hoist driven by a gas engine, the latter being also utilised to drive the accumulator which provides electric light throughout the building. On three sides the building is surrounded by streets, the principal entrance being from Great Patrick-street.

BIRMINGHAM.—Some striking changes have been made in the interior aspect of Carr's Lane



Chapel. The old gallery fronts, which have been the subject of various experiments in decoration, have now been superseded by fronts of solid English oak. The decoration is brought out mainly by the contrast of two tones of oak—the polished flat surface and the dead grain of the incised ornament, with the aid of simple colours, judiciously used as accessories rather than as variants to the general effect, which is intended to suggest the fine inlays seen in old Grecian work. The seating in the body of the chapel has been simply repolished. An important change, however, has been made in the galleries. The whole of the pews have been removed, and for them have been substituted single lift-up seats, similar in structure to those with which theatre-goers are now familiar. An opera-house effect, however, has been pretty successfully avoided by making the chair-backs of plain oak. A further advantage—important in view of the crowded congregations—is the economy of space, which gives more than a hundred extra seats. The walls and ceiling have been effectively redecorated, and the iron columns and arcading introduced a few years ago to support the roof have been made to look both more ornamental and less obtrusive. These decorations have been carried out in purely Classic style. The iron girders and supports at the entrance to the body of the chapel have been hidden under fibrous plaster. Several structural alterations have also been made. Screens have been erected in the vestibule, and additional exits have been provided at the pulpit end of the chapel on each side from each of the galleries and the aisles. The chapel is now lighted by electricity, chiefly by means of light brass pendants. The internal work at the chapel has cost some £2500, but, including the structural alterations and the contemplated reconstruction of the lecture-hall, the expenditure altogether will amount to about £6000. Messrs. A. R. Dean, Limited, has undertaken the internal reconstruction and decoration. The electric light fittings are by Messrs. F. and C. Osler, and the wiring and other electrical work has been done by Mr. C. J. Moreton and Mr. E. C. Wallis.

**BRISTOL.**—The foundation stone of the library which Sir William Henry Wills, M.P., has undertaken to provide for the parish of St. George, was recently laid by Mr. Augustine Birrell, M.P. The site is on the main road, near the District Council offices, and the building, which is to afford accommodation for 300 readers at a time, with shelving for about 11,000 volumes, will be in the style of late Tudor Renaissance. It will be a single-storied building, with Cattybrook brick facings, and Ham Hill stone dressings. Wood block flooring is to be laid, and a glazed dado will surround the walls for a height of 5ft., the upper portion being of sandstone. The boys' and the library department will be separated from the public hall by an arcading of Ham Hill stone arches, supported on granite columns. The contractors are Messrs. W. Cowlin and Sons, the Architect being Mr. Frank Wills, while Messrs. Crispin and Sons have been entrusted with the heating arrangements.

**BROUGHTY FERRY.**—The extensions which have just been carried out at Grove Academy, and which have been rendered necessary by the steadily increasing number of scholars, complete the original design—although differing from it in certain respects. The addition consists in the erection of an east wing, which now takes the site formerly occupied by the old Grove Academy. To this portion the entrance is in Church Street. On the ground floor of this wing there are four class-rooms, so arranged that by means of sliding partitions two of the rooms may, if desired, be transformed into one large apartment. Accommodation has been found on the same level for the Rector's room and for a boys' lavatory and cloak-room. On the basement floor a room has been set apart for the use of the assistant teachers; another is to be utilised as the school library, of which the Corbett Library forms a nucleus; while a third apartment is reserved for the janitor. On the first floor are situated the art-room, laboratory,

and a new music-room. The south-east end of the first floor is occupied by the new laboratory, with benches for thirty-two pupils, fitted up according to the directions of Mr. Blair, H.M. Inspector of Science and Art. The lecture table occupies the west end, and the space immediately in front is seated for lecture purposes. The old laboratory has been included in the gymnasium, which is thus much more commodious than formerly; while the old art department is now utilised as a class-room. The Architects for the work were Messrs. James Maclaren and Sons, and the contractors were:—Mason, Mr. James Scott; joiner, Messrs. J. and P. Suttie; slaters, Messrs. Thomas Easton and Co.; plumber, Mr. David Brown; plasterer, Mr. James Laburn; painter, Mr. Alexander M'Leod.

**CARDIFF.**—Another new Church has been erected at Cardiff. St. Teilo's, which will serve as a chapel-of-ease for the Cathays section of St. Andrew's Parish, was commenced in February, 1895, and on Tuesday were dedicated the nave and aisles, which are the first completed parts of the general scheme for erecting a large town Church in Woodville Road. Unfortunately, it has been found necessary to build the Church in sections, of which the nave and aisles are the first. When completed, the total length of the Church will be 138ft., with seating accommodation for over 800 persons, and will comprise nave and aisles, with south porch, chancel, morning chapel, commodious vestries, and organ space. The tower, for which the foundations are already built, will be 130ft. high, the highest in the neighbourhood, and is arranged to accommodate a full peal of bells. The style selected by the Architect is Fifteenth Century English Gothic. The portion now completed provides seating accommodation for over 750 persons, chairs being used. The choir seats, pulpit, and font are of a temporary character, having been retained from the old iron Church. Externally, the walls are built of Sweldon stone, in broken coursed work, with freestone dressings, the roof being covered with green slates. Messrs. S. Shepton and Sons, of Cardiff, were the builders, the Architect being Mr. George E. Halliday, diocesan surveyor for Llandaff, whose designs were selected in a limited competition.

**CASTLETON.**—It has been decided to build a new Wesleyan chapel and school from plans prepared by Mr. H. W. Lockwood, of Sheffield. Some time since an eligible site was purchased on the Chapel-en-le-Frith Road, where the new premises will be erected. The cost is estimated at about £1800, exclusive of the land, which was paid for at its purchase.

**DERBY.**—The Waterworks Committee of the Corporation has presented the following report. On June 5th and August 7th, 1895, the Council granted the sum of £22,500 and £5500 for extensions to the existing waterworks at Little Eaton, and on March 3rd, 1897, £3000 for extending the filtering media. It has now been decided to recommend the Council, as a further addition to these works, to grant the sum of £4700 for extending the Littleover reservoir. The Sanitary Committee recommends the Council to vote £1000 for the construction of six new cells at the refuse destructor at Little Chester.

**DOUGLAS.**—At the monthly meeting of the Douglas Town Council the tender of W. J. Fargher for the erection of a block of artisans' dwellings in King Street was accepted, his quotation being £3960. For the erection of municipal buildings, public library, and fire station in Ridgway Street, the tender of Messrs. W. Gradwell and Co., Barrow-in-Furness (£10,358), was accepted. There were eight tenders in all, four English and four local.

**DUNDEE.**—Messrs. Smith Brothers have erected large premises on the south side of Murraygate. The new building has a frontage of 88ft., and the structure is five stories in height, with basement. The three uppermost flats have been let as dwelling-houses, while

the first floor will be tenanted by the Dundee Conservative Club and by an insurance company. The Architect of the building was Mr. William Alexander, and the list of contractors is as follows: Mason, Mr. R. Sheach, jun.; joiner, Mr. Alexander Young; plumber, Mr. D. Brown; plasterer, Mr. A. M' Ritchie; painters, Messrs. Petrie and Greig; slater, Mr. James Porter; heating apparatus, Mr. A. L. Peacock; electric lighting, Messrs. James Maxwell and Son.

**LEEDS.**—The representations which have been made to the Leeds Corporation by the butchers occupying shops in the Shambles to provide a dead meat market, public abattoir, and shops for retail meat dealers, recently came before a meeting of the Leeds Markets Committee, Mr. Knowles presiding. A plan for the building of a dead meat market, with abattoir adjoining, on the site known as the hay market, was provisionally adopted by the Committee. It was also decided to make inquiries as to the number of retail shops likely to be wanted, and to get an estimate of the cost of such premises.

It is highly probable that the new electric tram service from Kirkstall to Roundhay will come into operation much sooner than was expected. It is, practically, only the structure that requires urgent attention. The machinery is in a forward state. The lofty engine room has been roofed in, and one engine has been placed in position and is working. The second engine is in a fairly advanced state, and one half of its large fly-wheel is fixed. The first dynamo has been put down, tested, and approved, and might have been inserted before but for the risk of dealing with such delicate work before other matters were finished. The present engine house will accommodate two engines and a double dynamo—ample power for the Kirkstall to Roundhay service. The second engine, when absolutely fixed, will be worked, like the first one, almost continually until actual business commences. In this way good working order will be ensured. The boiler-house adjoining lacks a roof yet, and the upper floor arrangement for coaling has, of course, to be provided; but both the big Lancashire boilers by Claytons' are in position, and are supplying steam to the working engine. From the upper floor, when all is complete, the fuel will be conveyed, by means of mechanical feeders, to the furnaces. A kind of trolley-way will run out from this part of the building over the river, close by, and receive coal direct from the barges. The economiser in the storehouse next to the boiler-house is also in a forward condition. Water may thus be warmed for the boiler by heated gases, and these, when not needed, can be discharged up the shaft—another portion of the structure that is finished. Room is being left for the erection of six more engines, and four more boilers when the time comes to extend the electric tram service in other parts of Leeds.

**MOSELEY.**—A large stained-glass window, commemorative of Her Majesty's sixty years' reign, has for some time been contemplated by the congregation of St. Agnes' Church, Moseley; and from the various competitive designs submitted the award has been gained by Messrs. A. Ballantine and Gardiner, of Edinburgh. The proposed window is ranged in five lofty Gothic lights with tracery.

**NORTHWICH.**—The new technical schools are to be opened on the 24th inst. The building is the gift of Sir Joseph Verdin, Bart., D.L., and has cost from £10,000 to £12,000. Without exception, they are the best equipped schools in Mid-Cheshire. There are over 3000 square yards in the site, which fronts the London Road. An Art school, physical and chemical laboratories, laundry and cookery rooms, gymnasium, and workshops are all fitted with the most modern appliances. The Duke and Duchess of Westminster have consented to perform the opening ceremony.

**NOTTINGHAM.**—The prospectus for the session 1897-98, commencing September 3rd, in connection with the Nottingham Municipal



School of Art and Design, has just been issued, under the authority of the School of Art Committee, of which Councillor McCraith, J.P., is chairman. The session is divided into two terms, the first of which runs from September 13th to January 14th, and the other from January 17th to July 2nd, and the school will be closed from Wednesday, December 22nd, to Tuesday, January 4th, and also on Good Friday, Easter Monday and Tuesday, and Whitsuntide. The usual elementary, intermediate and advanced classes have been arranged at the Central School, Waverley Street, with others for special subjects, and branch classes for both male and female students are to be held at the Stanley Road Higher Grade, St. Ann's Well Road, Brierley Street (Queen's Walk), and Southwark (Old Basford) Board Schools, on Mondays, Wednesdays, and Fridays. The students are eligible for the gold, silver, and bronze medals, and other prizes awarded by the Department of Science and Art, London, including scholarships of the annual value of £11, £25, £52, and £104, for the Corporation prize for the best designs for lace, the Dutton Walker Art Scholarship of £15, and for other local prizes. In addition, six scholarships of £25 each are to be awarded, and seven of £7 each for evening students for the year 1897-8. The scheme for the award of free admissions to the classes to pupils of schools within the borough will again be in force, but the committee reserves the right to terminate the scheme after the examination of 1898.

SCARBOROUGH.—Building operations in Scarborough are proceeding apace. New streets are being formed to the north, the north-west and the west, and small tenements, with rentals of from £14 to £18 and £20, are occupied as soon, or sometimes before, they are completed. In connection with the purchase by Messrs. B. and W. Walmsley, of Leeds, from Mr. John W. Woodall, of Scarborough, of the estate lying between North Maine Road and Cemetery Road, and now named the Victoria Park Estate, the plans of no less than 467 new houses are before the Streets and Building Committee of the Scarborough Corporation. These, together with the plans of fifty-five other houses, make a total of 522. The plans of a Church and manse, &c., proposed to be erected at the corner of Manor Road and Gordon Street, in the North-West Ward, are also under consideration.

SEAFORTH.—The headquarters of the Bootle division of the county constabulary, hitherto established in Derby Road, within the borough of Bootle, have been transferred to the new station just completed at Seaforth. Although the erection of the new station at Seaforth commenced at the fall of 1895, and the premises should have been ready for occupation within twelve months, severe weather at first and labour disputes latterly greatly hindered progress, and the building is only now available. The station, erected by Mr. Walter Musker, contractor, Bootle, from designs by Mr. F. Holme, Architect, Liverpool, with Mr. Grocott as clerk of works, is situated in Seaforth-road, not far from the Lancashire and Yorkshire railway station. It is a two-story building, constructed of red pressed brick, relieved with red sandstone from the Bootle quarries. The frontage to Seaforth-road is 160ft., and to Lime-grove about 150ft. Opening into Lime-grove will be established a weights and measures office. In addition to the inquiry and clerical offices, the new station provides house accommodation for a superintendent, inspector, sergeant, one married constable, and eight single constables. There are also a large day room for the men, a drying room, eight cells, and two exercise yards for prisoners, stables, coachhouse, and a drill yard and shed spacious enough to accommodate from 100 to 150 men on parade. The interior walls of the cells and other rooms in the establishment are faced with a new opalesque material for which is claimed, besides brightness, superior sanitary properties. The whole of the premises will be heated by a hot water system, the apparatus being fixed in the cellar. The new block of buildings also includes a court room, magis-

trates' room, magistrates' clerk's office, and rooms for solicitors and witnesses; but these places are as yet unfurnished.

SHERINGHAM.—The new Church of St. Peter, Lower Sheringham, was recently dedicated by the Bishop of Norwich. The Church was built by Messrs. Bardell Brothers, of King's Lynn, from designs by, and under the superintendence of, Messrs. St. Aubyn and Wadling, Architects. The cost to the present time has been £7065. To this sum the cost of gas fittings and heating apparatus is to be added. Future expenses will include the addition of the vestries, the choir stalls, and the mosaic pavement in the chancel, to say nothing of an organ and pulpit.

STRATFORD-ON-AVON.—A public meeting with regard to the restoration of Shakespeare's Church was held recently at the Town Hall. The vicar (the Rev. G. Arbuthnot) presented plans and estimates in accordance with the suggestions of Mr. Bodley, the Architect who had been consulted, showing the total amount required to be £4205, but he said he understood that an item for an engine-shed was needlessly high, and that the figure might be taken at £4100. When the restoration work was commenced some years ago the estimate of the total amount required was £10,000, and of this sum £6000 had already been spent. It was made up as follows. Reconstructing the electric organ, which is at present very inefficient, £375; removal of damp, £125; new heating apparatus, £390; builders' work in connection with this, £250; reseating Church and new choir stalls, £1635; rebuilding and furnishing the vestry, £900; and new organ engine-shed, £500. After a lengthy discussion, the resolution passed at an earlier meeting authorising the committee to accept an offer from Messrs. Hill, the builders, for the repair of the organ was rescinded, and one was passed that had been suggested by Sir Arthur Hodgson, and was moved by the vicar, in his unavoidable absence. This gave the committee a free hand with regard to the organ to select what firm it liked to do the necessary work.

SWANSEA.—Last week Mr. Christopher James, Chairman of the Building and Site Committee of the School Board, laid the foundation stone of the new wing to the Terrace Road Board School. The Architect is Mr. G. T. Lawrence, and Messrs. Bennett Bros. are the contractors.

WESTHOUGHTON.—Four new windows of painted glass have been placed in St. Bartholomew's Church, all being on the south side of the nave. The whole of the work has been executed by Messrs. Powell Brothers, of Leeds.

WOLVERHAMPTON.—New public elementary schools have been erected in Leicester Street, Wolverhampton, in connection with Christ Church parish. The necessity for additional schools in the district has long been felt, and the new building, which has cost £3400, has been raised by voluntary subscriptions. Accommodation will be provided for about 630 children.

At a meeting of the Leeds School Board last week plans were approved for a new school at Armley Park to provide accommodation for 1290 children. A recommendation of the Finance and General Purposes Committee was also approved for the raising of a further loan of £41,930 from the Corporation for the erection and enlargement of schools.

At a joint meeting of representatives of the Lindsey and Holland County Councils at Boston, the engineers estimated the cost of the construction of the proposed bridge across the Witham at Langrick Ferry at £5000. It was decided to ask the Great Northern Railway Company, who are jointly concerned, if their Acts will allow them to agree to the level of the bridge being lowered, so that the cost may be lessened. The owners of the ferry, which has been in existence for many years, intimated that if the bridge was constructed and the ferry was abolished, they should claim £500 compensation for disturbance.

## SOCIETY MEETINGS.

Essex Archaeological Society.—The recent excursion of the Essex Archaeological Society to Southminster and neighbourhood proved very enjoyable. The party assembled at Southminster Railway Station. At Asheldham, by the water tower, some earthworks were visited. These are nine or ten acres in extent, and Dr. Laver explained that it was impossible to say the date of their construction; it was either British or Saxon, or it might be even Danish. Up to a few years ago this earthwork was not noticed. At Asheldham Church Mr. G. F. Beaumont read notes, and the company drove on to Bradwell-on-Sea. Luncheon was provided at the King's Head Inn, and at the close Mr. J. C. Gould read a brief sketch of the career of Sir Henry Bate Dudley. The party proceeded to "Othona," the site of a Roman camp, on which stands the ruins of St. Peter's Chapel. What remains of this old chapel, the walls of which are composed to a great extent of materials taken from the old Roman castrum, is now used as a kind of barn.

North-Eastern Sanitary Inspection Association.—The annual meeting of the North-Eastern Sanitary Inspectors' Association was held last week in the Mining Institute, Newcastle, Professor Philipson, M.D., presiding.—The Secretary (Mr. R. B. Duncan) presented the annual report of the Council. It included the following:—"The Council have pleasure in reporting that the fourteenth financial year, which closed on 30th ult., shows an income above the average, although it is less than the expenditure. Work was quieter than usual during the better part of the year, but now there is a brisk demand. The Association has recently reported on several large mansions and buildings—public schools, orphanages, workhouses, infirmaries, and asylums—one now in hand, for the Lancashire Asylums Board, has over 2000 beds. The sanitary condition of all has been, or is being, greatly improved by cure of the defects demonstrated by testing." After mentioning the question of sewage disposal, the report also dealt with the ventilation of public buildings, and spoke of the necessity of annual inspections as the only form of insurance against the evils arising from defective drainage.—Professor Philipson moved the adoption of the report, and drew attention to the steady advance which the Association has made in the esteem not only of the general public, but of the medical profession. He spoke of the great value not only of first but of succeeding annual inspections of the sanitary arrangements of houses, and drew attention to the valuable statements contained in the report regarding the ventilation of buildings, and the sanitary disposal of sewage.—Mr. Ridley seconded the adoption of the report, which was carried.—On the motion of Professor Bedson, the members of the Council were re-elected.

East Riding Antiquarian Society.—At the second summer excursion of this Society the members visited the so-called Danes' Graves at Danesdale, about four miles to the north of Driffield. Afterwards they proceeded to Kilham Church. Canon Greenwell traced the history of man in England from the Palaeolithic Age. Remains of him of that time have not been found farther north than the south of Norfolk; it was only in the Neolithic Age, or when he began to use implements of polished stone, that he was found in the north; indeed, all over the world, for recent excavations in Somaliland showed he used the same kind of implements as in England, France, and the East Indies. That they had acquired the name of Danes' Graves meant nothing. It invariably happened when first in England names were given to things, whatever was a puzzle was ascribed to one of two objects of whom they stood in awe, one was the Danes, and the other was the Devil. All had heard of the Devil's Dyke, Devil's Punchbowl, &c., and similarly they had the Danes' Dyke at Flam-borough, which General Pitt Rivers has shown must have been made by people only acquainted with flint implements, whereas the Danes per-



fectly knew the use of iron. Canon Greenwell would date the use of iron in England to between 300-200 B.C., and to them he felt inclined to ascribe the discovery of enamel. Certainly the Romans never used enamel till after their subjection of England, and they used it largely afterwards, whereas it was certain the British used enamel long before Romans came here. From the barrows he (the Canon) had opened, he declared no greater mistake could be made than to think of those who withstood Julius Caesar as painted savages, for he found their clothes had buttons, and they wore shirts, caps, and trousers. Their weapons were most artistically made, and these, with their chariots, made such an impression on Caesar that he never came back after his first attempt upon us. Such a chariot had been used against Caesar as was found in the grave now exposed to view, and, no doubt, with the bits of the horses, had been buried with the owner, that it might be at his service in the next world. Canon Greenwell gave the credit for settling this question of the Danes' Graves to Mr. J. R. Mortimer and Mr. Boynton, and he declared it was as certain as anything could be that they were graves of the Early Iron Britons.

A NEW Primitive Methodist Chapel is to be erected at Goldthorpe to cost about £360. Mr. H. Tyas, of Mexborough, is the builder.

A PULPIT, the gift of a private donor, has been erected in Holy Trinity Church, Dorchester, as a memorial to the late rector (Rev. H. Everett). The work was entrusted to Mr. Harry Hems, of Exeter.

ACCORDING to the New York Evening Post, Dr. Sven Hedin, a Norwegian, who has been exploring Persia, Turkestan, and the Pamirs, has discovered the ruins of a city buried in the sands, and containing valuable manuscripts.

THE foundation stone of a new ragged school at Blackburn has been laid by Earl Compton, M.P., president of the Ragged School Union. The building is estimated to cost £2600, and is rendered necessary by the structural unfitness of the old premises.

A FEW days ago memorial stones were laid of a new school belonging to the Methodist New Connexion Chapel, High Street Circuit, Huddersfield. In connection with the Chapel there is a Sunday School, which is now insufficient to accommodate the scholars, and it has been found necessary to erect larger premises, which it is estimated will cost £350.

THE contract for the building of the New Carr Hill Mill, Moseley, has been let to Mr. Jonathan Partington, contractor, Middleton Junction, who put up the Milton Mill. Messrs. Dorman, Long, and Co., Middlesbrough, will supply the rolled steel girders, &c. The machinery in the old place is being disposed of as quickly as possible, and it is expected that the work of demolishing the present structure will be commenced in the course of a week or so.

A NEW reredos of carved oak, designed by Mr. Douglas, of Chester, the Architect of the Church, and executed by Mr. Milson, of Manchester, was recently unveiled at St. Deiniol's Church, Criccieth. The part of the reredos immediately behind the altar consists of five panels, the centre one being of cedar, to set off the brass cross, and the other panels having the decalogue on a gilt ground. At each side of the altar are panels of tracery, reaching to within 2ft. of the side walls, and the whole is surmounted by a canopy richly carved.

A LARGE cross, which is meant to commemorate the Diamond Jubilee as well as to preserve the memory of Dwywen, has been erected on Llanddwyn Island, on the coast of Anglesey. The cross, which has been set on the highest point close to the lighthouse, is all of Anglesey marble. It stands on a base formed of three tiers, its height being 20ft. and its weight nine tons. Appropriate inscriptions have also been chiselled out on all its sides. The cross, the workmanship of which is eminently satisfactory, will be a conspicuous landmark at this traditionally interesting spot on the Welsh coast.

## Trade and Craft.

### A BUILDER FINED.

At the York Police Court, Richard Martin, builder, Lonfield Terrace, was recently summoned, at the instance of Mr. A. Crear, City Engineer, for having made additions to certain cottages in Ambrose Street, and thereby diminished the aggregate extent of the open space at the rear to less than 200ft., contrary to the bye-laws. Mr. W. H. Andrew (Town Clerk) appeared to prosecute; Mr. W. Wilkinson defended. The defendant was fined £5 and costs in each case, the first summons governing five others. The total amount of the penalty was £30 and costs.

### THE RIGHTS OF LOCAL AUTHORITIES.

Durrant v. Branksome Urban District Council was an appeal against a decision of Mr. Justice North before the Courts last week. An important question arose as to the right of local authorities, in making up new roads, to turn new surface watersewers into the natural watercourses of the basin in which those roads lie. The plaintiffs are the owners, as trustees, of the Durrant Estate, a large property, in its general character a building estate, situate partly in West Bournemouth and partly in the district of the Branksome Urban Council. The upper part of the river Bourne flows in a deep valley through the plaintiffs' property, the channel through which the river now flows being an artificial one. A portion of the valley is let to the Bournemouth Corporation for the purpose of public gardens. Owing largely to the nature of the soil, the stream, which in times of flood is liable to overflow, brings down a quantity of sand and silt, much of which is deposited in the bed of the stream and tends to choke the channel. Measures are taken by the owners of the estate, by means of "stops" or dams, and by from time to time digging out the deposited silt, to obviate the evil thus caused. The defendants have recently taken in hand the making up of a number of roads in their district, situate almost entirely in the basin of the Bourne, and in so doing have laid down new surface water drains or sewers, which discharge into the upper part of the Bourne where it flows into the Durrant Estate. The usual gullies and catchpits have been constructed, and thus stop a great deal of silt from the roads; but, especially in times of storm, a large quantity of this material is washed with the rain water into the stream. The roads thus drained by the defendants are mainly under their own jurisdiction, but are, as to a small portion—viz., the Poole road, which is a "main road"—drained by them by virtue of an agreement with the Dorset County Council. The plaintiffs complained that the increased flow caused by the defendants' works produced extra flooding and extra deposit of sand and silt, and they sought an injunction to restrain this discharge of water, sand, silt, or solid matter through the defendants' drains or other artificial works into the Bourne. Mr. Justice North dismissed the action with costs. The plaintiffs appealed. The Court dismissed the appeal with costs.

### A NEW INSULATING MATERIAL.

Almost ever since the need for electrical insulation developed itself asbestos in one form or another has been prominently known as an excellent agent for this purpose. It has been manufactured into almost every conceivable shape and by a number of different processes, resulting generally in highly useful and valuable products. It is curious that at this late day a marked improvement in methods of manufacturing asbestos insulation should come to light. It was discovered by Mr. John F. Green, general manager of the Asbestos Insulation Company, Baltimore, Md., that commercial asbestos contained a very large quantity, comparatively, of certain metallic oxides, especially of iron, and that these seriously militated against its insulating properties. After long and arduous experi-

ment a process was secured for the extraction from the crude asbestos of these oxides, the iron oxides being removed by a magnetic separator. The result is the production of an almost perfectly pure asbestos of highly marked insulating properties as compared with the ordinary commercial variety. This asbestos is manufactured into sheets or papers, using as a basis a paper composed of ordinary vegetable fibre, which is coated on both sides with the asbestos fibre. Sheets of this paper .007in. thick have withstood a tension of 2000 volts, alternating, before rupture. By placing together under great pressure a number of sheets of these papers, boards are made having very highly resistant qualities and possessing great lightness as compared with the ordinary compounds of asbestos and rubber.

### BREWERY FLOORING.

The case of Rogers v. Stuart's Granolithic Paving Company was tried at Bristol last week. The pleadings set forth that the plaintiffs were W. J. Rogers, Limited, who sought to recover damages for defects in paving executed for them by the defendants, who in their answer denied the contract alleged and the defects, adding that the defects, if any, were caused by the action of the plaintiffs. Alternatively the defendants pleaded that the construction was under the superintendence of the plaintiff's Architect, and they were therefore relieved.—Mr. Peter Stuart, managing director of the defendant Company, said he was inventor and patentee of the granolithic paving. The Company had laid down many floors in London and elsewhere for breweries. There were floors at a large grain warehouse at Avonmouth, and at the granary near the Harbour in Bristol; and the Company was going to lay floors for Messrs. W. D. and H. O. Wills' new factory. The straight joint with ordinary washing of a brewery floor would be all right, no water would go through. Generally, however, the joint became clogged with dirt; and if it was required to have the joint thoroughly water-tight, they put in a joggle joint. The better quality would be one shilling a yard more than the ordinary. Had he known that the floor was to be flooded with water as he saw it that day, a different composition would have been used. There were complaints made of the joints by Mr. Gingell, the Architect. It was not true that the cement was scamped, but more was sent round than was required. The complaint of the Architect of the hollow sound of the floor did not matter for a warehouse floor. The cause of leakage here was water being poured on the floor, which was never intended; water got to the joints and washed them out. Hot water with the washing of casks perished the cement, and was the most destructive thing that could be applied to cement mixed with beer.—George Walker, foreman in the employ of the defendants, said he had close on twenty years' experience in laying pavements. He laid the floor at the plaintiff's brewery in squares, and the materials used were of the best quality. He used a straight joint. The defendants had another joint, and he had used that for maltings at Bexhill. Not until he had finished the work at Messrs. Rogers' was he told what the floor would be used for.—No other witnesses were called for the defence, and Sir Walter Phillimore then addressed the jury for the defendants, contending that in place after place where the most important leaks were, was water from the cask washing. The cement was plentiful, and there was not the slightest reason for stinting.—Mr. Bullen replied on the evidence, and said if the plaintiffs were entitled to damages they would receive £558, as the defendants did not seem to have demurred to this if a verdict was returned for the plaintiff.—The learned judge, in summing up to the jury, said it was for them to say if the materials used answered the description represented by the sample sent down. Whether they were different from what were described in the defendant's letters it was for the jury to decide.—The jury returned a verdict for the plaintiffs for £585 2s. 8d., the full amount claimed.



A NEW library is being built at St. George, Bristol East, at a cost of £6000, the expense being borne by the member for the division, Sir W. H. Wills.

THE bursting of the reservoir at Mattewan, State of New York, was caused by the recent excessive rains. The disaster occurred at half-past two in the morning. Near Butcher's Junction the tremendous rush of the liberated water destroyed a number of boarding houses occupied by labourers, and seven persons were killed.

A NEW Free Church has been erected at Chirnside, Berwickshire. The edifice has cost between £1400 and £1500, and has been opened almost free of debt.

ANOTHER theatre is to be added to the numerous playhouses that of recent years have been built in London and its vicinity. The new building is to be erected on the north side of Harrow Road, between Westbury Road and Ranelagh Road, and will abut upon those three streets. The plans have been approved by the Paddington Vestry.

WESLEY CHAPEL, Glossop, has been reopened, having been greatly improved at a cost of nearly £500, and windows of new design, with coloured glass, have been inserted throughout.

### BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.

### THE SMOKELESS FIRE Co. LTD.,

Sole Proprietors of Marsh's Patents

FOR THE

### COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.

## "ECLIPSE" PATENT ROOF GLAZING.

Absolutely Imperishable. Needs no Maintenance Whatever.  
Millions of Feet Fixed.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

MELLOWES & CO. Works: SHEFFIELD.  
LONDON: 28, Victoria St., Westminster, S.W.

Perfect Sanitation, Healthy Houses obtained by adopting the

## "TWYCLIFFE"

Patent Pedestal Syphon W.C. Basin.

A new Departure, embodying the latest developments in Sanitary Science, as applied to W. C. Basins.

Advantages claimed for the "TWYCLIFFE" Syphon:

Perfect safeguard against sewer gas and the evils arising therefrom.

Extra large water surface and great depth of water seal (3 inches) and large body of water in Basin to receive and deodorise soil.

Practically noiseless in action.

Simple in construction, reliable in action.

No complicated mechanism to get out of order.

Easily fixed as an ordinary Basin.

High-Class Article of Superior Material, Workmanship and Construction.

TWYFORDS, Ltd., Cliffe Vale Potteries, HANLEY.

## SHANKS' PATENT "COMPACTUM" WASH-DOWN CLOSET.

LARGE WATER SURFACE, 8 in. by 6 in.  
DEEP SEAL IN TRAP, 3 in.

THOROUGHLY FLUSHED WITH TWO GALLONS OF WATER.

PERFECT SEAT EXTENSION.

PORCELAIN SOLDERED JOINT.

Made in "Vitro-Porcelain," a new body, vitreous throughout, non-absorbent, and non-crazing. The best material for Sanitary Appliances ever introduced.

Prices and Particulars on Application.

SHANKS & Co., Tubal Works, Barrhead, near Glasgow.

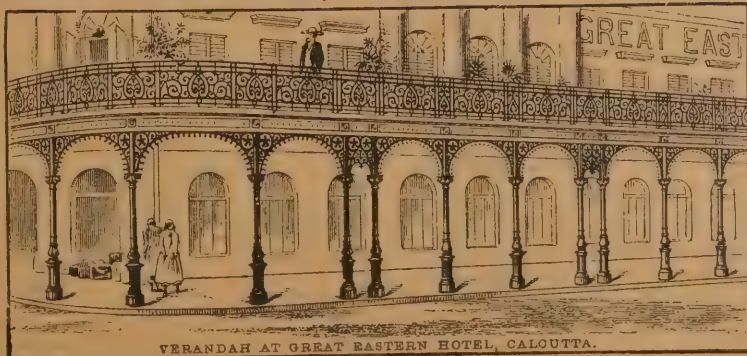
## WALTER MACFARLANE & CO., GLASGOW.

TWO GOLD MEDALS, CALCUTTA EXHIBITION.

Railings, Gates,  
Balconies, Panels,  
Stairs, Standards,  
Pipes, Gutters,  
Urinals, Closets,  
Fountains, Lamps.

ELECTRIC LIGHT  
PILLARS, BRACKETS,  
AND WIRE WAYS.

Illustrated Catalogue and Prices  
on application.



VERANDAH AT GREAT EASTERN HOTEL, CALCUTTA.

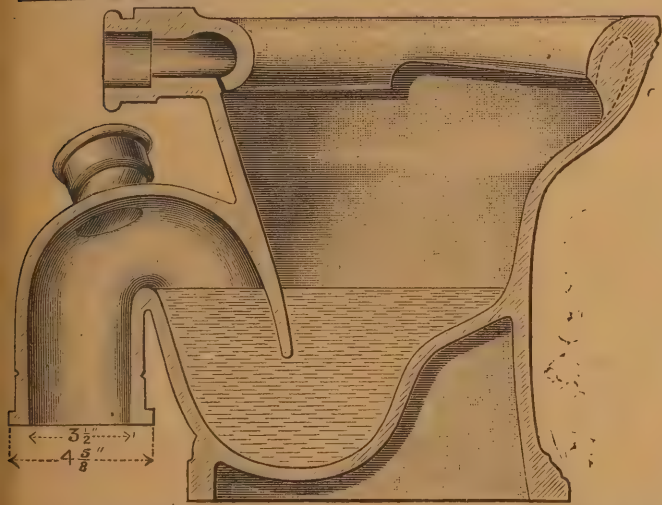
Spandrils, Columns,  
Verandahs, Covered  
Ways, Bandstands,  
Conservatories,  
Structures,  
Foot Bridges,  
Stable Fittings, &c.

GLASS ENAMELLED  
SOIL AND DRAIN PIPES.

Architectural, Sanitary, and  
General Ironfounders.

GUARANTEE sent with each Basin.

RECOMMENDED AND SPECIFIED BY ARCHITECTS  
AND SANITARY ENGINEERS.







## HOISTING APPLIANCES

OF ALL KINDS.  
Catalogue, 40 Pages, Free.

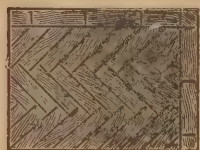
## WESTON AND OTHER Pulley Blocks

in Stock, with any  
length of

## CHAINS.

Chain Maker on Premises  
for Repairs, &c.

**LONDON HOIST  
AND CHAIN CO.**  
32, Norton Folgate, E.C.



## WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)  
For Churches, Schools,  
Offices, &c.

Estimates and full particulars on ap-  
plication to

**THOS. GREGORY & CO.,**  
WOOD PAVING AND STEAM  
JOINERY WORKS,  
Clapham Junction, S.W.

**LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

MR. R. O'BRIEN SMYTH, Local Government Board Inspector, recently held an inquiry in the Town Hall, Kingstown, with reference to an application of the Local Commissioners for a loan of £650 for the purpose of enlarging and improving the Town Hall.

A SERIOUS fire occurred recently at Cheddleton Asylum, which is being built by Messrs. Brown and Son, of Salford, for the Staffordshire County Council, at a cost of about £200,000. Originating in the west end of the dining hall and theatre (a splendidly timbered room, 140ft. by 60ft.), in less than half an hour the roof fell in, forcing out the east gable, and doing considerable damage to several buildings near the spot. With a brisk wind behind it, the progress of the flames was so exceedingly rapid that the building was doomed from the outset. The damage is estimated at £10,000, fully covered by insurances, effected both by the County Council and the contractors. The asylum has been in course of erection for upwards of two years, and the disaster has rendered nearly 500 men idle for the present.

## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**ASHFORD.**—For the construction of a covered service reservoir, water tower, &c., for the Urban District Council, Ashford, Kent. Mr. Wm. Terrill, Surveyor and Waterworks Engineer. Quantities by the Surveyor:—  
Wm. Coker ... 24,454 13 0 | Tuff and Miskin 23,098 0 0  
Pedrette and Co. ... 4,421 12 7 | A. E. Nunn ... 3,612 0 0  
Richard Ayard ... 4,847 0 0 | W. J. Logan, ...  
T. T. Denne ... 3,999 0 0 | Maidstone\* ... 3,349 0 0  
\* Accepted.

**ASHFORD.**—For the making up of a portion of Christchurch-road, Ashford, Kent, for the Urban District Council. Mr. William Terrill, Surveyor and Waterworks Engineer. Quantities by the Surveyor:—  
J. E. Hughes ... 2,500 0 0 | G. Joy ... 2,225 15 8  
W. J. Logan ... 349 0 0 | Wm. Coker, Hall.  
G. F. Davis ... 230 0 0 | ing, Rochester\* ... 220 0 0  
\* Accepted.

**BRIDLINGTON.**—For the erection of six houses and shop, Quay-road, for Mr. G. V. Mainprize. Mr. S. Dyer, Architect, Bridlington Quay:—  
T. Wood ... £2,878 5 0 | William Barnes,  
E. Wilson ... 2,014 1 8 | Travis - street,  
J. Rennard ... 1,950 0 0 | Bridlington  
J. Sawdon ... 1,832 10 0 | Quay\* ... £1,608 0  
\* Accepted.

**CRICKLADE.**—For additions and alterations to the "White Horse" Hotel, for Messrs. R. B. and C. L. Bowby. Messrs. W. Drew, M.S.A., and Sons, Architects, Swindon:—  
Joseph Williams, Swindon (accepted).

**ENNISKILLEN.**—Accepted for the erection of Town Hall, for the Commissioners. Messrs. A. Scott and Son, Architects, Drogheda:—  
James Harvey, Enniskillen ... £3,500

**FARINGDON.**—For the erection of a Post Office at Faringdon, Berks. Messrs. Wm. Drew and Sons, Architects, Swindon. Quantities by the Architects:—  
Cadel Bros. ... £1,180 0 | Thos. Colborne and  
Flewelling & Hucks ... 1,042 0 | Sons ... 2,985 17  
Joseph Williams, Swindon\* ... 960  
\* Accepted.

**LLANBRYNMAIR (Montgomeryshire).**—For the erection of a residence at Llwyn Owen for Mr. D. Winttingham. Stable. Messrs. Edward Jones and Son, Architects, Newtown, Mont.:—  
Edward Woolley ... £1,650 | E. H. Williams  
H. L. Phillips ... 1,420 | (Llanbrynmair)\* ... 21,235  
\* Accepted.

**LLANGOLLEN.**—For the erection of the County School, for the Governors. Mr. H. Teather, Architect, Andrew's Buildings, Queen-street, Cardiff. Quantities by the Architect:—  
J. T. Jones ... £3,155 0 0 | W. H. Thomas,  
Jabez Higgins ... 3,143 0 0 | Oswestry\* ... £2,923 12 2  
John Gethin ... 3,032 0 0 | Jones and Evans ... 2,795 10 0  
Henry Smith ... 3,020 0 0 | T. A. Jones ... 2,700 0 0  
Wm. Rogers ... 2,945 11 0 | Bradney & Lloyd  
W. E. Samuel ... 2,930 0 0 | (withdrawn) ... 2,589 0 0  
\* Accepted.

**LONDON.**—For painting, &c., at the Infirmary, Fulham-road, for the Guardians of the Poor of St. George's, Hanover-square, W. Mr. C. Evans Vaughan, Architect:—  
J. E. Davis ... £1,468 | M. MacCarthy ... 2,900

**F. T. Chinchin** ... 1,100 | G. McArthur and Co. ... 875  
**E. Proctor** ... 965 | Vigor and Co. ... 835  
**J. Chessum and Sons** ... 961 | Lilly and Lilly ... 817

**LONDON.**—For the erection of shop and dwelling-house at Sale-street, Bethnal Green, E., for Mrs. Linney. Mr. J. Williams Dunford, Architect, 100c, Queen Victoria-street, E.C.:—  
Wire and Forrest ... £563 | Knight & Sons, Bethnal  
Lawrence ... 560 | Green (accepted) ... 2,548

**LONDON.**—Accepted for extension at workhouse, Homerton, for the Hackney Union Guardians. Mr. W. A. Finch, Architect, 76, Finsbury-pavement:—  
J. Chessum and Sons, 15, Stear-street, Haggerston 21,200

**LONDON.**—For the erection of a billiard-room at the "Eagle Hotel," Tottenham, for Mr. Joseph Harris. Messrs. Perry and Reed, Architects, 9, John-street, Adelphi, W.C.:—  
P. Hart ... £1,072 | H. Knight & Son, Tot-  
W. Hawley ... 985 | tenham (accepted) ... 2,973

**LONDON.**—For alterations and redecoration of the Down Chapel, Lower Clapton. Messrs. W. Bradbear and Co., Architects and Surveyors, Canonbury Station, N.:—  
Higgs and Hill ... £284 | Colls and Son ... 2,843  
Bradford ... 873 | Britton (accepted) ... 1,035



**SAMUEL HUNT ROWLEY, Swadlincote, nr. Burton-on-Trent.**

PATENTEE AND MANUFACTURER OF THE

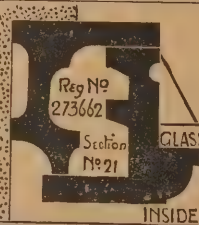
## "WASH-OUT" CLOSET (PATENT).

Three Awards at the International Medical Sanitary Exhibition, South Kensington, 1881. Specialities in Closets, Traps, Urinals, Lavatories, Sinks, and other Sanitary Fittings.

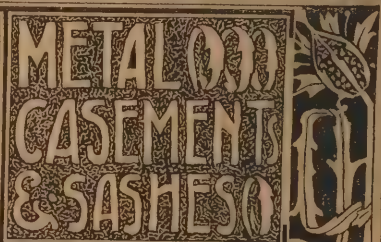
Price Lists and Full Particulars on Application.  
Telegrams:—"ROWLEY, SWADLINCOTE."



DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS



WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.

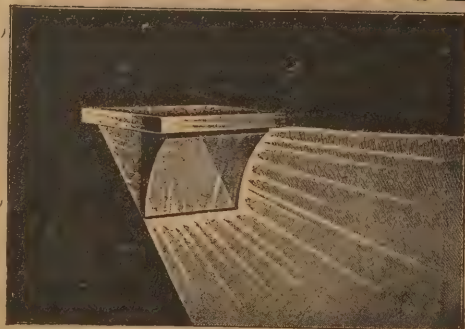


# WILSON'S "DIOPTRIC" PAVEMENT LIGHTS

FOR THE ILLUMINATION OF  
BASEMENTS, AREAS,  
CORRIDORS, &c.

THE MOST EFFICIENT  
AND ECONOMICAL FOR TRANSMITTING  
DAYLIGHT INTO BASEMENTS.

INCREASED LIGHT WITHOUT  
INCREASED COST.



## "DRIPLESS" LIGHTS.

So constructed as to Prevent the Condensation falling on anything which happens to be below.

## WILSON'S "SAFETY" PAVEMENT LIGHTS.

These are made with lead between the glass prisms, and prevent slipping, as well as doing away with the studs.

## WILSON'S IMPROVED PATENT HORIZONTAL FLOOR & ROOF LIGHTS

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



LONDON.—Accepted for building thirteen houses on the Steele Estate, Tottenham, for Mr. T. E. Baker:—  
H. Knight and Son, Tottenham ... £2,925  
No competition.

LONDON.—For the erection of two houses in Chatham-road, Wandsworth-common, for Messrs. Battershall Bros. Mr. John Job Wood, Architect and Surveyor, 47, Candahar-road, Battersea:—  
Bruckland ... £572 15 Coates ... £555 10  
Billham ... 568 10  
[Surveyor's estimate, £567.]

LONDON.—For taking down and rebuilding No. 1, Bow-lano, Cheapside. Mr. C. Innes, Architect, 27, Queen-street, City, E.C.:—  
E. Lawrence and Sons £1,795 Mansfield and Son ... £1,654  
Prestige and Co. ... 1,737 Dove Bros. ... 1,625  
Colls and Sons ... 1,710 Falkner and Sons ... 1,573  
Balaam Bros. ... 1,700 Spencer and Co. ... 1,424

MANSFIELD.—For the erection of two houses, St. John-street, for Mr. Wharmby. Mr. Wm. Dodsley, Architect, Mansfield:—  
Fisher Bros. ... £1,419 A. H. Sharley ... £1,252  
W. A. Vallance ... 1,390 J. Pogson\* ... 1,180  
W. Bains ... 1,387 J. Tate, Annesley ... 1,179  
C. G. Percival ... 1,375 Woodhouse\* ... 1,179  
W. S. Cuddy ... 1,270 \*Accepted.

NEWTOWN (Montgomery).—For the erection of "inter-mediate school" buildings, for the Governors. Mr. H. Teather, Architect, Queen-street, Cardiff. Quantities by the Architect:—  
R. Morgan ... £3,548 Bradney and Lloyd ... £2,885  
E. H. Williams ... 3,260 Rowland and Lloyd ... 2,865  
T. W. Swain ... 3,250 W. H. Thomas, Os-  
E. Davies and Son ... 3,065 westry (accepted)\* ... 2,814  
H. Smith ... 2,934

NEW SWINDON (Wilts).—For additions to house and shop, 14, Fleet-street, for Mr. Farinham Budgett, Messrs. W. Drew and Sons, Architects, 22, Victoria-street, Swindon. Quantities by the Architect:—  
Flewelling and Hucksell £440 T. Colborne & Sons,  
Charles Williams ... 419 Swindon (accepted) 373

PENRITH.—For the erection of a cement concrete wall, near Pooley Bridge, for the Rural District Council:—  
per per  
lineal yd. cubic yd.  
s. d. s. d.

Ormerod & Son ... £987 10 0 for 350 yds. or 25 0 37 6  
W. Grisenthwaite ... " 18 0 20 0  
J. Rule ... 568 6 8 " 20 8 32 0  
J. Jackson, Penrith\* 330 0 0 " 12 0 20 0

\*Accepted on lineal tender.

St. ALBANS (Herts.).—For the erection of villa residences, for Messrs. Orford Smith, Limited. Mr. G. P. Smedley, Architect, 110, St. Martin's-lane, Charing Cross, W.C. Quantities by Mr. W. Lockwood, 110, St. Martin's-lane, W.C.:—  
E. Dunham ... £7,950 Heineman and Brown ... £7,315  
H. Plummer ... 7,790 Miskin and Son\* ... 7,300  
Outhwaite ... 7,325 \*Accepted.

#### TO LOCAL SURVEYORS.—ASSISTANCE

In the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL. 20

QUANTITIES.—The Central London Sur-veying Office, assisted by a Competent Staff, is prepared to promptly PREPARE QUANTITIES, MEASURE-UP WORK, &c., guaranteeing strict accuracy. References given.—Address, SECRETARY, Walbrook-chambers, Walbrook, E.C. 12  
Price 3s.

#### GLOSSARY OF TECHNICAL TERMS

used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

#### CIVIL SERVICE TECHNICAL EXAMS.

—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

#### SANITARY INSPECTORS' EXAMINA-

TIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required.—For particulars and testimonials apply. CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

R. I. B. A. EXAMS. PREPARATION personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

#### APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

#### THE LONDON (TELEPHONE { Holborn, No. 1011.}) DRAWING & TRACING OFFICE,

98, Gray's Inn Road, Holborn, W.C.

(Adjoining Holborn Town Hall.)

MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.

Cheques Crossed The City Bank, Ltd.

Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work usually required by the PROFESSION, such as

WORKING DRAWINGS, TRACINGS,

PERSPECTIVES, SURVEYS,

COMPETITION DRAWINGS,

Black Line PHOTO-COPIES and Blueprints.

Quantities, Specifications LITHOGRAPHED.

MODELS, DIAGRAMS, &c.

TRACING and PRINTING Rooms, HATTON GARDEN, connected by Private Telephone.

## MCNEILL'S FELTS

(Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)

## MCNEILL'S SLAG WOOL

(Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

F. MCNEILL & CO., Head Office, Bunhill Row, London, E.C.; Slag Wool Works, Kirkintilloch, near Glasgow.

## THE SUNBURY LINCRUSTA-WALTON. WALL DECORATION.

NOVELTIES for 1897—DADOES, FRILLINGS and CEILINGS at 1s. a yard, 2lin. wide.

CHEAP DECORATIONS, DELICATE COLOURINGS, supplied by all Decorators, Furnishers or Builders in the United Kingdom.

LINCRUSTA WALTON, tested and triumphant, "King of Wall Hangings," the only Wall Decoration on the Market.

SOLID in colour, SOLID in relief, and SOLID in value.

Write for Price List, Illustrations of "JUBILEE" and "NATIONAL EMBLEMS," &c., to

FREDK. WALTON & CO. Ltd., Sole Patentees and Manufacturers,

Telephone, 3769.

2, NEWMAN ST., OXFORD ST., LONDON, W. Telegrams: "Lincrusta-Walton," London.

## EASTON, ANDERSON & GOOLDEN, LIMITED,

BROAD SANCTUARY CHAMBERS,

BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."

Telephone—"545, WESTMINSTER."

## ELECTRIC & HYDRAULIC LIFTS & CRANES, PUMPS, RAMS.

WATER SUPPLIES, ENGINES AND BOILERS,

ELECTRIC LIGHT AND POWER.

MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.



**BUILDER'S CLERK.—FIRST-CLASS**  
MAN WANTED, not for books, cash, or ordinary correspondence; help in the practical or administrative side required.—CHARLES, Building Contractor, Thelsford Works, Moseley, Birmingham.

**LEYTON URBAN DISTRICT COUNCIL.**  
WANTED immediately, JUNIOR ASSISTANT in the Office of the Engineer and Surveyor.

Must be a good draughtsman, accustomed to keeping wages, store and stock books, and to have been trained in a municipal office.

Applications, stating age, salary required, and qualifications, together with copies of three testimonials, will be received by the undersigned.

WILLIAM DAWSON, M.I.C.E.,

Town Hall, Leyton,  
July 15th, 1897.

**URBAN DISTRICT COUNCIL of**  
HANDSWORTH (in the County of Stafford).  
APPOINTMENT OF ASSISTANT IN SURVEYOR'S OFFICE.

The Council will, at their Meeting in August next, proceed to the APPOINTMENT of an ASSISTANT in the Surveyor's Office. Salary to commence at £120 per annum, and to increase £10 yearly until it amounts to £150 per annum.

Candidates must have a good knowledge of the accounts prescribed by the order of the Local Government Board, and be competent to make surveys and prepare plans, and to discharge the other duties of the office, under the direction of the Surveyor.

Applications, in the handwriting of candidates, each stating age, present appointment, and previous experience, with three original testimonials, must be sent by post, under seal, marked "Assistant in Surveyor's Office," to me, at the Council House, Soho-road, Handsworth, on or before THURSDAY, the 29th inst.

The Committee will, after considering the applications by letter, request the attendance of such candidates as they may select, and will pay their railway fares.

Canvassing, either directly or indirectly, strictly prohibited.

By order,

E. KENWORTHY,

Council House, Handsworth, Surveyor to the Council.  
July 14th, 1897.

**QUANTITY SURVEYOR'S JUNIOR**  
ASSISTANT WANTED, who can abstract and bill neatly and correctly.—Write, stating fully experience, age, and salary required, PRICE, CUXSON, and LEIGH, Surveyors, 17, Victoria-street, S.W.

**LONDON PLATE-GLASS INSURANCE CO. LTD.**

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

MODERATE RATES. PROMPT REPLACEMENTS.

SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.

Applications for Agencies Invited.

Liberal Terms for Business Introduced.

**BRICKS.**

**LIME.**

**CEMENT.**

**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

**WOOD BLOCK FLOORING.**

**MASTIC** for laying above supplied in any quantity.  
W. BRIGGS, Chemical Works, DUNDEE,  
SOLE MAKER OF

"Tenax" Building Rock Composition  
For Wall Cavities.

**PILKINGTON'S**

WORKS:

CLIFTON JUNCTION,  
NEAR MANCHESTER.

MANUFACTURERS OF HIGH CLASS TILES.  
For Floors, Halls, Hearths, Grates and Furniture.

EVERY VARIETY OF TILE WORK FOR

**CHURCHES, PUBLIC BUILDINGS AND**

**PRIVATE RESIDENCES.**

London Show Rooms:

Lyric Chambers, 45, Whitcomb Street, W.C.

Manchester Show Rooms:

37, Cross Street.

**TILE FIXERS WANTED** (only good men)  
at the New General Hospital, Birmingham.—  
GEORGE MACDONALD, Foreman.

**ARCHITECTURAL ASSISTANT**  
(first-class) WANTED. Must be good draughtsman and designer; also an Assistant in the quantity department. Good salaries paid to competent men.—Apply, stating experience, age, salary required, W. H., Reform Club, Sheffield.

**CLERK WANTED** in a City Builder's office, with some previous experience.—Reply, stating age, salary required, and all particulars, to V. J., care of Abbott's, 32, Eastcheap.

**ARCHITECT'S ASSISTANT WANTED.**  
experienced in Classic design, detail drawings, perspective and artistic draughtsmanship.—Apply, with full particulars as to salary, &c., to C. R. DALGLEISH, Architect, Wellington, Salop.

**ARCHITECTURAL ASSISTANT**  
WANTED. Must be a good draughtsman and thoroughly capable for working drawings and details.—State age, experience, last engagement, and salary required, to Messrs. BRADSHAW and GASS, F.R.I.B.A., Architects, Bolton.

### APPOINTMENTS WANTED.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

**YOUNG ARCHITECT, A.R.I.B.A.,**  
DESIRES TO ASSIST others

in the

PREPARATION OF DRAWINGS

at his own office.

G. SCOREE, 23, Newman-street, W.

**SURVEYOR or CONTRACTOR'S ASSISTANT**, aged 24, requires RE-ENGAGEMENT. Good leveller and draughtsman.—M., 35, South Molton-street, W.

**BUILDER'S CLERK and ASSISTANT**  
desires APPOINTMENT (young); thoroughly conversant with accounts, correspondence, and general routine; accustomed to charge of office. Permanency.—Box 519, Office of the BUILDERS' JOURNAL.

**ASSISTANT** (Surveyor's General) seeks town RE-ENGAGEMENT. Quantities, builder's accounts, supervision, and general routine. Salary moderate.—X., 2, Seymour-terrace, Anerley, S.E.

**ARCHITECT'S ASSISTANT** requires ENGAGEMENT. Good draughtsman, working drawings from rough sketches, details, &c. Honours construction.—L. M., 67, New Oxford-street.

**ARCHITECT'S JUNIOR ASSISTANT** desires ENGAGEMENT. Working and detail drawings. Good colourist, tracings, &c. Excellent references. Salary, 30s.—W. P., 81, Beauval-road, East Dulwich.

**ASSISTANT** (22) desires ENGAGEMENT. Two years' in workshops and on works; three years with London contractor, and nine months with quantity surveyor. Good writer and draughtsman, and knowledge of quantities and land surveying.—Address, B., 7, Queen's-road, Buckland, Portsmouth.

**ARCHITECT'S ASSISTANT** (27) desires RE-ENGAGEMENT. Ten years' experience. Plans, specifications, land surveying, &c. Good references. Salary £2 per week.—S. BEARDSHAW, 13, Lorraine-road, Holloway, N.

**CLERK of WORKS** seeks RE-ENGAGEMENT. Just finishing extensive alterations to brewery under well-known Architects. References, past and present employment. Well up in all branches.—W., 33, Villiers-street, Leamington.

**CONTRACTOR'S CLERK** (25) seeks ENGAGEMENT. Assist estimating, take off quantities, square up jobs, prime cost, and book-keeping. Midlands preferred.—W. H., care of W. B., 65, St. Thomas-street, Coventry.

## HAMILTON & CO.'S PAINTING BRUSHES,

GRAINING

TOOLS, &c.

TRADE

SEMPER  
IDEM

MARK.

For Prices apply to Lead and Glass, Varnish, and Oil  
and Colour Merchants, Ironmongers, &c.

Manufactory: 96, CLERKENWELL ROAD, LONDON, E.C.

**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, Lutterworth, WITHINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

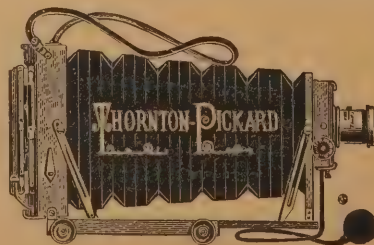
FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND  
SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.





# Surveying and Sanitary SUPPLEMENT.

JULY 21ST, 1897.

## WORKHOUSE PLANNING.

(Continued from page xci.)

By GEORGE H. BIBBY, F.R.I.B.A.

### VIII.—ISOLATION WARDS.

THE wards for the isolation and treatment of patients suffering with fever, small-pox, or other infectious diseases, should provide an allowance for each bed of 12ft. wall space, 144ft. of floor area, and 2000ft. of cubic space. The height of the wards, therefore, with such dimensions, should be very nearly 14ft.; but some authorities prefer that the floor area should be 12ft. by 13ft., the height in that case being reduced to about 13ft. With either arrangement it will be perceived

persons, especially children, from touching each other through the railings, which, for various reasons, are preferable to walls.

The provision for isolating cases of infectious diseases is obviously more conveniently and economically to be arranged in connection with large than with small Workhouses, and the Local Government Board state that it should be considered whether arrangements cannot be made for the reception of paupers suffering from any such disease into some local public hospital for the purpose, or into the hospital provided by the Sanitary Authority under the provisions of the 131st Section of the Public Health Act, 1875, the provision at the Workhouse being in that case limited to such accommodation as may be necessary for the prompt isolation of any inmate suspected of having contracted a dangerous infectious complaint. It is very

able distance from the chief buildings of the Workhouse, and so placed that the main approaches shall be at a safe distance (the building itself being placed in a retired position). The nurses in charge should be housed in a building near to the hospital, and should not be under the necessity of intermingling with the officials or patients of the main Workhouse, and would therefore require to have a small separate administrative arrangement, containing all that is requisite for cooking, laundry, and other work.

The fever laundry should contain a receiving-room and a wash-house of moderate size, a closet for drying-horses, and ironing and finishing-room, together with a disinfecting-chamber, which latter should be placed near to the receiving-room. All these should be arranged at a fair distance from the fever hospital, &c., so as neither to create a nuisance

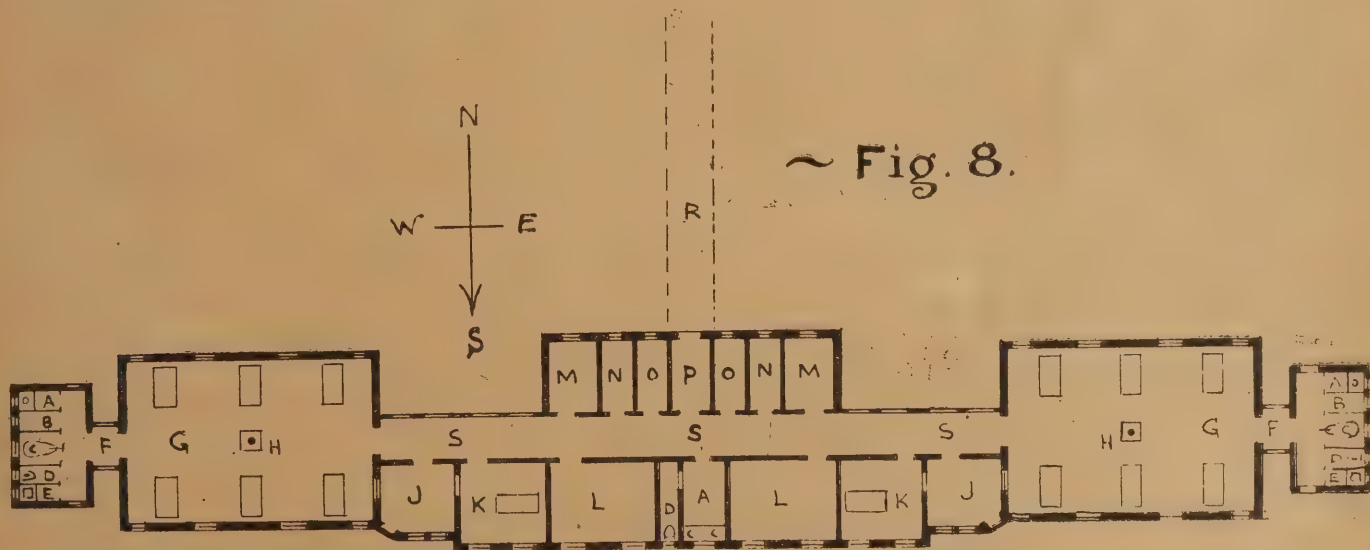


Fig. 8.

that the cubic spaces required are considerably greater than for the inmates of any other portion of a workhouse, and the cost per bed, therefore, proportionately increased.

The Local Government Board require that these isolation wards shall be so placed as to preclude the possibility of the spread of infection from these to other parts of the Workhouse establishment, and that every building containing infected persons, or material, shall be situated at a distance of at least 40ft. from the boundaries of the hospital site, or from any road or footpath, whether public or private. To prevent infected persons from approaching near to those in good health it is desirable that the fence of the isolation hospital airing-court should be in double lines, with a space of six or more feet between each fence, thus effectually preventing infected

important, in the opinion of the Board, that, such arrangements as those referred to should be made wherever possible.

The isolation wards should in all cases have independent provision for cooking, &c., and it is further desirable that, where practicable, the buildings should contain distinct accommodation for the safe treatment of two or more different kinds of infection, and for isolating those who may be suffering with two infectious diseases concurrently. Adequate means for disinfecting linen, clothes, bedding, &c., should be provided within a convenient distance of the isolation wards, and a detached wash-house, for cleansing infected linen, &c., should be provided; also suitable isolated residences for the fever nurses, and a fever mortuary.

For the safety of all concerned, the hospital for fever patients should be at a consider-

able distance from the chief buildings of the Workhouse, and so placed that the main approaches shall be at a safe distance (the building itself being placed in a retired position).

The Isolation Hospital shown on Fig. 8 is arranged to accommodate fourteen patients—seven of each sex—is a one-story building throughout, and contains the following apartments: A, lavatory; B, utensil closet; C, rooms for movable baths; D, water closets; E, slop closet; F, ventilation lobbies; G, wards for six beds; with central ventilating stoves at H; at J is a nurses' duty-room, with inspection windows on both sides; K is a ward for one patient; L, day-room; M, store-room; N, linen-room; O, patients' clothing; P, entrance lobby; and at R would be a covered way leading to the nurses' quarters, the fever laundry, and other adjuncts.

It has been pointed out that the isolation hospital of a Workhouse should be placed at a safe distance from the main buildings. An



authority upon the subject states that he has, in several cases, found infection communicated through some faults of administration, faults of a sort that should not have existed at a hospital, but which would have been simply inevitable if the sick had been under private management. Further, he has, in the case of smallpox, recorded instances where infection had appeared to spread from a hospital in a row of houses to other houses in a way that suggested conveyance of the infective matter through the atmosphere rather than by means of persons or things.

The practice is too common of waiting until an epidemic of disease has commenced, and then hastily running up temporary erections for hospital purposes; such buildings provide, frequently, accommodation of a very indifferent kind, and questions as to drainage, laundry-work, and other matters do not receive the attention that is necessary to make isolation perfect.

The crowding of healthy people has many dangers, but the accumulation within a confined area of a number of sick persons is far more objectionable; contamination of air and impregnation of the buildings by offensive matters are always liable to place the inmates in danger, but in an infectious hospital there are more serious risks even than these; not only attendants on the sick, but the sick themselves are liable to contract dangerous infectious disease. Such risks as these must be considered by all Architects called upon to plan isolation hospitals.

Such a hospital as is shown on Fig. 8 would provide accommodation for one infected class of patients, or (under an emergency only) perhaps the wards K and L might be temporarily used for another disease, but this would not be advisable as a rule, for even with fair separation between the various kinds of infection there must always remain a risk that patients in these hospitals might contract a second infection of a different nature, while for the nurses and officials there would be the prospect of contracting two instead of one disease. It has been shown that the risk to nurses and patients depends very much upon the suitability or otherwise of the buildings, and of their construction and management. Smallpox should always have a building to itself, away from scarlet fever and all other infections.

The out-buildings required in connection with an isolation hospital depend upon the size and special circumstances of the institution. These may consist of a mortuary, wash-house and laundry, ambulance shed, disinfecting chamber, coal and wood store. In large hospitals a porter's lodge and additional out-buildings would be advisable. In some cases a post-mortem room, provided with an adequate supply of water and proper means of drainage, is found necessary.

In all properly constructed hospitals the water-closets, dry closets, and slop-sinks should be contained in a building projecting from the main pavilion, and separated therefrom by means of a lobby (as at F on Fig. 8), and provided with a door leading into the ward, and having means of cross-ventilation by openings in its opposite side walls. Means ought to be adopted in every hospital that the current of air through the lobby cannot be stopped by the attendants or nurses (fixed louvres are suitable for this purpose). The closets and sinks may very conveniently be placed side by side, with doors facing the door leading from the lobby into the ward (see plan). The partition above the closet and sink doors should rise to the ceiling, so as to shut these offices entirely off from the lobby; but the partitions separating them from each other should not be more than about 7ft. 6in. high, so that, by means of windows placed in the opposite side walls of the projecting building, an independent cross-current of air may be secured through them. Ward sinks require to be provided with means of flushing, and water drawn from the taps, with which they are fitted, should not be used except for sink or cleansing purposes.

One or two movable baths should be provided, and in those hospitals where no special bath-room is provided, the bath may be made

to stand as shown at C on Fig. 8, over a sink to which hot and cold water has been laid on, and over which it can be emptied.

Certain administrative apartments are provided, as a rule, in a great variety of arrangements; in one story pavilions these often occupy a central position, and the least that they include should be a nurse's room fitted with fixed windows, commanding a good view of the wards, also a room in which to store such food and other articles as may be in constant use, and thirdly a linen store; but a few other rooms may be added, as shown on Fig. 8. Where no additional rooms are provided, the nurse's room may be fitted up as a ward kitchen, in which articles, such as beef-tea, &c., can be prepared or kept warm, and it should be provided with a scullery sink, an arrangement which is not considered wrong, inasmuch as nurses should not as a rule sleep in the rooms adjoining the wards.

Where visits are permitted to those patients who present dangerous symptoms, it is requisite that there should be a waiting-room provided (at the porter's lodge, or elsewhere), where the visitors may lay aside their outer garments and substitute the protection coverings which are requisite to prevent the risk of infection being carried away from the hospital. At some few hospitals, I believe, the regulations are exceptionally strict, and in certain cases visitors are required to take a bath, while their clothing is being "stoved" or disinfected.

As to the condition of a workhouse isolation hospital not more than fifteen years ago, and perhaps much less, the following extract from a Local Board Report will show a curious state of matters in the Rochford Rural Sanitary District and the Southend Urban Sanitary District, when the population of the former was about 13,000 and of the latter 8064:—

"In September, 1878, and owing to the occurrence of some cases of smallpox within their district, the Rural Sanitary Authority of Rochford took on lease, as a hospital, for a term of seven years and at an annual rental of £50, an old farm house, about half a mile from Rochford and three and a half miles from Southend. The Southend Urban Authority combined with the Rural Authority for the purpose, agreeing to pay £15 towards the rent and £10 towards certain repairs and alterations which were necessary, and which in all amounted to £35. The hospital premises include about half an acre of garden ground; they adjoin a main road, and stand about 100yds. from the nearest dwelling. The house itself, in addition to kitchen and other offices, has five rooms available for patients, these rooms severally containing from about 1125 cubic feet to 1875 cubic feet. Earth closets have been provided, the drainage is to a cesspool, and the water supply is from a well on the premises. Concerning the cesspool and the well not much information was, at the date of visit, available. The hospital has never been used since it was provided; indeed, it is admittedly looked upon as principally available for any cases of infectious diseases amongst paupers. The little furniture it contains is of the meanest description, and comes from the Workhouse. It is intended that the building shall be administered from that establishment, and it is in charge of workhouse officials. On two occasions only since 1878 does any use of the building appear to have been entertained. The first was on the occurrence, during the autumn and winter of 1879, of a severe epidemic of enteric fever at Prittlewell, in the Southend Urban District. In that case, however, the question of isolation was only raised when most of the patients were convalescent, and when the sick poor, finding themselves well cared for and nursed by private charity, refused to comply with such suggestions of removal as were made to them. In the second instance, a member of a gentleman's family having returned to Southend from a house where scarlet fever was prevalent, temporary isolation was deemed advisable, but on its being ascertained that the hospital could only be administered from the Workhouse, no further action was taken in the matter."

The funds expended upon patching up un-

suitable premises or in renting insanitary buildings for the purpose of isolation hospitals would no doubt in many instances have gone far towards providing useful institutions for the treatment of persons suffering from infectious diseases. At the present time I find that there are many Workhouses where it is desired to increase the accommodation for sick and infirm paupers, and to provide for the housing of those who may become afflicted with infectious diseases. The requirements of isolation hospitals for Workhouses are such that they must necessarily be far more costly, per patient, than the building for any other class of paupers.

(To be continued.)

## MODERN NEWCASTLE: ITS DESIGNER AND ITS BUILDER.

ATTENTION has been drawn to the dilapidated condition of the streets and roads of Newcastle in regard to the surface of the roadway, and the glaring contrast was pointed out which they offered in respect of the carriage-way compared with the fine Architecture which characterises the buildings of, at any rate, the principal streets of the city. While the paving and macadam of the streets of Newcastle are so discreditable to the reputation of the city, the public buildings which line its principal thoroughfares never fail to evoke the admiration of the stranger; but it is somewhat remarkable that even amongst the citizens themselves, however proud they may be of their fine street Architecture, the credit for this is by the general body almost wholly given to Grainger, the builder, while Dobson, the Architect, is ignored. The original projector of the new town of Newcastle, however, had he been able to carry out his designs to their full extent, would have made the streets and buildings of the town much more beautiful than they are, yet for such parts of his scheme as were adopted and put into execution honour is not given to the man in whose original brain they first found root. At an early stage of his career, and

### BEFORE GRAINGER THOUGHT OF IT,

Mr. Dobson laid before the Corporation of Newcastle a vast plan for the enlargement and improvement of the town. He it was who first proposed the purchase of Major Anderson's property, and it is much to be regretted now that the enormous scheme which he conceived was not adopted in its entirety, for, had this been done, it would have made Newcastle almost the first town in the kingdom from an Architectural point of view. It was not till some years after Mr. Dobson laid his proposals before the Corporation that Mr. Grainger took up the scheme, and, as the builder and speculator, used the genius of the Architect for his own and the town's advantage. But there is no reason on that account to speak of Grainger, as is sometimes done, as "the Architect of modern Newcastle," which is a most erroneous statement of the facts. Mackenzie's "History of Newcastle," published in 1827, thus refers to Mr. Dobson's proposal that the Corporation should purchase the two large vacant spaces in the centre of the town, which had formed the gardens of the Grey Friars and of the Nunnery of St. Bartholomew, and to convert them into a series of magnificent streets and squares:—"Mr. Dobson has proposed plans to the Corporation of Newcastle for the appropriation and purchase of Major Anderson's property in the centre of the town, which seem in the highest degree to combine elegance with utility. It is proposed to

### MAKE A GRAND SQUARE

about 430ft. long and 130ft. wide, containing in the whole 10,133 square yards, this area to be used as a public market for the sale of wheat, oats, &c., appropriate buildings to be erected on each side at a distance of 60ft. from the market; the street at the south side to commence in Pilgrim Street about 83ft. south of High Friars Lane to form the north side of the square, and passing the open space named



Green Court to open into Newgate Street south of the houses usually called Grey's Court. The street at the west side of the square is proposed to proceed from the Nun's Gate, which it would be necessary to widen, and to run in a straight line to Blackett Street, where Eldon Square would form an imposing termination. From this convenient street another is to be run along the south side of the square and to open into Pilgrim Street; the last street to commence near the portico of the new Scotch Church at Blackett Street and to terminate at the High Bridge, at which place it is proposed to widen this street by making some alterations on the south side connected with the New Flesh Market (no longer existing) and tending to make a pleasant bound to the street opposite to the east end of the New Market, where it is proposed to build a Mansion House suitable to the rank and dignity of the First Magistrate of this prosperous and opulent town. This civic palace is planned to occupy the whole of Anderson Place and to have four handsome stone fronts; the north, south, and west sides to rise from a bold terrace, and the latter front to be

ORNAMENTED WITH EIGHT BEAUTIFUL  
PILLARS.

The east front to face Pilgrim-street and to have a lofty, grand portico, capable of admitting carriages, which might enter at the gate at one corner of the grounds and pass out at the opposite one. The present walk up the avenue, with the trees on each side, to be carefully preserved. The Mansion House, the terrace, and the ground between would occupy 6300 square yards. The total extent of building ground obtained by these arrangements out of Major Anderson's present property amounts to 57,000 square yards." We may also cite from Mackenzie another bold scheme of town improvement projected by Mr. Dobson: "Mr. Dobson proposes to continue Blackett-street in a straight line crossing the foot of Gallowgate, proceeding behind Mr. Archbold's house, and cutting off part of the premises belonging to the heirs of Sir Cuthbert Heron and passing the corner of the Leazes north of the gate. Then the street to form an angle, and, crossing the Ponteland-road at the pant, to proceed in a direct line, joining the Carlisle turnpike road near to Gloucester Hall. According to these plans, this long street will be 70ft. wide, with a space of 15ft. in front of each house, making the entire space between the buildings on each side 100ft. Trees are intended to be planted on both sides of the road, which will not only break the blasts of wind, but also add to the beauty and healthiness of the streets." This short selection from the desirable proposals of Mr. Dobson serves to show how much the town would have benefited in these days had they been adopted; they indicate also how much their projector was

IN ADVANCE OF THE TIMES

and of the sleepy Corporation which rejected them. Mr. Dobson early and always had the improvement of Newcastle very close to his heart, and many other plans were drawn up by him, only to meet with disappointment. He was of too ideal and artistic a nature to cope with the financial difficulties and vested interests which stood in the way of the adoption of his schemes. It was not till some years

afterwards that Mr. Grainger, with the assistance of Mr. John Clayton, overcame the difficulties which Mr. Dobson failed to surmount. The two vacant spaces of ground were then purchased, and the undertaking was carried out, not as Mr. Dobson had originally intended, though the builder had the acumen to call in the Architect to carry out a great many of the plans for the new town. All the new streets were planned and levelled by Mr. Dobson, whose skill is particularly seen in the arrangement of Grey Street (New Dean Street, as it was first called), on the design and façade of which he spent much time and thought. His office journal for the year 1834 shows that he frequently occupied himself from three, four, and five o'clock in the morning until midnight and one o'clock the next morning in working on the plans and estimates for Grey Street and the New Markets. On July 15th that year it is recorded that "the bells of Newcastle rang out merry peals on account of the Common Council granting consent to Mr. Grainger to commence his town improvement plans," and even in the contemporary records there is little or no mention of Mr. Dobson's important share in the work, although his Architect's journal shows him to have been working

NIGHT AND DAY FOR THREE MONTHS

before on the drawings, plans, and estimates. Mr. Grainger seems from the first to have been given the lion's share of the credit. The entries in Mr. Dobson's working diaries for 1834 and 1835, indeed, are largely in reference to the new streets and markets, showing how he and his clerks worked very long hours day after day on the elevations of the streets and the plans for the buildings in them. He was at the same time busy on plans for the Markets for the Corporation, for whom he also designed the Arcade. He was busy upon the work of Grey Street from 1834 to 1837, in which period also he designed Market Street, Hood Street, Nun Street, Nelson Street, and Grainger Street, but not Grainger Street West, while earlier he had planned a portion of Blackett Street, Eldon Square, the County Club, Leazes Terrace, St. Mary's Place (with its façade so appropriate to St. Thomas's Church, which was also of his design), St. Mary's Terrace, St. Thomas's Terrace, Jesmond High Terrace, and Neville Street. Besides the Markets (the Butcher Market and Vegetable Market) in the centre of the town, Mr. Dobson also designed the Fish Market on the Sandhill (now incorporated with the Exchange). It is very satisfactory to know that, while Mr. Dobson was responsible for much that is both beautiful and useful to modern Newcastle, he had nothing to say in favour of the Town Hall being built on its present site, and nothing to do with the designing of it. He was strongly opposed to the whole idea, both of the site and of the design of the Town Hall, and no doubt the present Corporation wishes its predecessors of half a century ago had listened to his advice. It is very possible that, had it not been for Mr. Grainger taking them up, many of Mr. Dobson's plans would have been taken up by no one, and would have been

LOST TO THE TOWN.

At least they might never have been carried out to the extent they were. But, with all Mr. Grainger's enterprise and push, they

were not put into effect so completely and thoroughly as Mr. Dobson would have liked, or as would have been for the benefit of succeeding generations. But the general taste was then too low to appreciate the Architect's genius. There were few publications of authority on Architecture to which the mass of the public had access or any desire to turn. Facility of communication was limited, and the cost of travelling greater than is now the case. In those days the public purse was little applied to the encouragement of the Arts, and the modern system of Art education, so cheap as to be practically gratis, and yet the best that can be devised, was all but unknown. For an Architect in those days to attain distinction and fame which should live so long after his death implied natural talent of a very high order; but for the masses to possess taste in Art or Architecture, or discernment in mechanics or engineering, so as to understand the excellence of an eminent Architect, was next to impossible, and was, in fact, very rare. Knowing what Corporations and permanent officials are at the close of the century, we can hardly complain of them as they existed at the beginning of the Queen's reign. As early as 1814 Mr. Dobson interested himself in Tyne improvement, planning staiths, docks, &c., and in the same year he made

A SURVEY OF NEWCASTLE

which must have been extremely useful to him afterwards in designing those improvements and planning those buildings and thoroughfares which have served their purpose up to the present day, notwithstanding the advances made by the city and the increased needs of its inhabitants in every direction during the Queen's reign. He planned fortifications of Tynemouth Castle in 1820, and the following year planned a projected extension of Newcastle towards the Ponteland Road. It was in 1824 that he first proposed his gigantic scheme for the remodelling of the centre of the town, which were not taken up by Mr. Grainger till some years later, being completed in 1837 in a period of three years after the two actually set to work on them. One of the last works on which Mr. Dobson was engaged with Mr. Grainger was the building made afterwards the Central Exchange News Room, which was offered in October, 1837, to the Corporation as a Corn Market and general Exchange for the town, and rejected. It was not till the following year that the Grey Street Column, with its statue of Earl Grey, was completed; but it is interesting to note that Sept. 6th next will be the 60th anniversary of the laying of the foundation-stone of that handsome and distinctive ornament to the town by Messrs. John and Benjamin Green, the Architects, whose names are entitled to mention, along with Mr. Dobson's, in connection with the work they did for new Newcastle.

A LOCAL Government Board inquiry was held by Mr. Ducat at Radcliffe last week respecting an application of the Radcliffe District Council to borrow £13,000 for sewage works. The amount would have been much larger but for a concession granted by the Local Government Board after Colonel Mellor had raised the question in the House of Commons. An application was also made to borrow £400 for a foot-bridge across the canal.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
July 23	Aberdare—Houses (35 to 50) ... ..	Tanybryn Building Club ... ..	T. Roderick, Ashbrook House, Clifton-street, Aberdare.
" 23	Mardy and Merthyr Vale—Police Station ... ..	Glamorgan County Council ... ..	County Council Offices, Westgate-street, Cardiff.
" 23	Swiland, Suffolk—Teacher's Residence ... ..	School Board ... ..	J. S. Corder, Wimbourne House, Ipswich.
" 23	Thorne, Yorks.—Additions, &c., Grammar School ... ..	Metropolitan Asylums Board ... ..	H. B. Thorpe, Architect, Goolle.
" 23	London, N.—Latrines, Fever Hospital ... ..	St. George-in-the-East Vestry ... ..	Norfolk House, Norfolk-street, Strand, W.C.
" 23	London, E.—Alterations, Workhouse ... ..	H. Kinneir ... ..	G. A. Wilson, Vestry Hall, Cable-street, E.
" 24	Dinnington Colliery—Chapel ... ..	Industrial Society ... ..	I. G. Crone, 50, Gravinger-street, Dinnington Col ery.
" 24	Little Hinton, Wilts.—Repairs, West Hinton Farm ... ..	Lunacy Committee ... ..	W. Drew and Sons, 22, Victoria-street, Swindon.
" 24	York—Stores ... ..	Trustees ... ..	Athron and Beck, Dolphin-chambers, Doncaster.
" 24	Bourton-on-the-Water—Hall, &c. ... ..	F. Blackburn ... ..	E. W. Kendall, Bourton-on-the-Water.
" 24	Carlisle—W.C.'s, Garlands Asylum ... ..	Manchester Improvement Committee... ..	G. Dale, 2, Lowther-street, Carlisle.
" 25	Merthyr Tydfil—Houses (17), &c. ... ..		M. Warlow, Architect, Warlow-street, Merthyr Tydfi
" 26	Cambleforth, Yorks.—Primitive Methodist Chapel ... ..		T. S. Ullathorne, Architect, Selby.
" 26	East Ardsley, Yorks.—Five Brick Houses... ..		T. A. Buttery, Exchange-buildings, Queen-street, Morley
" 26	Miles Platting, Lanes.—Sixty Dwelling Houses ... ..		City Surveyor, Town Hall, Manchester.



## COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—Continued.</b>			
July 26	Newmarket—Hospital, Fordham-road	Rural District Council	S. J. Ennion, Deva-chambers, Newmarket.
" 26	Yarmouth—Class-rooms, &c., National Schools	School Board	A. S. Hewitt, 15, King-street, Yarmouth.
" 26	Goole—Extension, Boothferry-road Schools	School Board	W. B. Andrews, 24, Boothferry-road, Goole.
" 26	Ross—Additions, &c., Mission-room	School Board	The Rectory, Ross.
" 26	East Ham—School Seating and Furniture	School Board	R. L. Curtis, 120, London-wall, E.C.
" 26	Leeds—Alterations and Extensions, Union	Guardians	T. Winn, 90, Albion-street, Leeds.
" 27	Carmarthen—Class-room, &c., School	Llangendefne School Board	School-room, Bankfosselen.
" 27	London, S.E.—Convenience, Old Kent-road	Vestry of St. George-the-Martyr	O. E. Winter, Vestry Hall, Borough-road, S.E.
" 28	Ballybofey, Derry—Bank Premises	Hibernian Bank Limited	E. J. Toye, Architect, Strand, Derry.
" 28	Berkhamstead—School, Victoria National Schools	R. Davies	C. H. Rew, Architect, Great Berkhamstead.
" 28	Llanwrtyd Wells, Breconshire—House	Corporation	H. Feather, Andrew's-buildings, Queen-street, Cardiff.
" 28	Cheltenham—Kursaal and Offices	J. Marsh and Co.	Borough Surveyor, Municipal Offices, Cheltenham.
" 28	King Cross, Halifax—Stables, Coach-house, &c.	School Board	R. Horsfall and Sons, 15, George-street, Halifax.
" 28	Hove—Schools	Guardians	Clayton and Black, 152, North-street, Brighton.
" 28	Pontefract—Vagrant Wards, &c., Union	Chelsea Brewery Company	Greaves and Co., Architects, Corn Market, Pontefract.
" 28	London, S.W.—Brewery Buildings	Aberystwyth County School	Company's Office, 533, King's-road, Chelsea, S.W.
" 29	Ardwyn—Buildings	Guardians	T. E. Morgan, 12, Baker-street, Aberystwyth.
" 29	Halifax—Warehouse, Pellon-lane	St. George's-in-the-East Vestry	C. F. L. Horsfall and Son, Lord-street-chambers, Halifax.
" 29	Sedgefield, Durham—Repairs to Chimneys, Union	Provincial Gas Works Limited	W. Snowden, Sanitary Inspector, Sedgefield.
" 29	London, E.—Brick Sewer	Electricity Committee	G. A. Wilson, Vestry Hall, Cable-street, E.
" 30	Crowborough—Residence, Workshops, &c.	Newington Vestry	The Engineer, at Works, Crowborough.
" 30	Newport, Mon.—Buildings, &c.	Trustees	Conyers, Kirby, and Son, Stow-chambers, Newport.
" 30	London, N.—Swimming Bath	Urban District Council	E. C. Anson and Son, 74, Laurence Pountney-hill, E.C.
" 31	Goosnargh, Preston—Alterations, &c., Hospital	Norton School Board	E. Garlick, 33, Winckley-square, Preston.
" 31	Weston-super-Mare—Two Dwelling Houses, &c.	Admiralty	Price and Wooller, Architects, Weston-super-Mare.
" 31	Sheffield—School and Offices	Sapitary Laundry Co., Limited	J. Norton, Alliance-chambers, George-street, Sheffield.
Aug. 3	Beachy Head, Eastbourne—Six Houses	School Board	Watch-room, Beachy Head.
No date.	Hereford—Laundry Works	Co-operative Society, Limited	A. Lovesey, 2, Offa-street, Hereford.
"	Tottenham—Schools	School Board	A. N. Butler, 16, Finsbury-circus, E.C.
"	Kirkby-in-Ashfield—Stores	School Board	Ball and Lamb, 5, Houndsgate, Nottingham.
"	Leeds—School, Hunslet Carr	School Board	W. S. Braithwaite, Architect, Leeds.
"	Killamarsh—Six Houses	Union	W. H. Wagstaff, Architect, Chesterfield.
"	Doncaster—Workhouse		J. H. Morton, 50, King-street, South Shields.
<b>ENGINEERING—</b>			
July 23	Bilsby, Lincs.—Outfall Tunnel	Commissioners of Sewers	W. Hoodless, Surveyor, Hogsthorpe, near Alford.
" 24	Dawlish, S. Devon—Telescoping Gasholder	Gas and Coke Company	Company's Office, Dawlish, S. Devon.
" 24	Burnley—Waterworks	Corporation	W. Williamson, 54, Yorkshire-street, Burnley.
" 26	Newmarket—Sinking Well, Boot Inn	Rural District Council	S. J. Ennion, Deva-chambers, Newmarket.
" 26	Winchester—Bridges	London and South-Western Railway Co.	W. J. Taylor, The Castle, Winchester.
" 27	Glasgow—Purifiers, &c., Dawsholm Gasworks	Corporation	Engineer's Office, 45, John-street, Glasgow.
" 27	Northallerton—Widening, &c., Stone Bridges	Corporation	W. Stead, County Surveyor's Office, Northallerton.
" 27	Lewisham—Brick and Concrete Sewer	Board of Works	Surveyor, Board of Works Office, Catford, S.E.
" 28	Plumstead—Ventilating Shafts	Vestry	W. C. Gow, Vestry Hall, Plumstead.
" 28	Rochester—Cesspool-Emptying Plant	Corporation	W. Binks, City Surveyor, Guildhall, Rochester.
" 29	Hull—Plant and Machinery	Electric Lighting Committee	A. S. Barnard, Engineer, Dagger-lane, Hull.
" 31	Sheffield—Underground Tanks	United Gaslight Company	F. W. Stevenson, Company's Office, Commercial-st., Sheffield.
Aug. 2	Aberdare—Reservoir	Urban District Council	Surveyor's Office, Town Hall, Aberdare.
" 28	Craiova, Roumania—Water Supply	Municipal Council	Mairie, Craiova, Roumania.
" 31	Cairo—Iron Bridge	Ministry of Public Works	Inspector of Irrigation, 2nd Circle, Cairo, Egypt.
<b>IRON AND STEEL—</b>			
July 24	Burnley—Socket Pipes, &c.	Water Committee	W. Williamson, 54, Yorkshire-street, Burnley.
" 31	Sheffield—Cast-iron Columns	United Gaslight Company	F. W. Stevenson, Office, Commercial-st., Sheffield.
<b>PAINTING—</b>			
July 24	Macclesfield—Painting Two Gasholders	Gas Committee	Engineer, Gas Company's Works, Macclesfield.
" 26	Manchester—Painting Dwellings, Oldham-road	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 28	Ruabon—Painting, &c., Dee Bridge	County Council	E. W. Jones, Surveyor, Ael y Bryn, Wrexham.
" 28	Whittingham, Preston—Painting County Asylum	Committee	County Asylum, Whittingham, Preston.
" 28	London, N.—Painting and Decorating	Hackney Vestry	Gordon, Lowther, and Gunter, Bloomfield-street, E.C.
Aug. 4	Painting Asylum, &c.	Norfolk County Council	T. W. B. Heslop, County Surveyor, Norwich.
<b>ROADS—</b>			
July 23	London, N.—Wood Paving, Offord-road	Vestry of St. Mary	J. P. Barber, Surveyor, Vestry Hall, Islington.
" 23	Walthamstow—Making-up, &c., Church Hill-road	Urban District Council	G. W. Holmes, Surveyor, Town Hall, Walthamstow.
" 24	London, N.—Channelling, Excavating, &c.	Stoke Newington Vestry	S. E. Burgess, 126, Church-street, Stoke Newington, N.
" 24	Sandal Magna—Channelling, &c., Doncaster-road	Urban District Council	A. Fawcett, Old Town Hall, Wakefield.
" 27	West Ham—Making-up, Paving of Streets, &c.	County Borough	L. Angell, Town Hall, Stratford, E.
" 27	St. Albans—Sewering, Levelling, Paving, &c., Manor-road, &c.	Corporation	City Surveyor, Victoria-street, St. Albans.
" 27	Bromley, Kent—Sewering, Levelling, Paving, &c.	Urban District Council	The Surveyor, Council Offices, Bromley.
" 27	Lewisham—Kerbing, &c., Wildfell-road, Catford	Board of Works	Surveyor, Board of Works Office, Catford, S.E.
" 27	Lewisham—Kerbing, &c., Vineleigh-road, Penge	Board of Works	Surveyor, Board of Works Office, Catford, S.E.
" 27	Lewisham—Kerbing, &c., Marnock-road, Brockley	Board of Works	Surveyor, Board of Works Office, Catford, S.E.
" 27	Lewisham—Kerbing, &c., Methusa-road, Catford	Board of Works	Surveyor, Board of Works Office, Catford, S.E.
" 28	London, N.—Granite Spalls and Broken Granite	Hackney Vestry	J. Lovegrove, Vestry Hall, Hackney, N.
Aug. 4	Maidstone—Road Materials	Urban District Council	F. Bunting, Fair Meadow, Maidstone.
<b>SANITARY—</b>			
July 23	Stratton, Cornwall—Sewer, &c.	Rural District Council	Ellis and Son, Bedford-chambers, Exeter.
" 24	Birmingham—Sewers, &c., Church-lane, &c.	Public Works Committee	J. Price, City Surveyor, Council House, Birmingham.
" 24	Birmingham—Surface-water Drain, Arden-road, &c.	Public Works Committee	J. Price, City Surveyor, Council House, Birmingham.
" 26	London, S.E.—Underground Conveniences	Southwark Vestry	O. E. Winter, Vestry Hall, Borough-road, S.E.
" 27	Dover—Pipe Sewers	Town Council	H. E. Stilgoe, Town Hall, Dover.
" 27	Sedburgh—Sewers, &c.	District Council	W. Robinson, Clerk, Sedburgh.
" 27	West Ham—Drainage, &c.	County Borough	L. Angell, Town Hall, Stratford, E.
" 30	Bexley, Kent—Sewers, &c.	Urban District Council	A. Williams and Sons, 18, Great George-st., Westminster.
Aug. 3	Aberdeen—Sewers	Town Council	W. Dyack, Surveyor, Town House, Aberdeen.
" 4	Consett—Sewage Works	Urban District Council	R. Robinson, 6, Dixon-terrace, Darlington.
" 17	Luton—Drainage Works	Town Council	A. J. L. Evans, Town Hall, Luton.
<b>TIMBER—</b>			
July 28	Dewsbury—Wood Paving Blocks	Corporation	H. Dearden, Town Hall, Dewsbury.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
July 31	Bootle—Designs for Technical School	50, 30, 20 guineas	Corporation.
Aug. 13	Surbiton—Council Chambers and Offices	£30, £15	Urban District Council.
" 31	Bury, Lancs.—Plans for Art Gallery and Public Library	£75, £50, £25	Corporation.
No date.	Boscombe, Bournemouth—Plans for Hosp. Enlargement		Building Committee.
"	London, N.—Competitive Designs for Offices		Tottenham School Board.
"	Huddersfield—Design for Victoria Tower	£21	Tower Committee.
"	Darlington—Altering, &c., the High Row	£20	Corporation.
"	Brighton—Artisans' Dwellings, Local Competition	£75, £25	Corporation.
1898			
Jan. 30	Carlton, Victoria—Children's Hospital	£100, £50, £25	Hospital Governors, Pelham-street, Carlton, Australia.



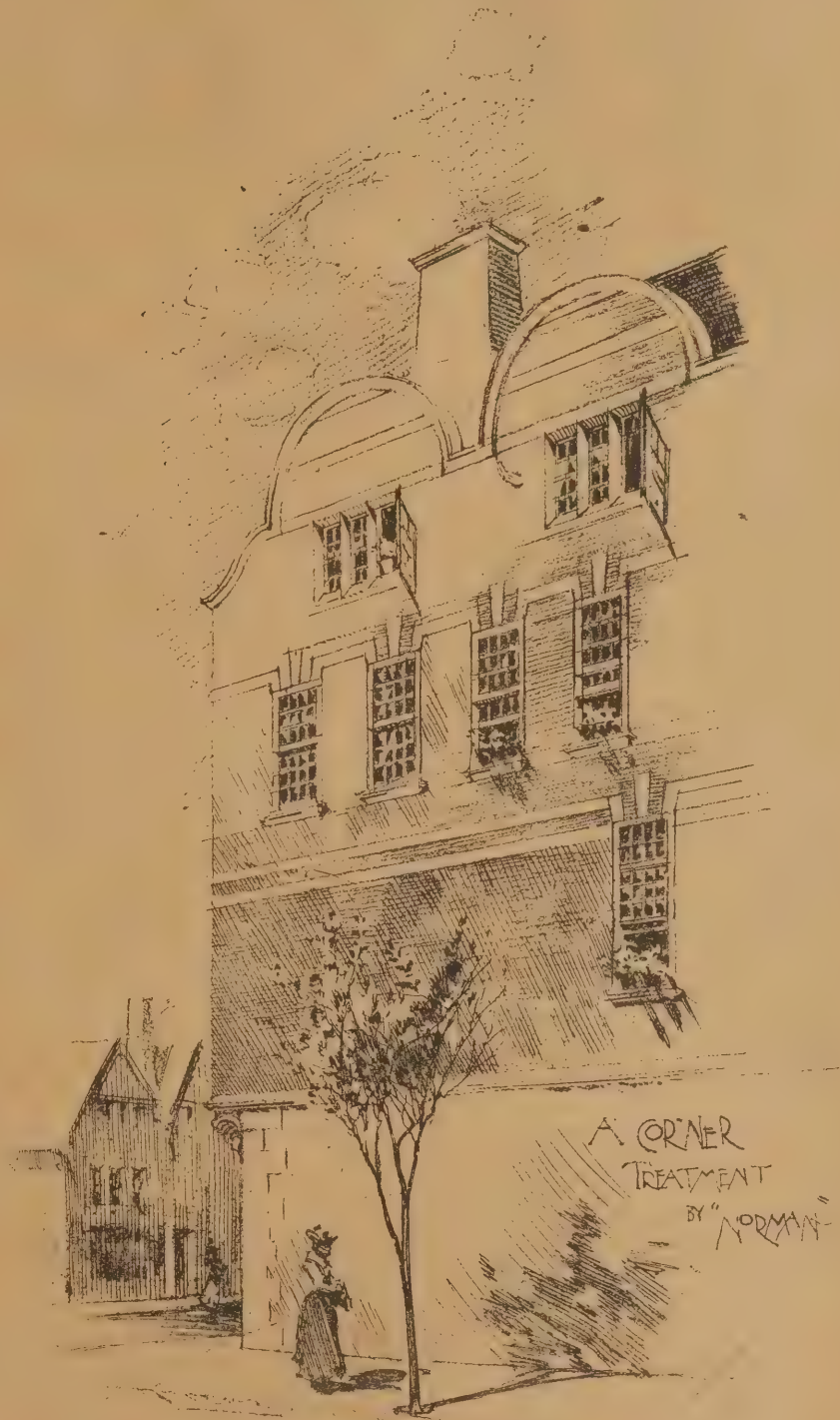


**Are Architects  
"Unsatisfactory  
Men?"**

A CORRESPONDENT calls our attention to a case just decided before Mr. Justice Cave, at Nottingham, in which the plaintiff claimed compensation for injury to her premises by the building operations of the defendants. The case in itself is of no particular importance, but it is of interest to the Profession by reason of the large number of Architects and surveyors ranged on opposite sides, and by the remarks of the Judge in summing up. The plaintiff had the report of her Architect to the effect that the defendants' operations were practically ruining her premises, that the house was unsafe, and would have to be pulled down and rebuilt, which would cost £630. This opinion was backed up in Court by the opinions of two other Architects, and by a builder who said that, presuming it was possible to repair it at all, this would cost £307. The defence maintained that the claim was very much exaggerated, that the house was practically worn out, that some little damage was unavoidable to a rickety old house such as this, that it was now better supported than before, and that a trifling sum would be sufficient to put it into the same state of repair as it was previous to the rebuilding. This view of the matter was substantiated by an Architect and Surveyor, who said the house was fit to live in; by two others who said the necessary repairs could be done for about £40; by two more who said that no real damage had been done by the defendants' building operations, and also by a surveyor who gave evidence. Incidentally the counsel for the defence, a certain Mr. Graham, is reported to have suggested that it was a grossly exaggerated claim, got up with the object of getting the plaintiff's Architect a cheap job, and getting a new house built at the expense of the defendants. This statement should surely have been supported by proof, but it does not appear to have been, and seems to have been passed over as one of the ordinary amenities of counsel. The Judge's summing-up is worthy of quotation—he remarked that "this was one of those unfortunate cases in which they had to listen to what Architects came and told them. There were no such unsatisfactory men as Architects, for they were always at the opposite poles to one another. (Laughter.) All other scientific men tried to come to some sort of an agreement, but Architects, on the other hand, tried to contradict each other entirely. That might be due to three causes, and three causes only. Which of these causes was the correct one was not for him to say. It might be that Architecture had no science whatever about it. Secondly, there might be science in Architecture, but the witnesses who had been called knew nothing about it. (Laughter.) Thirdly, there might be science in Architecture, and these men might possess that science, but not have the honesty to tell them truly what it was. (Renewed laughter.) One or other of these things must be true, or the Architects would not be found differing so widely, as they always did, and as they had done that day. In point of fact, they helped the jury very little indeed, and they had, as far as they could, to come to a decision with as little regard to the Architects as possible." His advice seems to have been acted on. Ver-

dict for the plaintiff—damages, £175. Our correspondent thinks that the evidence is extraordinary, and certainly gave grounds for such strong remarks as were made. Judging from the report of the case before us, we are inclined to agree with him. The Judge seems to have forgotten, however, that, though there is science in Architecture, yet

in the capacity of surveyor than of Architect. Architecture should not always bear the blame. It is well known that many Architects—we might almost say all Architects in the provinces—combine surveying with Architecture. Surveying with many is the real business of their lives. It may be a convenience to combine the two, but they



TONBRIDGE FREE LIBRARY COMPETITION.

Architecture is not an exact science. There is room for differences of opinion as there is in the Law. The sciences on which Architecture rests may be exact sciences, and a man may be thoroughly versed in them, yet he applies them in accordance with his individual common sense and experience. There is always a personal equation to be considered, and in cases of this sort there is always a difficulty in exactly drawing the line between safe and unsafe; some men would be willing to take risks that others would decline. Also, he seems to have overlooked that in nearly all such cases as this the witnesses appear more

are not necessarily connected. It is evident that it is not easy to be proficient in both; the tendency is to be proficient in neither. When Architects and Surveyors pledge the reputation of Architecture in the Law Courts, this should be borne in mind. When the Judge remarked that Architects were most unsatisfactory, and that they always differed as they had done that day, he was presumably speaking from his experience of the men who usually appear in cases of ancient lights, party walls, valuations, &c., which are far more frequent than cases involving the stability of structures. It is





LIBRARY  
ENTRANCE  
BY "NORMAN"

TONBRIDGE FREE LIBRARY COMPETITION.

well known that the majority of the men who appear in such cases are surveyors, who happen to do a little building as well. We should think that it was most rare to find an Architect in the witness-box as an Architect, and giving his opinion as such on a purely Architectural matter. In this particular case "Architects and Surveyors" appeared to give their opinions on a question of stability, and also on a question of the cost of repairs. The first is a matter for Architects, the second for surveyors. On a question of stability an Architect is the best judge. We would not consent to have Westminster Abbey pulled down on the strength of a report by surveyors that it was unsafe; but on questions of valuations a surveyor is the better judge. An Architect may know, as a matter of fact most experienced men do, but it is only as a convenience; theoretically it is not their business. An Architect is a man who designs and superintends the erection of buildings to make them convenient, durable, and beautiful; the more he confines himself to his proper business the less chance there is of his finding himself in the position to have such remarks passed on him

as we have quoted. But, making all possible allowances, we hold that the proceedings in this case do reflect on the credit of Architecture. We cannot see how one man could be of the opinion that the building might collapse on its own site, though shored up, and another could say that it was perfectly safe and fit to live in. The personal equation will not explain this. There seems something wrong here. We cannot understand how the opinions of two competent and independent witnesses could vary to this extent, making every allowance for an honest difference of opinion. We yield to none in our anxiety for the honour of Architecture, and we think that honour is best maintained by speaking out plainly with regard to such cases as this. We think Architects would best consult their own dignity, and that of their Art, by keeping out of them altogether. A good land surveyor, or valuer, like a good Architect, is a man to be respected; but a mixture of all these—sometimes more than these—a man who in the nature of things cannot expect to be a specialist in either, is generally the man to be found in the Law Courts, always liable to be a discredit to whichever Profession he may happen to be representing for the time being.

#### GUILDHALL SCHOOL OF MUSIC EXTENSION.

EXACTLY twelve years ago the foundation-stone of the building in which the Guildhall School of Music carries on its work was laid, and an institution which for some five or six years had had no worthier seat for its labours than an old warehouse in Aldermanbury found itself able greatly to extend its sphere of usefulness. Now, however, the day has arrived when the constant increase in the number of students necessitates a further enlargement of the school's premises. To this end a site has been secured in the rear of the present building, and here the Corporation of London proposes to erect an extension which has been designed by Mr. Andrew Murray, the City surveyor. The foundation-stone of this new structure was laid a week ago to-day by Mr. Deputy Pearse Morrison. The extension will be in the rear of the present building, on a site which has been reserved for the purpose. The new building will have a frontage to John Carpenter Street of 72ft. 6in., and a depth of about 51ft. 6in., the area of the entire site being about 3700ft. The accommodation to be provided consists of, on the ground floor level, a handsome and commodious orchestral saloon, 47ft. wide and 55ft. long, with a properly equipped stage,

47ft. wide by 13ft. deep. In height, the saloon will be 30ft., and there will be a gallery entered at the first floor level of the school. The saloon will accommodate about 650 persons, 440 being on the ground floor, and the remainder in the gallery. Careful consideration has been given to the exits from the saloon, and altogether there will be six; four are on the ground floor, three of which doors will open direct on to the pavement in John Carpenter Street; the other two exits are in connection with the gallery. On the second, third, and fourth floors there will be in all thirty classrooms, ten on each floor. The basement will be taken up with dressing-rooms, &c., which will be in direct communication with the stage by means of a staircase at each side. The floors of the new building will be fire-resisting throughout. All the class-rooms will be warmed by means of hot water radiators, through which fresh air will be passed. No open fireplaces will be provided in the new building. The extraction of the vitiated air from the various rooms will be effected by means of trunks having valved openings near the ceiling; these trunks will be connected at each floor into a large upcast shaft at the north end of the building, and in order to generate an upcurrent in the shaft, the smoke flue from the heating chamber will be placed alongside. In summer, when this heat will be absent, the necessary current will be provided by means of a steam radiator placed at the top of the shaft. The front elevation will be carried about 22ft. higher than the present, it will be faced with Portland stone rising from a granite plinth. The style adopted will harmonise with that of the old building, which was designed by the late Sir Horace Jones. The cost of the new building, including fittings, is estimated at £20,500.

THE Church of the Holy Trinity, Shoreditch, is not "with one exception the only Anglican place of worship which is upstairs on the first floor." There are at least two English churches in East London which are upstairs. A third is shortly to be added in St. Cuthbert's, Millwall, in the parish of Christ Church, Poplar.

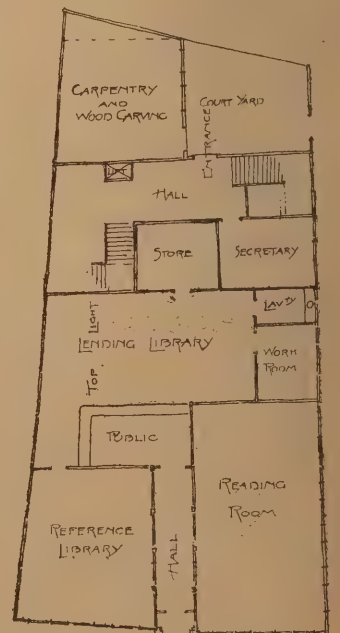
THE famous seminary of St. Celestin, at Bourges, has been almost entirely destroyed by fire. The magnificently decorated chapel and the valuable library were burned to ashes, but the splendid façade of the building was saved.

MOTTO  
(ART)



GROUND FLOOR PLAN

Scale of Building 0 10 20 30 40 feet



GROUND FLOOR PLAN

Scale of Building 0 10 20 30 40 feet

PLAN OF PREMISED DESIGN.



## TONBRIDGE FREE LIBRARY AND TECHNICAL INSTITUTE COMPETITION.

A REVIEW OF THE DESIGNS.  
By our Special Representative.

IT is always a pleasant task to criticise a competition which we know beforehand has been conducted fairly, and where we are assured the best plan has won. The Urban District Council of Tonbridge is to be heartily congratulated on the result of the recent competition in this respect, as well as upon the public spirit it has shown in providing the town with such useful buildings as we are sure these will prove to be. It has exhibited a vigour and an earnestness in the matter which puts to shame many a town of more than double the population of Tonbridge. This kind of spirit seems to have been in a way felt by the competing Architects, for they mustered nearly 30 strong, and have devoted considerable skill and ingenuity in dealing with a somewhat difficult though small a subject. In a word—considering the circumstances—it was undoubtedly a very strong competition, which makes it so much more disappointing that the Artistic result should be as poor as it is. There are but four designs out of the thirty which can lay any claim at all to be so described. They were submitted under the mottoes "Norma," "Art," "L'Envoi," and "N in Circle." We have placed them, we think, in order of merit, and have pleasure in specially mentioning the name of the first, which we believe to be by young Mr. Sellars, of Glasgow, who has done, as a student, some very promising work, and who this time, although his drawings are of the roughest kind and evidently made in a great hurry, proves himself to possess talent quite out of the common, but his ingenuity in planning, like some other of these Artistic competitors, is not equal to his powers of design.

The accommodation asked for in the conditions was as follows:

### TECHNICAL INSTITUTE.

Lecture Hall, 1200 to 1500 sq. ft.  
Chemical Laboratory, about 500 sq. ft.  
Carpentry and Wood-Carving Room, about 500 sq. ft.  
Two General Class Rooms.  
Three Art Rooms.  
Secretary's Office.

### FREE LIBRARY.

Public Reading Room, 1000 sq. ft.  
Library (Lending Department with Borrowers' Lobby and Counter), at least 750 sq. ft.  
Magazine Room (area not stated).  
Librarian's Store Room.  
Caretaker's Quarters and Store Rooms, Lavatories, &c.  
The limit of cost was £4000.

The problem, according to the conditions, really was to get this accommodation (on a limited site) on two floors, because it is obvious in working it out that the cube must necessarily exceed the stipulated outlay, if another floor is added.

It is on this point we feel disposed to quarrel with the award, for those competitors who realised that fact, and kept within the conditions as to cost, were handicapped all through against those who ignored them. When a definite sum is stated in the conditions, we think it should be strictly adhered to in the assessment. With this small grumble we proceed to remark upon a few of the more prominent designs.

Undoubtedly, the first premiated, under motto "Art in Circle," has won his position well by a very carefully and ingeniously thought-out plan; the general disposition of the rooms will be seen by the accompanying sketch-plan. The great merit of the library plan is that all the rooms are large and well lighted, points which compare most favourably with the other designs, and which probably went a long way to securing the author the first place. The position of the librarian, too, is worth noting, because he can not only command a good view of all the rooms—one of the conditions of the

competition—but he is so placed in front of the general entrance that all who enter the building can at once be seen by him. The technical school is also well planned, and the small courtyard at the back is an excellent idea for an entrance to such a building from a very narrow lane. The carpenters' shop (where there would necessarily be a good deal of noise) at the rear of the site could hardly be in a better position. The elevations, how-

showy and attractive manner, are if possible worse than those of the first man. They are vulgar and meretricious in the extreme, and are perhaps only equalled in the competition in that way by those under motto "Expert," even if they are not worse. "Light," which is the motto of the second premiated, has, however, some very good points in his plan, which entitles him to the just use of his *nom de plume*. We see no reason in the least why



A NOTE FROM THE DESIGN  
BY "ART"

TONBRIDGE FREE LIBRARY COMPETITION.

ever, of this set form a very strong reason why he should not be the winner. It is not so much the "workhouse plainness," as some of the Council call it, as the artlessness of the whole thing. It will be an enduring disgrace to Tonbridge if it is carried out as here proposed, and we hope, so far as regards the elevations, the Council will endeavour to get the work entirely altered. There are already signs of something of the sort we are glad to say, although we hope the alteration will not tend in the direction of the elevations of the second premiated, which, drawn perhaps in a more

"Expert" should have gained the third place; his elevations alone should have put him out of court, and there is nothing of any particular importance to recommend his plan, his *nom de plume* notwithstanding. Norman's plan is infinitely better, for example, save his winding and wasteful corridors and narrow staircases. "Art," too, which has such artistic elevations, has a well arranged plan, the librarian is well placed, but the reference room is much too small. Any one of these designs would have been better in the third place than that of "Expert."



MOTTO

(A)



Some conscientious competitors, evidently under the impression that when the conditions name £4000, that £4000 was the limit of cost, had endeavoured, and rightly so, to keep the cube down by getting all the accommodation on two floors. This necessarily means cramping some of the rooms. The plan of "N in Circle" we publish as illustrating this point. The cube, according to the author's report, is about 60,000, and this at 6d. works out to the stipulated sum. We mention this particularly, because no other design works out at so small a cube, and we think that most of the others would have some difficulty in realising their designs for the amount named.

"Melita" has a fairly good plan, with side entrances, and places his reading room in front and lecture hall over, which is not a very good arrangement. The borrowers' space is too small; the librarian is well placed, but insufficiently lighted. The chemical laboratory would not do at all, it is too long and badly shaped. This design also conscientiously provides all the accommodation on two floors, and, consequently, could be built for the money.

"A in Circle," the plan of which we publish, we think one of the best in the competition; but the elevations are heavy and ordinary, perhaps due, in a measure, to the way in which they are drawn.

"Hope" has a fair plan, with an inoffensive treatment in elevations. The lecture hall is placed on the first floor; the reading room is entered from the borrowers', which is not good. The placing of the librarian is excellent, however. The schools entrance is at the side. The defects of this plan, which is clever in some respects, are: the corridor to lecture theatre, which, at 3ft. 3in., is much too narrow; the reading room, which is much too dark and long (48ft.), and lighted only from each end one of which is an area; and the reference room, 26ft. long, with windows at one end only.

"Bonâ Fides" places lecture hall on second floor with art rooms under; they should, of course, be just reversed. The reading room, magazine room, and hall not well planned and badly lighted. The chemical laboratory is away from the lecture hall platform, which, of course, is an initial mistake.

We have had occasion to point out before, in reviewing competition designs, that there invariably appears the unconscious humorist, just as the Derby provides the undecided dog, and Henley the frail canoe. In this competition the humorists are in strong force; there are no less than four, and all very funny—there is the man who thinks the precise scantlings of his roof timbers of more importance

than his plan; and another (it would be unkind to mention mottoes), who keeps his elevation rather plainer than a barn door and infinitely less interesting, and then gravely tells the Committee it is at liberty to reduce the ornamentation if it likes! We suppose he means if it can! This last man has mistaken his work; he should have been a puzzle editor for a popular penny weekly.

### MOSAIC.

BY HARRY THOMSON.

(Continued from page 363.)

THE purer practice of the Greeks and Romans was followed about the middle of the fourth century, during the spread of Christianity, by an Oriental love for splendour, and a class of work peculiarly Byzantine gradually superseded the more severe and formal treatment of earlier work, and churches and baptisteries were adorned with mosaics of grim and swarthy-visaged saints gorgeously draped on a gilded ground of glass. Though the Art progressed, little attention was paid to neatness of joint or bedding, and the manner of execution was large and coarse, the pieces of glass used being of very irregular shapes and sizes of all and every tone of colour on a prevailing ground of gold. Yet the effect was splendid, and even luxurious. Undoubtedly the influence of Byzantine feeling is observable in all Art work of this period, and that it was an influence for good is more than likely if we may judge by examples of mosaic such as that which we see in Ravenna, which is distinctly due to Byzantine influence. Of all historical work in mosaic, that which seems to fulfil most successfully the requirements of decoration is the work inspired directly through the all-powerful

### ARABIAN INFLUENCE.

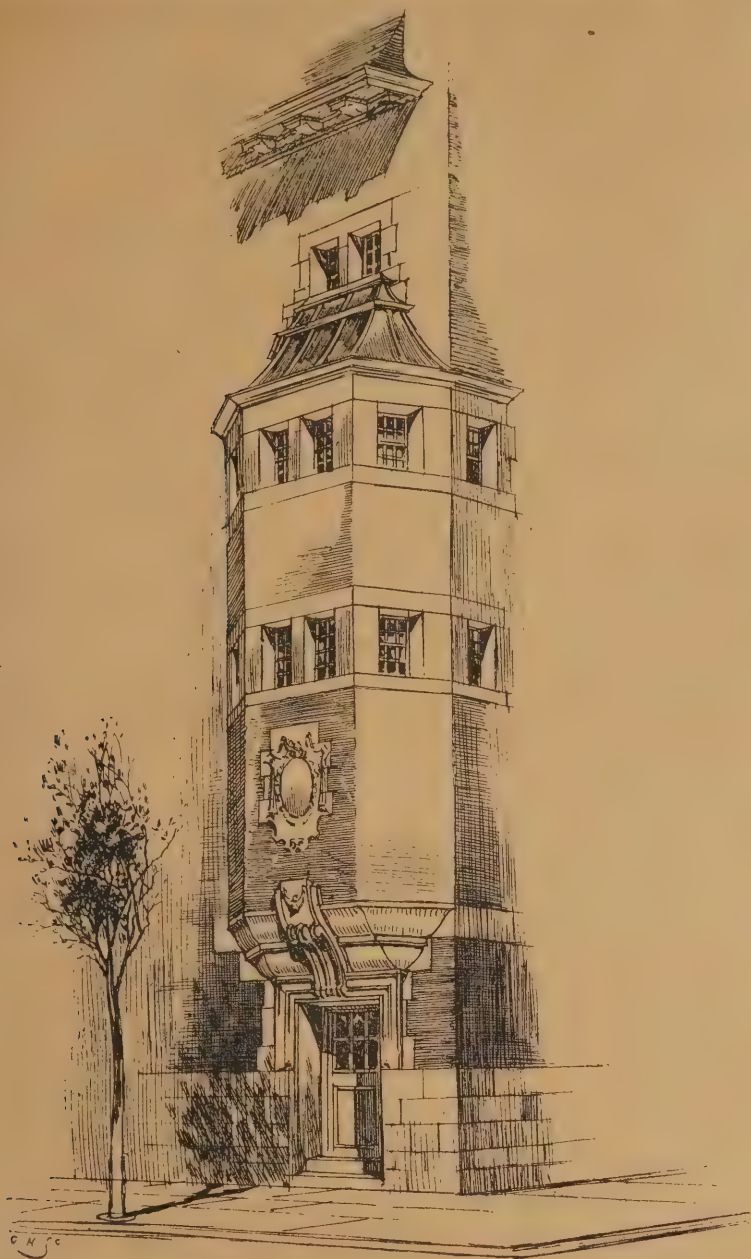
The pieces of tesseral being irregular in size and shape, the effect of modelling in paint is suggested, but in a material alive and glowing with colour. As the wealth of Rome declined,

many artificers emigrated to Byzantium, where it seems glass factories were erected and mosaic and other glass made and largely used. The Byzantines followed classical models to some extent, though it must be admitted with at times a certain degree of bad taste. In the middle of the ninth century the Arts, and especially that of mosaic, were much practised, but ancient traditions had now been lost, and the style which we now know as Byzantine took the place of former work. During this time the Art flourished to some extent in Venice and Murano. The mosaics in St. Mark's were begun in 1071, and are said to have been made of Greek glass by Greek Artists, and probably this fact gave an impetus to the Art in Venice. At any rate we learn that other Artists were employed from time to time in illuminating the building within and without, till in 1159 the first Italian mosaic made by an Italian Artist was introduced into St. Mark's. From this time mosaic was much used in Italy in the decoration of churches, monuments, rooms, and furniture, and the inlay of white marble, this last being a decoration peculiarly Italian, and ultimately acquired great importance at Florence, where it is still practiced. In the general revival of interest in mosaic and glassware the workers of Murano succeeded in re-inventing the millefiori glass already referred to as having been in use in ancient Roman times. The imitation, however, was hardly so fine as the original, and, whether from carelessness or inexperience, the jointing of the glasses often very irregular. The return of the Crusaders to Europe in the year 1204 gave a fresh zest to the manufacture of mosaic, and an influx of Oriental feeling to the works produced by masters of the Art. The taking of Constantinople must have afforded the Venetians an opportunity of acquiring additional knowledge of the processes employed by the Greek glassmakers. So great was the demand for glassware in Venice, and so numerous the artisans employed in its manufacture, that in the middle of the thirteenth century codes of trade regulations were drawn up for the various sections of glass workers in the city. When the branches of the Art became well defined, the masters



TONBRIDGE FREE LIBRARY COMPETITION.





FROM A DESIGN  
BY L'ENVOI

TONBRIDGE FREE LIBRARY COMPETITION.

and workmen exercising each kind of industry banded themselves into distinct bodies with special regulations set forth in their several constitutions. The Council of the city was careful of the interests of the various craftsmen, for we read that in 1275 a law was enacted prohibiting the exportation of the sand and other substances used in the making of glass, and also of the fragments of broken glass. This prohibition was renewed in 1295, and fines were levied upon glass makers who should return to Venice after a sojourn in other States. Every encouragement to the progress of the Art was given by the Senate in the decrees passed for the protection of the interests of the different fraternities of workers in glass. The practice of the Venetians was to hand over to certain of the schools of mosaic-workers or other decorators the various portions allotted to their contract, with a stipulation that the work should be executed within a given time, the Republic employing Artists of note to make sketches and cartoons for the guidance of the mosaic workers. A charming story by George Sand, entitled "The Mosaic Workers," gives a delightful picture of the daily routine of the decorators employed

upon one of the cupolas of St. Mark's, and it may interest you to have the passage repeated, though in rather a condensed form. "With the rising of the sun the apprentices of the mosaic workers arrived at the Church, raised the ladders, selected the enamels, mixed the cement, singing and whistling and chatting in spite of the admonitions of the priestly father by their sides, himself a worker in mosaic. In the intervals of the clamour and bustle would be heard the hollow noise of the tools on the mosaic, and then the clear glassy sound of the crystals falling from the basket upon the pavement like little streams of rubies and emeralds, with now and again the sharp and piercing sound of the saw cutting the marble, while below was heard the nasal intonation of the masses repeating in the various chapels, and above all, and in spite of this confusion, the ticking of the clock, and the heavy vibration of the bells. The work having to be completed within the stipulated time, both masters and apprentices worked hard day and night to have the mosaic finished for the inspection of the examiners. A light mattress thrown on the scaffolding served for those who, overcome with fatigue, wished to taste a

few minutes of repose, interrupted by the joyous song of others, and the creaking of the boards beneath their feet; taking their repose rocked by the motion of the scaffolding, and lulled by the sound of the beetles." Leaving this little sea of romance, let us return to the dry land of historical description. As the factories of Venice rose in renown, new-born genius was added to the experience of the past, and the Art which the Byzantine Greeks had transmitted to Western Europe approached an extraordinary degree of perfection. Specimens of ancient glass were carefully sought out and carefully studied by the skilful workers of Venice and Murano, and the result of their close observation of the antique enabled them to produce those countless marvels in colour and form which still give pleasure to the uncultivated as to the most fastidious taste. They succeeded in copying all the old colours, and blended two sheets of colour in one glass; they imitated all kinds of marbled stones; they made the millefiori glass and invented Aventurine, a glass in which numerous particles of copper (or rather silicate of copper) are diffused through a yellowish transparent mass. This brings us to

#### THE SEVENTEENTH CENTURY,

during which time the manufacture of glass continued to prosper at Murano and Venice till the fall of the Republic, when the last of the grand palaces having been built and Venice having touched the zenith of her glory and greatness, she thenceforth began to decline. Her Art sank into decay, while the old masters of Venetian mosaic, whose works survive to this day, finding that the world had no longer any work for them, died out and became extinct. Their secrets died with them, and the art of mixing and colouring their glass was lost to posterity. The interruption of trade, and the decay of manufacture, compelled the subsequent remnant of glass makers to confine themselves to the production of glass beads and other articles of a common sort for domestic use. At the beginning of the seventeenth century there were three hundred glass houses in Murano; but at the commencement of the present century all were gone except a mosaic factory, which closed in 1825, but the necessity for renewing the mosaics of St. Mark's induced the government to persuade the owner to re-open his works. He afterwards made some valuable discoveries in conjunction with others interested in the revival of this beautiful Art. But money considerations, and the inability of the Government to give any effectual assistance, sadly hampered their efforts. It was when things were at this low





ebb that Dr. Salviati, a lawyer in Venice and a lover of Art treasures, turned his attention to the restoration of the mosaics of St. Mark's. It is well known that the five domes of St. Mark's were once adorned inside with glorious pictures in glass mosaic on a prevailing ground of gold. The pictures were well-nigh indestructible, but most unfortunately the building which contained them rested on a very unstable foundation, and the vaulted domes were the first to sink, and parts of the mosaic cracked and fell out. There had already been some talk of repairing these mosaics, and some attempts been made and suggestions offered in plenty, till Dr. Salviati's interest was awakened in the subject, and being convinced that Art genius is hereditary, he first looked through the golden books of the Republic, in which the names of the best masters were formerly entered, and then made enquiries in Venice and Murano, where at length he discovered certain descendants of mosaic workers, some of whom were still connected with the making of glass. These men he induced to join him in his undertaking, and a series of experiments were instituted with the object of discovering the lost secret of mixing and colouring; the result of their combined efforts being that all the

#### COLOURS OF FORMER TIMES

have been revived, with many other new intermediate tints. Indeed, the shades of colour ultimately at command numbered 22,000, and of these two or three hundred stand for flesh tints alone. The gold paste seen in the background of old mosaic was difficult to imitate, but a substitute was found by placing gold leaf on a sheet of glass, covering it with a thinner sheet of the same, and then fusing the three together. It seems, however, the process does not answer for silver so well. So far all was satisfactory, but unexpected difficulties now stood in the way—namely, the time necessary to execute the work in the old manner by inserting the mosaic piece by piece on the cemented ground. Undoubtedly a most artistic method of working, but a method suited only to the capacity of a master capable of inventing, and drawing, and colouring his own work. A substitute, however, was adopted more fitted to be executed by untrained men, requiring only technical skill, enabling the work to be done more cheaply and rapidly, and, as a consequence, with much greater economy of time and labour. The method adopted, and which is almost universally followed by those who practise the craft, is briefly this: The mosaic worker lays his cartoon or working drawing face upwards on a table. By means of a sharp hammer or chisel on an anvil or another chisel he divides his cakes of coloured glass into small cubes, and attaches each to its proper position on the drawing by means of paste or gum, till by degrees all the pieces are in situation. When all are placed, he pours over the work a fine cement, which penetrates every crack, and unites, when "set" or hard, the whole into one solid mass. The piece of finished mosaic is then turned and placed in a zinc tray, the design is washed off, and the picture appears to the eye a true copy of the original. The producing of mosaics by this method of working simplified and economised the production, the immediate result being that orders for mosaic from all parts of the world quickly flowed to

#### DR. SALVIATI'S WORKSHOPS

—this new departure from the beaten track followed by generations of mosaic workers was crowned with success, a success which all must admit was well deserved. Not content, however, with having mastered the mystery of mosaic making, Dr. Salviati turned his attention to the production of glass table ware, in imitation of the old productions of Murano and Venice, and there again his success was complete, the modern glassware of Murano even exceeding the old in delicacy of form, though, perhaps, to the critical sense somewhat inferior in beauty. Having thus far given a short outline of the history of mosaic, perhaps I may be allowed to say a few words as to its merit and place in mural decoration.

The charm of mosaic lies possibly in the paint-like texture of its surface, the brushiness, so to speak, of its execution, and in the translucency and opacity obtained at will, and the delicacy or depth and beauty of its colour. Qualities like these well fit it to the purpose of mural decoration, and its affinity to stone and marble make it a fitting companion to these materials. Its imperishability is beyond question, and its strength is that of stone. The Mediævalists used mosaic on the outer walls of buildings, and did so with impunity; for a bright sun kills colour or softens it. In our climate, however, the visitations of that luminary are less frequent than on the Continent, and a coloured mosaic decoration on our walls would probably rather offend than please us, unless, of course, its colour were kept quiet and unobtrusive, when very likely some of the charm of the material would be lost. Its adaptability to great schemes of interior decoration is a point which should not be lost sight of, but there is little chance of its being put to this use unless in our public buildings. In our dwelling houses its use will probably be confined to panels or plaques laid on the wall. But whatever its situation may be, whether on floor, wall, or ceiling, it should never seem otherwise than what it is—a decoration which harmonises with stone, marble, and wood, and no attempt should be made, I venture to think, to imitate by its means the qualities of oil painting. Mosaic need never be the servant or copier of oil painting. It is an Art which can exist as an Art by itself, an Art which can lead while

#### OTHER ARTS FOLLOW.

And now I shall have something to say of the Art of mosaic glass working, concluding with a reference to the work of John La Farge. At a very early date in the annals of Christianity coloured pattern glazing was used as a means of decoration for windows and such like purposes. The source of design and construction of glazed windows may be traced to the enamellers who practised their Art in Constantinople between the eighth and twelfth centuries. These workers in enamel understood how to make glass, for enamel is virtually glass, only generally a little more opaque, this opacity being due to the presence of oxide of tin added to the enamel material. What more reasonable, then, than to suppose that the Art of working in window glass grew from the Art of working in enamel? The different pieces of enamel are held together by soldered bands of metal, while in glass glazing the only practical difference is the substitution of the lead-flange holding each piece of glass in position. The striking similarity of these two Arts would suggest that one is a growth from the other. However that may be, the idea of

#### WINDOWS OF COLOURED GLASS

probably originated from the East, where coloured glass in Arabesque form, held in position by metal clips, was used to subdue the glare of light. This coloured glass was used in a strictly mosaic form to produce the effect of simple patterns in colour, and this was the grand step the early glass workers of Europe made when they formed the pieces of glass into a pictorial design, and made it a vehicle of artistic expression. Let us look at these Mediæval Artists at work. Upon a large table, whitened with chalk, was traced in bold outline the main divisions of the window, and the form or the outline of the design, the lines thus made representing the lead lines which were to be a guide in cutting, or rather, shaping the glass, for the use of the diamond for that purpose was then unknown. The object the designer had in view was to make the lead lines form a natural outline to the subject, and to do so with as few lines as possible, a method necessitated by the difficulty and risk of shaping the glass, which was cut or shaped with a pointed piece of red hot iron, a crack following its passage over the surface of the glass. Possibly the early workers in glass knew the limitations imposed upon the practice of their art, and though not a single quality was lost, yet they kept within their means and never attempted to overstep the limitations imposed on them; thus avoiding those elaborate failures which

some of the later glass workers have produced. And since that time great strides have been made in the Art, and quite lately in the making of glass itself, and now it is not too much to say that glass is being made which is entirely superior to anything ever made before. The beauty of the material has been recognised, and methods of shading the glass in the process of manufacture are being perfected each day—each day, in fact, bringing something newer and better than before. For the bringing about of this desirable state of things the credit must be given to John La Farge, an American Artist of great ability, who, enamoured of glass, and deserting the easel and palette, set himself to study its possibilities in the manufacture of the material itself.

#### LA FARGE

first began to experiment in the making of glass, having for a leading idea the imitations of the inlays of precious stones set in jade by Eastern Artists, the opalescence of parts contrasted with the transparency of others. After many trials, and many difficulties, and many failures, he at last, in conjunction with a clever glass maker, succeeded in the production of what is called "American opalescent glass," the quality of which is undoubtedly very fine, exceeding in delicacy, in range of colour, and richness, and depth, anything attempted before. The productions of our British School look thin, and sickly, and pale side by side with the robustness and vigour, the horny texture, of American glass. But this result is attained by a peculiar method of working the glass after it leaves the hands of the manufacturer—a method which, if not entirely new, has at least been resolved into a system under the direction of John La Farge and others of his fellow American workers in glass. To understand the difference between the American and our own rather primitive method of working, recourse must be had to a description of the manner of procedure after the cartoon drawings have been prepared. After consulting his colour sketch the Artist decides the colour scheme, and has his glass cut from paper patterns, then fastens the different pieces of glass to a sheet-glass frame by means of wax, and builds each piece, altering and amending here and there until the work is fairly satisfactory. The window is now taken down in sections, and is leaded or joined together by lead strips, and soldered in the usual manner. Finally, the glass is transferred to the upright easel, and plated; that is to say, pieces of glass are laid over the glass underneath, so as to vary the colour or its depth, or vary or direct the modelling. There seems scarcely any limit to which this "plating" or modelling can be carried, as many as five or six platings having sometimes to be made. It is this elaborate "plating" which constitutes the difference between the American method of working and ours, and a good deal can be said in its favour, for, apart from the question of appearance and quality, the permanence of the work, from the absence of paint, is unquestionable. Windows executed in this manner are necessarily very expensive, from the time, material, and care required in their execution. Working in this way dispenses almost entirely with the use of enamel paint; in figure work only the faces and hands have to be painted, and the result of the method rather that of a translucent mosaic held together by a network of metal bands. Mr. La Farge, however, being much given to experiment, has not always rigidly adhered to the mosaic theory of glass treatment, having in some cases used enamel rather freely. Among other inventions stamped, pressed, and dropped glass have been introduced; flowers, hands, and faces are modelled in relief, and other and more marvellous things will be done, I have no doubt, before we are much older.

A PIECE of freehold land in Picton Road, Wavertree, between Wells Street and Pearson Street, containing about 500 square yards, is to be purchased as the site for a technical school.



### THE HIGH CROSS OF DOWNPATRICK.

AFTER a strange, eventful history, and a long period of neglect and forgetfulness, the grand old Celtic cross of Downpatrick has been quietly re-erected in the ancient city in which it stood for so many centuries, forming as it did, and still does, the sole remaining monument of the early Christian Church that has been spared in this city. The gathering together of the scattered pieces and their re-erection is due to the energy and the liberality of some of the antiquarian members of the Belfast Naturalists' Field Club. This cross formerly stood opposite De Courcy's Castle, where the post office now is, at the cross-roads in the centre of the town, and tradition says it was brought at a remote time from the Dun, where it had been erected to one Celtchair, an Irish King. The old site is now the centre of traffic, and is very narrow, and in consequence unsuitable for the restoration. This difficulty has, however, been overcome, and the Dean and Chapter of St. Patrick's Cathedral have given a site for the cross, and it now stands erected on the grass triangular plot at the east end of the Cathedral, facing the road leading up from the city. The stones of the cross consist of the base or die, the shaft, and the arms and nimbus ring, the coping or cap stone being still undiscovered. These three stones, with an additional base stone, which was a necessary insertion owing to some injuries in the base proper, are now fitted together with care and precision, and form a cross

#### ELEVEN FEET HIGH.

No attempt of any kind has been made to restore the ornament, and, like the battle flags hung inside the Church with all their mutilations of honour, so the old cross has been erected with all the wounds and scars of the many troubles and the sad vicissitudes it has endured since it left the hands of the master craftsman in the tenth century. The base stone has no trace of ornament left. The shaft on its east face has four panels, the two centre ones each containing three full-length figures, and the upper and lower panels, which are only half the size of the centre ones, contain half-length figures, all evidently being Scriptural subjects, but now so worn as to be past recognition. The south side of the shaft has one panel its full length, containing a rich interlacing Celtic pattern closely worked at each end, and expanding to greater freedom in the centre. This is the most legible ornament on the cross. The stone above the shaft, which extends into the arms, bears in the centre the crucifixion of the Saviour, dimly visible on its weather-worn face. The angles of the cross bear evidence of having once had a round—possibly a rope—moulding, but this has suffered so much that many might consider it was splayed or chamfered. Ireland was ever

#### FAMOUS FOR ITS TOWERS AND CROSSES.

The latter rangé in hundreds from the modestly-cut sign to the impressive magnificence of the stately art of Monasterboice and Clonmacnoise, where the refined work of the Celtic chisel reached its culminating point—designs which Lord Leighton said "were produced on a different principle of form, and which display a perhaps yet higher æsthetic quality than that of the ornament which eventually displaced them." Every stone that bears a trace of Irish Art, even when they are dim with age, like these of Downpatrick, are worthy of the tenderest care and preservation. The type of the Irish cross became fixed in the ninth and tenth centuries, and flourished for three succeeding ones as a peculiarly Irish Art, and which Miss Stokes says is "the union of such primitive rhythmic designs as are common to barbarous nations, with a style which accords with the highest laws of the arts of design, the exhibition of a fine Architectural feeling in the distribution of parts, and such delicate and perfect execution, whatever the material in which the Art was treated, as must command respect for the conscientious Artist by whom the work

was carried out." The early Irish Church, under whose guardian wing this Art was protected, nourished, and brought to perfection, had its own troubles with the advent of the Norman barons, who despised the Irish, their laws, their Church, and all belonging to them, stamped them out, and substituted their own manners, customs, and their coarser grade of ornament, thus killing a refined and distinctive national Art. Willing hands have once again placed the "high cross" erect in the place that knew it of old, and it is to be hoped that the good feeling which prompted the possessors to give up the stones and the generosity of those who contributed to the restoration will prevail among all classes to preserve for Downpatrick this rich old work. The work of restoration has been carefully carried out by Mr. Wm. Hastings, builder, Downpatrick, under the supervision of Mr. William J. Fennell, Architect, Belfast.

### ELECTRICITY AND ITS DANGERS.

THE Departmental Committee appointed by the Home Secretary to inquire into certain miscellaneous dangerous trades has issued an interim report dealing with electrical generating works. The Committee—which has been aided by Major Cardew, R.E., electrical adviser to the Board of Trade, Sir David Salomons, Bart., Professor Ayrton, Dr. Hopkinson, Professor Kennedy, Professor Silvanus Thompson, Mr. F. Bailey, and Mr. James Swinburne—does not deal with electrical stations supplying currents at extra high pressure, as there is only one example of the class in this country; but with regard to the projects which, it understands, are on foot for employing 10,000 volts, or some other number constituting extra high pressure, in connection with electric railways, it is of opinion that special rules will have to be drafted and issued for the protection of the workpeople employed when the schemes have assumed a more definite shape. It appears that in electrical generating works and sub-stations during the last five years, fourteen fatal accidents have occurred, including five since since the appointment of the Committee. The danger peculiar to electrical generating works is the liability to shock, which is often fatal if, by accident, any one comes in contact with the conductors when

#### CHARGED TO A HIGH PRESSURE.

The contact need be neither very perfect nor direct. Provided two parts of the body are made to touch conductors differing in pressure by 1000 volts or more, or even by much less if the contact with the flesh is very good, a dangerous and possibly fatal shock will result. The ground, especially if damp, is sufficient for one of the contacts, damp leather boots affording no protection, so that any one standing on the ground or on a metallic or damp wood flooring cannot safely touch a single object charged to a dangerous pressure. If, however, he should be standing upon a dry india-rubber mat, which is an excellent non-conductor, he will come to no harm on touching any number of dangerously charged bodies which are at the same electrical pressure; but if he should simultaneously touch, even through his clothes, two bodies differing in pressure by about 1000 volts, or if while safely touching highly-charged metal he should touch someone else who is not also insulated, then a fatal shock may follow. In a similar manner bare overhead high-pressure conductors may lead to accident in case of breakage, or by swinging into contact with buildings, &c., or by earthing at the points of support in consequence of damage to the insulators; or they may become sources of danger to persons who unintentionally put themselves into contact with them by a ladder or other means. High-pressure overhead wire, even if insulated over their entire length, can never be considered as

#### ENTIRELY FREE FROM RISK.

With a view to ascertaining the cause of death, and devising means for resuscitation, a number

of experiments have been made from which it appears that the cause of death is arrest of the heart's action, and the best method of restoration is artificial respiration. In all cases, therefore, of apparent death from electric shock, artificial respiration should be resorted to at once, and persisted in for a considerable time, for recovery is known to have taken place after fully half-an-hour. The Committee recommends that the following regulations should be applied in the case of all stations and transformer chambers where electric currents at high pressure are generated or transformed by way of trade, for consumption by the public, or where they are used in any factory or workshop, or in any place of public resort for business or amusement, including Government establishments, shops, warehouses, and theatres, and exclusive only of private houses and premises, and of low-pressure systems:—The frames of all generators and all metal transformers shall be efficiently connected to earth, whilst the rails fencing generators shall be made of

#### NON-CONDUCTING MATERIAL.

All highly charged bodies or conductors shall be so placed, covered, or fenced with insulating material that no person may, by accidental contact, receive a dangerous shock; and the floors of all places where connection with metal at high pressure might be made shall be covered with an insulating mat. Materials used for cleaning commutator strips, &c., of dynamos, motors, or rotary converters shall be applied by means of an insulating handle. In switchrooms and on the front of switchboards all metallic parts shall be insulated, or so arranged as to render accidental contact with them impossible. The backs of all switchboards shall be kept closed except for the purpose of alteration and repair; and all switchboards erected in the future shall have at the back a clear space of at least 4ft. All aerial high-pressure conductors in factories or workshops shall either be insulated over their entire length and supported at such frequent intervals that in the event of breakage they shall not come within reach of places where persons are liable to pass or be employed, or shall be so placed and arranged as to comply with the regulations which the Board of Trade enjoins in the case of such wires in streets. Any person at work upon conductors under high pressure shall wear india-rubber gloves, to be provided by the occupier of the building, who shall see that they are in a proper state of repair and are duly worn. No mains, machines, or other apparatus shall be handled for any purpose whilst they are under high pressure, except in cases of

#### URGENT NECESSITY.

Transformer cases, iron ladders, and all permanent metallic parts contained within the transformer chamber and not forming part of the electric circuit shall be metalically connected together. All vessels used for lubricating purposes shall be so constructed that they cannot act as a conductor between the hand and anything touched. Switches which can be easily operated from outside for cutting off both the high and low pressure connections of the transformers shall be fitted in all future, and, where the Factory Inspector thinks it to be practicable, in all existing transformer chambers. Where series arc lighting is employed, means shall be provided for disconnecting each arc lamp independently of the rest. All persons engaged in electrical works shall be made fully aware of the dangerous parts of the machinery, cables, &c., and shall be instructed in methods of artificial respiration. Rules for artificial respiration and for restoration of persons apparently killed shall be affixed in every station. All accidents occurring in generating stations or transformer stations shall be notified according to the provisions of Section 18 of the Factory and Workshop Act, 1895. The Committee finally recommends that a specially qualified person be retained to advise the Secretary of State or Her Majesty's Chief Inspector of Factories on matters requiring technical knowledge of electricity.



## TECHNICAL SCHOOL FOR HYDE.

MRS. ASHTON recently laid the Foundation Stone of the new Technical School and Free Library at Hyde. In order to give additional height and air to the structure the Building Committee wisely determined to set the line of the principal facade some 20ft. back from the line of frontage to Union Street. The style of Architecture adopted is a free treatment of the English Renaissance. Messrs. Woodhouse and Willoughby's design was selected in a limited competition of Architects, who have given this kind of work special study, on the advice of the assessor chosen by the Committee, viz., Mr. Thomas Worthington, of Manchester. The building is divided in two sections, a Public Free Library in the one, and a Science, Art, and Technical School in the other. The following accommodation is provided:—The Public Library is central, having perfect supervision of the adjacent rooms, also in itself having ample storage room for books and papers. The lending department is, both top and side lighted, and will provide ample accommodation for at least 14,000 volumes. A large public reading room, with bays and recessed fireplace ingie, is also provided, together with news room, librarian's office, general store room for periodicals and newspapers, cataloguing and repairing room, a separate room for specifications of patents, as well as suitable lavatory accommodation and conveniences for the staff.

## THE TECHNICAL SCHOOL

portion of the structure comprises on the basement floor ample provision for the teaching of cookery, dressmaking, laundry work, and Art modelling, store-room for cycles, together with suitable cloak and lavatory accommodation, and space for heating boilers, coal, coke, &c. On the ground floor large class-rooms are obtained for the teaching of commercial subjects, committee-room, secretary's room, together with ample lavatory and other accommodation. The building is approached by two main entrances from this floor with a vestibule to each, one facing Union Street, and one the new street, communicating with spacious corridors by wide and easy fireproof staircases to every floor. The first floor is apportioned entirely to the study of science and Art, the following rooms being provided: Elementary Art room, advanced Art room, Art master's own room, elementary drawing room, physical laboratory, large chemical laboratory for forty students, together with sulph. hydro. room, balance and re-agent rooms, combustion room, master's room, and a large lecture theatre provided with a raised gallery to seat 100 students, also preparation room, store-room, lavatories, &c., in conjunction thereto. The chemical laboratory, as well as the lecture theatre, will each be entered through double doors, having open timbered roofs to ensure height and additional air space, and well lighted by large mullioned and transomed windows, all matters so essential in rooms devoted to chemical studies. The Art rooms are principally "north lighted," with windows as free as possible from divisional bars. These rooms being approached directly from the landing of the principal staircase, are so arranged that they can be used for exhibitions of pictures, prize distributions, &c., by the movable partitions dividing same being thrown back and thus forming one large room. The building throughout will be warmed with hot water on the low pressure system, and careful attention also has been given to the ventilation, the vitiated air being extracted by means of trunks, &c., in the ceiling, connected with exhaust ventilators on the roofs and in the main turret. With regard to the material to be used, all exposed internal joinery is to be executed in carefully selected pitch pine, slightly stained and varnished, the floors of corridors, passages, &c., being wood blocks laid on concrete, while the entrance halls will be paved with ceramic mosaic of simple design. The principal elevations are designed to be faced with machine-made red Ruabon bricks, having all dressings and enriched work

carried out in Doulton's Rowley Regis, "biscuit coloured" Terra Cotta, the enriched panels, borough arms over principal entrance, doorway, &c., being modelled from cartoons supplied by the Architects, and executed under their personal supervision. The whole of the roofs are to be covered with Westmoreland "sea green" slates of approved quarry and size, finishing at the apex with a red Ruabon ridge tile. The erection of the works has been placed in the hands of Messrs. S. Robinson and Son, contractors, of Hyde, from the designs and under the supervision of Messrs. Woodhouse and Willoughby, Architects, of Manchester and Stockport. It is estimated that the structure will take about fifteen months to complete at the total cost of about £12,000 including equipment.

## MORE ABOUT THE IRISH CHANNEL TUNNEL.

A DEPUTATION representing Ulster and the south-west of Scotland had an interview with Mr. Ritchie at the Board of Trade recently to ask the Government to contribute £15,000 for borings and soundings between the north of Ireland and the south coast of Scotland to determine the practicability of making a channel tunnel. The President was accompanied by Sir Courtenay Boyle, the Hon. T. W. Pelham, Sir George Nares, Mr. Walter Howel, and Mr. Garnham Roper. The deputation consisted of Mr. Arnold Forster, M.P., Sir James Haslett, M.P., Mr. William Johnston, M.P., Mr. Wolff, M.P., Mr. S. Young, M.P., Major-General M'Calmont, M.P., and Colonel James M'Calmont, M.P. Mr. Arnold Forster, M.P., Mr. Lyle Knox (the President of the Belfast Chamber of Commerce), Mr. James M'Connell, Mr. Wolff, M.P., and Mr. S. Young, M.P., having spoken, Mr. Harrison Hayter (the past President of the Institution of Civil Engineers) briefly explained the scheme. He said there was a striking similarity between the Irish Channel tunnel scheme and the English Channel tunnel scheme as to length and gradients. The only difference was that the Irish Channel tunnel was rather deeper water, and the strata, instead of being chalk, consisted of

## SILURIAN ROCKS AND RED SANDSTONE.

A sum of £15,000 was wanted to make borings and soundings and a survey. The next step would be an expenditure of £200,000 to sink a shaft and drive a heading, and if this were done it would completely set at rest the practicability of the undertaking. Mr. Barton, C.E., said there had been four different routes for this channel tunnel examined, but they wanted to make further investigations of the strata. It was estimated that any of these four routes would cost between £8,000,000 and £10,000,000. Mr. Ritchie, in reply, said that practically what the deputation were asking the Government to do was to commit themselves to a considerable expenditure in order to endeavour to improve the communications between the north of Ireland and the south of Scotland. Everybody would acknowledge that a tunnel *per se* was a desirable thing to have as a mode of communication between the two countries. But in this case there were two questions involved. One as to whether the tunnel was reasonably practicable, and, if so, where was the money to come from. So far as the practicability was concerned the matter of expense formed a very important element. The amount required had been mentioned as between £8,000,000 and £10,000,000, but he had seen estimates much higher than that, one reaching to £16,000,000. It was just one of those things which even the most practical engineer would have great difficulty in giving a reliable estimate about. Reference had been made to the fact that other tunnels had been successfully made; but he had never yet heard of any tunnel being made under the sea at such a depth from low-water mark as it was proposed to make this tunnel. There were, in fact, none under 120ft. below low-water mark, and this one would reach 800ft. or 1000ft.

in parts. That led to a very great amount of doubt as to what money would be required for the tunnel, even if it could be made at all. He understood from his advisers that the pressure upon the soil through which the tunnel was made, even when it was 140ft., was so great as to make it

## EXTREMELY DIFFICULT TO BORE

the tunnel and to keep out the water; and at a depth of 800ft. or 1000ft. it might be practically impossible to do it at all. The proposal that the Government should spend public money in making communication between England and Ireland, if acceded to, would be an entirely new departure. It could not be supposed that those who had expended large sums of money in improving the existing communications would submit to have themselves taxed in order to provide a means of communication which would greatly damage, if not altogether destroy, the money which they had expended in making the communications which now existed. If the Government was to find money for this purpose it would be departing from a settled policy, and it would also raise up hostile opposition from more than one quarter. He was afraid, therefore, that he was unable to give them hopes of Government assistance so far as money was concerned. Mr. Wolff had said that all they wanted was £15,000, and that it might be taken out of the Agricultural Rates Bill. Well, if Mr. Wolff could persuade the representatives of Ireland to take it out of Irish resources the Government would not oppose it. The Government would, however, be prepared to enter into a conference with those interested in the scheme and give them the assistance of the Engineering Department of the Board of Trade.

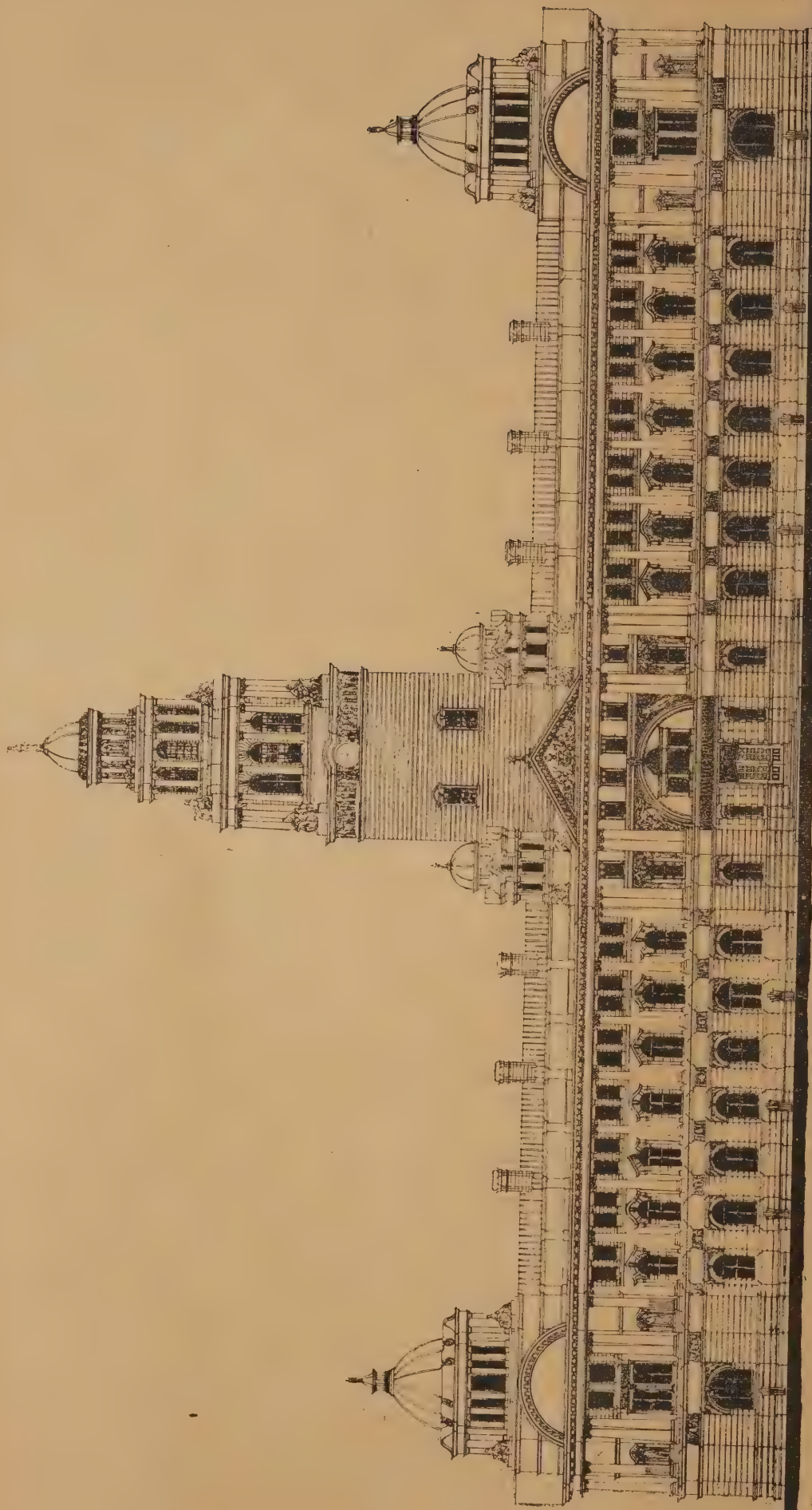
## DEPTFORD'S NEW TECHNICAL SCHOOL.

A LIMITED competition for technical schools at Deptford has just been decided by Mr. Rowland Plumbé, the assessor. The designs have been on view at Church Street, Deptford, during Friday and Saturday last. A central hall and the usual accommodation for buildings of this class was asked for, and great importance was attached to an ample access of light. Cost was limited to £8000. Prizes were offered of fifty and twenty-five guineas. The first has been won by "Stanhope," and the second by "Kent." The designs submitted were not of a very high standard, but we think, on the whole, that the best was selected. This design by "Stanhope" was conveniently arranged for the working of the school, and due attention was paid to the requirement of light and air. We should think, as far as we could judge, that it would be built for the sum mentioned. It is not perhaps well arranged in the site, it presents a side elevation to the principal street, the New Cross Road. With the idea of making this side look more important and symmetrical, two gables have been introduced, one in the centre and one at the left-hand end, to balance the right-hand one, which have no object nor meaning whatever; they express nothing on the plan, they mean nothing, they are just a waste of money, and a sheer absurdity. Some large carved panels at the first floor level in all three gables, do not, in our opinion, improve the appearance of the building. We do not think that these small limited competitions, where presumably the authorities ask their personal friends to compete, quite regardless of their ability or reputation, are the best way to obtain good results. We think that a better way, where a limited competition is desired, is to advertise the fact, stating the terms and conditions proposed, and invite applications. These could then be submitted to the assessor they intend to employ, who would assist them in choosing the best men from the applicants. In several of these competitions that have been awarded during the last few years, we expect that they would have had better designs submitted if the competition had been open.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





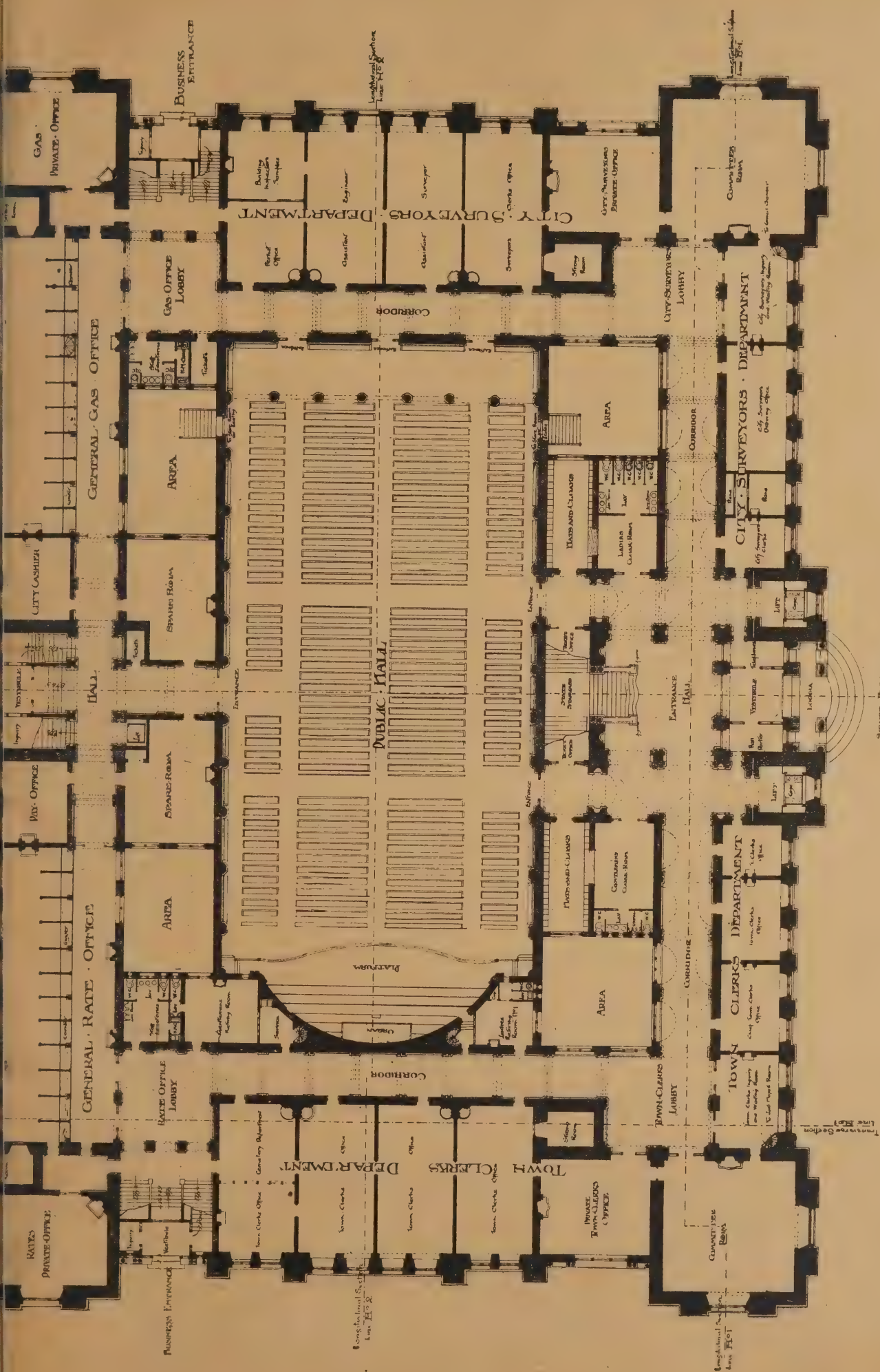
FRONT ELEVATION.

TRANSVERSE SECTION  
SEE FIG. 2

BUSINESS ENTRANCE

SEE FIG. 1  
TRANSVERSE SECTION





NEW CITY HALL, BELFAST. DESIGN BY MESSRS. HALL, COOPER, AND DAVIS, SCARBOROUGH.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Bricks and Mortar.

SPRINGHAM HOUSE, ARUNDEL STREET,  
July 28th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walls, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE restorer will shortly be at work at Twickenham, the Parish Church of that old-world Thames-side village having been surveyed and reported on at the instance of a Restoration Committee. A correspondent says that the restoration includes the re-facing of the tower and the alteration of the interior to a very great extent. So far, however, as the body of the Church is concerned, no one may be greatly moved whatever happens to it, for it is one of those hideous red brick Georgian structures which all along the Thames valley replaced the Gothic Architecture of more artistic times. But the tower is an ancient four-square and weather-worn, battlemented building, and to replace it would be to destroy its charm and the old-world air of the lovely reach upon which it looks down. It may be hoped that better counsels will prevail, and that the tower being structurally sound, will be left untouched.

SAN FRANCISCO has decided on the monument which it is to erect to the memory of Robert Louis Stevenson. It is to be a granite plinth supporting a ship to be called the *Bonaventure*. This will be 5ft. high, and will represent a warship of the sixteenth century in full sail. Her figure-head is to be a Pallas Athene looking straight into the West towards the distant land whither Stevenson himself, when he left San Francisco and the hosts of friends he had made, journeyed in search of health. On the front of the plinth will be the inscription: "To Robert Louis Stevenson," while beneath it will be a quotation from the "Christmas Sermon": "To earn a little, to spend a little less, to be honest, to be kind, to keep a few friends, and these without capitulation." The monument will take the practical form of a drinking fountain for dogs.

A FURTHER improvement is in course of progress at the Ludgate Circus end of Fleet Street. It has been decided to widen the pavement commencing at a point on the south side of the street, opposite Messrs. Cook and Son's offices down to the entrance to Bride Lane. The traffic at this end of Fleet Street is frequently so congested that the police have great difficulty in regulating it. The contemplated improvement will add about five yards to the roadway, while, owing to the frontages of several of the houses having been thrown back, ample accommodation has been left on the sidewalk for foot passengers.

AREWOOD HOUSE, the seat of the Lascelles family, where the Duke of Cambridge was the guest of the Earl of Harewood during his visit to Yorkshire last week, is an immense and stately mansion in the Grecian style, with an imposing portico, which was built in 1760, and altered about fifty years ago, by Sir Charles Barry. The interior is well arranged, and the principal rooms are very fine, with splendid painted ceilings. The house contains some valuable pictures, principally portraits, and a collection of old china (in the gallery), which is valued at £100,000. There is a lovely

view from the terrace, and the gardens and grounds are very beautiful, while the vineries are the finest in Yorkshire. The park, which is of vast extent, is richly wooded and very picturesque. Harewood House is built on the site of Gawthorpe Hall, the ancient seat of the Gascoignes, where the famous Chief Justice was born. The Church, which stands in the park, contains some interesting old monuments, most of them in English alabaster. One of the best is in memory of Sir William Gascoigne and his wife; he in coif and robes. Harewood is half-way between Harrogate and Leeds.

WE certainly think there is a good deal to be said for the suggestion of a correspondent that the Academy should be opened at night for the next week or two previous to the closing of the Exhibition for the season. Some years ago the experiment was tried. Sixpence admission was charged during the evening, and we never heard that the venture was not a complete success. It is certain that in these dog days many might go in the cool of the evening who elect to remain away during the heat of the day—not to mention that many hard-working people with a love for Art are compelled to devote their days to bread-winning.

THE accommodation at the Royal Architectural Museum and Westminster School of Art in Tufton Street, Dean's Yard, is about to be increased by the addition of some much-needed class-rooms. Some premises adjacent to the Museum have been removed, and the work is expected to be finished by Christmas. These additional premises will, it is hoped, relieve the Museum from some encroachments necessitated by the growth of the School, and also conduce to the extended success of the School, which from small beginnings has been gradually developed under Professor Fred Brown (now of the Slade School) and Mr. Monat Loudan, until it has become known far and wide, attracting students even from distant colonies. It enjoys substantial grants from the Technical Education Board of the L.C.C., and from the Science and Art Department.

ONE result of the re-arrangement of the British School pictures in the National Gallery, since the weeding out of the canvases which now fill two of the rooms of the Tate Gallery, has been to group all the masterpieces of our native Artists in that part of the Trafalgar Square building which is most exposed to danger from fire. The collection of pictures by Turner, Reynolds, Gainsborough, Hogarth, and other painters of the same rank, which there represents the earlier British School with something like adequacy, is now assembled in the western wing, and is only separated by an inefficient party wall from the canteen of the barrack building, which stands as a constant menace to the National Gallery. In the very possible event of this barrack being destroyed by fire, nothing could save this western wing from very serious damage; and as it is dominated not only by the barrack, but also by a row of shops, it seems to be exposed to a more than reasonable amount of risk. Yet this is the place selected for the permanent home of a priceless collection, which is supposed to summarise the achievement of a great school. Such an arrangement is not even commercially discreet.

ALTHOUGH there is matter for very sincere regret in the announcement that Professor Herkomer has been compelled by considerations of health to abandon his scheme for the re-creation of a great national Art movement in Wales, we can hardly feel surprised that such a task should have proved to be beyond the power of a man whose energies are already very fully engaged in a multiplicity of exacting undertakings. An Artist as successful as he is in the practice of his profession must necessarily find his spare time seriously limited and his opportunities for rest few and far between. To sacrifice these opportunities by adding to his life yet another responsibility, and that one great enough to afford the sole

occupation for a lifetime, would almost certainly lead to a breakdown. The influence which the Professor has already established in Art politics is proving to be so valuable that it would be a real disaster if, by attempting to draw unreasonably upon his physical powers, he should so affect his health that a diminution of his activity should become necessary. He is wise to recognise that there are limits even to his extraordinary capacity for work; and that he can more usefully serve the cause of Art by completing what he has at present in hand than by seeking for new and vaster fields of conquest.

SIR EDWARD POYNTER's new edition of his *Lectures on Art* (Chapman and Hall) comprises, besides an excellent frontispiece portrait, a new preface which is especially interesting for its emphatic recognition of the change that has taken place in the whole tendency of Art in England since 1869, when the first of these discourses was written for University College, before the lecturer's appointment as Slade Professor. In his first edition, published some ten years later, he acknowledged that much that he had said on this subject had even then become obsolete. He now declares that looking back to the period when the lecture referred to was delivered, he finds it difficult to believe that a condition of Art existed in England to which some of his remarks at that time justly applied. The remark has, of course, special reference to Decorative Art, which is the subject of the first lecture. The lecturer, however, appears to have discovered that his enthusiastic description of the grandeur of Michael Angelo's great work in the Sistine Chapel was "in those days not for all markets." In a "reminiscence" given in a footnote he tells us that he delivered this lecture at some provincial centres, and that on one of these occasions he somewhat anxiously inquired of the subordinate official of the institution, whose duty it was to be present, "How did it go? I am afraid it was rather long." "Ah," was the reply, with an accent and an uncompromising directness which left no doubt as to the speaker's nationality, "ye'd better have left out all that about McLangelo; we know nothing about McLangelo here."

WITHIN the last few days archaeologists and others have been much interested in certain Roman remains which have been brought to light in the ancient city of Chester, and to some of which we referred last week. During the process of excavations incidental to the rebuilding of a shop in Northgate (or Shoemaker's) Row, near the centre of the city, the workmen came upon the base of a large Roman column *in situ*. The fact that this relic occupies the exact spot in which it was placed by Roman workmen sixteen centuries ago, adds largely to the interest which the discovery has excited. It is of native red sandstone and rests upon the natural rock, some 2ft. below the level of the present street, and almost in a line with the west side of Northgate Street, which some archaeologists have contended follows the line of one of the ancient Roman *vies*. The block is 4ft. 6in. square, with a base moulding 15in. thick worked upon it, and is in a good state of preservation. The diameter of the column is shown to have been 2ft. 10½in., or three Roman feet, of 11½ English inches to the foot. A day or two after the base was discovered a column, if not the identical column belonging to this base, certainly one of the series, was partially unearthed. It is lying in a horizontal position a few feet from the base, with a modern party wall built across it. A few Roman coins, also in a good state of preservation, have been found upon the site. Speculation is, of course, rife as to what the building was of which these interesting relics formed part. The columns which stood upon this and similar bases must have been equal to eight, if not nine, diameters, or 24ft. or 27ft. in height, and there must have been at least two, but more probably four—or even six, of them if, as appears likely, they formed the front of a Roman Basilica or Temple, and the building generally must have been of very



imposing proportions. At present it is impossible to say whether these columns formed the east or west front of such an edifice, but that question, the answer to which involves other interesting points, will duly engage the attention of those best able to judge, and in the meantime further discoveries may help them to come to a conclusion. The owner of the property, Alderman Charles Brown, has already decided that this very interesting evidence of the importance of the ancient Roman city of Chester shall remain *in situ*.

THE work connected with the Battenberg Memorial Chapel at St. Mildred's, the parish Church of Whippingham, in the Isle of Wight, is nearly completed. A beautiful effect has been produced by the arrangement of carved and polished marble. The new sarcophagus, fixed some few feet from the marble altar-table at the east end, to allow space for worshippers, is of chaste design and richly carved. It has taken the place of the plain tomb which has been standing in the chapel since the funeral of Prince Henry. The base is composed of dove marble, and small triple columns of marble, from the Marquis of Lorne's estate in Scotland, are arranged at the sides and angles. The panels, of pure white statuary marble, bear the orders and the arms of Prince and Princess Henry, carved in perfect detail. The massive cover of the sarcophagus is elaborated with appropriate scriptural texts, and the Latin motto "In te Domine spero." The altar-table, constructed of dove and statuary marble, is approached by polished marble steps. Above the table is to be erected the figure of an angel with outstretched wings, which will stand about 8ft. high, and occupy the major portion of the east end. H.R.H. the Princess Louise (Marchioness of Lorne) is now engaged upon this work, which will give a noble as well as graceful finish to that portion of the chapel. The floor is of polished stone with a border into which are introduced, in monogram, the initials B.B. In the north wall are three new stained glass windows, representing St. Henry, St. Elizabeth, and St. Mauritz. Mr. Gilbert, R.A., has the bronze screen and gate in hand.

PERHAPS the most notable sale of Jacobite relics and curios ever held was that at Culoden House, when part of the contents of that historic mansion were put up to auction. Situate within a short distance of the ill-fated field of Culoden, the house has had closest association with Prince Charles, and for years past the relics have formed a chief attraction to visitors to the Highlands. They are in an excellent state of preservation, and their genuineness cannot be doubted. The many relics and curios sold included the bedstead on which Prince Charles slept and his walking stick, made of hazel, and having a carved head representing Wisdom and Folly, which was left by the Prince in the house. It was at first thought that Parliament would step in and secure the relics, which ought to be the property of the nation; but this has not been done. At the sale any articles having Jacobite associations fetched high figures. A magnificent grandfather's eight-day clock by Sterek realised £52, and an antique eight-day wall clock £50. Three Oriental plates used for religious purposes, enamelled in azure blue and having emblematic signs, were sold at £160.

THE presentation of the Congratulatory Address to Her Majesty the Queen, by the Society of Architects, took place on Wednesday last, at St. James' Palace. Her Majesty having consented that the Address should be presented personally, deputed H.R.H. the Prince of Wales to receive the same, at the hands of the President and a small deputation, on her behalf. The Lord Chamberlain notified to the Society Her Majesty's desire that six members should attend at St. James' Palace as a deputation for the above purpose. The deputation consisted of the President, Mr. Robert Walker, J.P., of Cork, Mr. Walter Emden, Mr. Henry Lovegrove, Major F. S. Leslie, Mr. Edgar Farman, and the Honorary Secretary, Mr. Ellis Marsland. The deputation was introduced to H.R.H. by Mr. Edgar

Farman, who presented personally to H.R.H. the President, Mr. Robert Walker, and Mr. Ellis Marsland. H.R.H., after having shaken hands with the President, handed him Her Majesty's gracious reply to the Address of the Society as follows:—"On behalf of the Queen, my dear mother, I thank you for your loyal and dutiful address, and for the affectionate congratulations which you tender on the completion of the sixtieth year of her reign. It is a source of profound joy to the Queen to receive the expressions of devotion to her person and family which are offered by her subjects throughout the Empire. She is gladdened by the thought that the sixty years of her reign have been years of progress in knowledge and of increase in prosperity. And she prays that, by the blessing of Almighty God, she may always live in the hearts of her loving and beloved people." The Society is to be congratulated upon the distinction and honour conferred upon it by Her Majesty the Queen in thus receiving personally, at the hands of the heir to the Throne, the expression of loyalty and congratulation contained in the address. The address was a beautifully designed illuminated document, specially prepared under the direct superintendence of Major Leslie, to whom the Council is much indebted. Accompanying the address was a list of members, specially bound in book form in vellum and gold, containing, as a frontispiece, a portrait of the president, Mr. Robert Walker.

DR. HILPRECHT, who has recently been excavating in Babylonia, and on the shores of the Persian Gulf, has just published a very interesting work on the results of his researches. The work, which is entitled "Recent Research in Bible Lands," gives a fair idea of what may be expected by a systematic excavation of Babylonia and the Tiro-Euphrates valley. Dr. Hilprecht has discovered many valuable and interesting relics, which are very vividly described in his book. Many of these antiquities are so old that even the British Museum does not contain many specimens of that remote antiquity, for some are as old as 4500 B.C.

THE Marchioness of Lorne is already known to the public as a painter and sculptor. Her Royal Highness has now turned her attention to Architecture. With the assistance of a London Architect, the Marchioness has planned the designs for an extension of the quiet little hostelry at Roseneath, a delightful retreat situated on the Gareloch, one of the arms of the Clyde, and about an hour and a half's journey from Glasgow. For some years past the Marchioness and the Marquis of Lorne have made the little hotel their recruiting quarters at the close of the London season, but the accommodation was rather restricted, and as the inn—for such it is—is situated on the Argyll ducal estate, an enlargement was considered, and from the design of the Marchioness a new wing has now been almost completed. It is all that comfort could desire. The additional wing consists of a suite of seven bedrooms, dining and drawing-rooms, a gun-room, &c. The drawing-room windows look out upon the blue waters of the Firth and the lofty Ben Lomond. Alcovod fireplaces, windows arched in mediæval fashion, and a kitchen bright with red tiles, are some of the features adopted by the Royal Architect. The Marchioness is to paint the device on the hanging sign over the public entrance to the hotel.

SIR WILLIAM HARCOURT's earliest recollection of Millbank, as "the philosophic expression of the reformatory prison," would have afforded even greater testimony to the progress of society and of the individual during the Victorian era, if he had gone further in illustration of this gratifying fact. As is well known, the huge building in Clerkenwell, the famous Coldbath Fields Prison, has long since been taken over by the Post Office, whilst upon the site of an even older building still, the Tothill Fields Prison, at the back of Victoria Street, Westminster, is now being erected, mainly through the munificence of

the Duke of Norfolk, the magnificent Cathedral, the foundation-stone of which was laid about two years ago. By a curious coincidence, another stately Cathedral, which his Grace has built at Norwich, stands on the site of the old city prison which was erected in the year 1822.

THE work of repairing the stone frame to receive the Duke of Westminster's gift of stained glass for the great window in the south transept of St. Paul's Cathedral proceeds but slowly. The glass has long been finished, and it was thought the window would have been ready for it so long ago as last Christmas. The Duke has promised the glass for the corresponding window in the north transept also. Nothing further has been heard of Lady Carnarvon's proffered gift of stained glass for the east window in the north choir aisle, in memory of her husband.

CAPTAIN BRINKLEY, probably the first living authority upon Chinese and Japanese porcelain and faience, has decided to disperse his collection of the choicest examples of the Art. Messrs. Christie, Manson, and Woods sold the first portion of it at their rooms in King Street, St. James's Square, last week. It is described as "Old Chinese whole-colour, enamelled and blue and white Nankin porcelain, Japanese porcelain, and faience," and the first portion consisted of 208 lots. No such collection has ever before come as a whole to the hammer in this country.

THERE are at present on exhibition a number of drawings from the tombs and temples of El Kab at the rooms of the Society of Antiquaries. These represent the work of Mr. J. J. Tylor and Mr. Somers Clarke, who have been exploring in Egypt for some years past. El Kab is situated on the east bank of the Nile, about fifty miles south of Luxor; it was known to the Greeks as Ellethya, but its Egyptian name was Nekheb. The remains cover a space of about nine square miles, and include old temples and rock cut tombs, of which there are vast numbers. The great object of these explorations has been to procure correct copies of the inscriptions and the groups of figures represented on the walls. To make certain of accuracy, photography has been employed, but wherever the light has failed in producing distinctness, a charcoal pencil has been artistically used, and the result obtained has much the appearance of the real wall, but, at the same time, with a perfect exactness which the photographic basis ensures.

THE Select Committee on the appropriation of sites for Government offices has practically agreed upon the draft report submitted by Mr. Akers-Douglas, as chairman. It confirms the interim report of last year in favour of the site of Carrington House, in Whitehall, opposite the Horse Guards, for the new War Office; it supports the proposed widening of Parliament Street to a line parallel with the front of the Home Office; and recommends an opening from the Mall to Charing Cross.

MESSRS. FOX AND BOUSFIELD sold by auction at the Mart, Tokenhouse-yard, the Church of St. Michael, Wood Street, City, by order of the Ecclesiastical Commissioners. The Church was built by Sir Christopher Wren, but for some time past it had been closed. The monuments and tablets have been taken to the neighbouring Church of St. Albans, and the human remains removed to Woking. Some of the tombs date as far back as the time of Elizabeth. The estate comprises an area of 3700 superficial feet. The Church and freehold were eventually knocked down for £31,500.

THE Public Health and Housing Committee of the London County Council has now under consideration final estimates for the greater part of the remaining Boundary scheme. These amount to about £70,000, and it is hoped that they will all be passed before the Council rises for the autumn recess, so that work, which is now somewhat at a standstill, may be vigorously resumed. The dwellings and shops

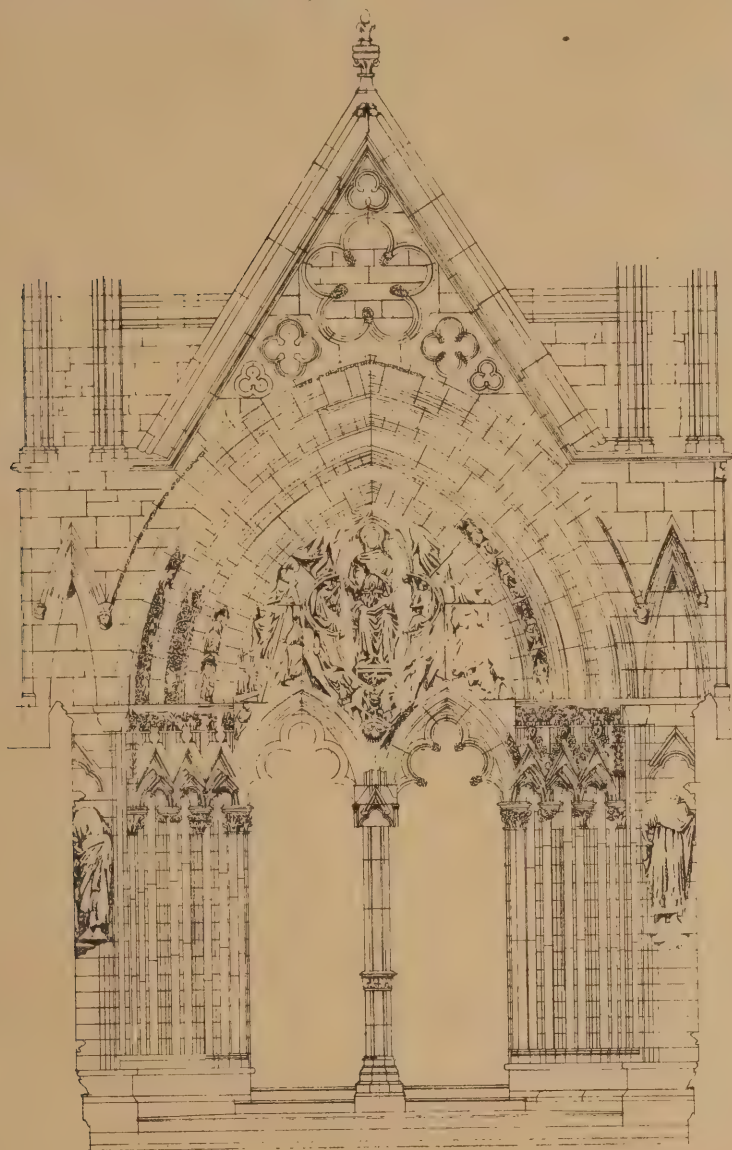


and workshops that have been set up have practically all let with the greatest readiness.

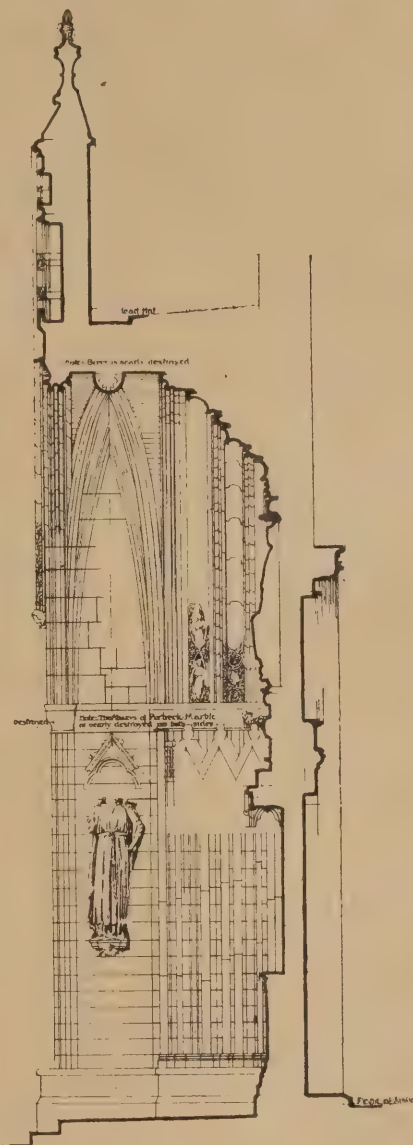
We understand that the First Commissioner of Works has no intention whatever of removing the three historical canvases which

of the Fine Arts Commission, for the decoration of the panels of the Houses of Parliament. For a long time they hung in the members' old smoking-room, but two years ago they were discovered rolled up and hidden away among a quantity of lumber. Mr. Watts' huge

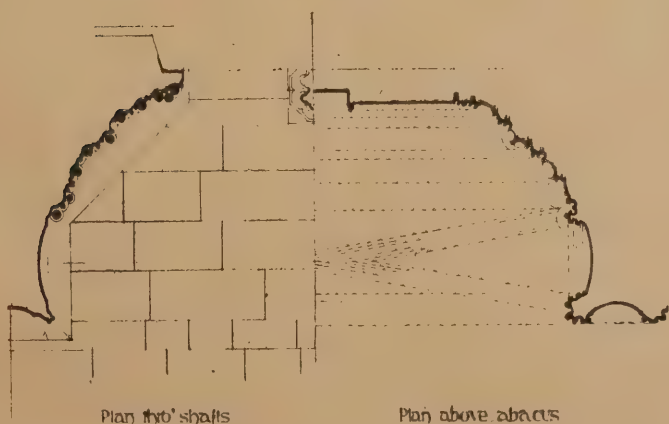
No such sensation is among the pictures from the Paris Salons this season as was afforded last year by Mons. Tattégren's "Les Bouches Inutiles." Nevertheless, the managers at 157, New Bond Street, have made a diversified collection, which does not exclude the



Elevation



Section



Plan of shafts

Plan above abacus

LINCOLN CATHEDRAL. DETAILS OF SOUTH PORCH TO RETRO CHOIR. MEASURED AND DRAWN BY W. E. DOBSON.

for some time past have been hanging on the walls of Committee Room 10, where they have been generally admired, from the precincts of the House of Commons, as was rumoured not long since. The pictures in question, which are by Watts, Pickersgill, and Cross, were executed nearly fifty years ago, at the request

painting, representing Alfred inciting the Britons to resist the landing of the Danes, is far too large for the present smoking-room, so that all three will remain in their present position until a place can be found in the House where their artistic merits can be displayed to advantage.

typical Parisian horrors in realism or the curious mixture of symbolism with modernity. Of the latter class the most elaborated is "Gold Triumphant and its Victims," by Mons. Henri Cain—Gold personified by a top-hatted, bejewelled Hebrew, speaking of shekels in every inch of him, seated on a car headed by



a peacock with spread gorgeous plumage, a shimmer of gold and gems, and drawn by and over those whom he has crushed by or for gold. "The Interrupted Duel," a huge picture, containing some dozen life-sized figures, by Mons. Garnelo-Alda, is unemotional, but is well drawn, and, at least, is not as brutal as another version of "The Woman Who Did," furnished by Piatkowski. Two of the best pictures are scarcely more than monochromes, namely, the dreary hopelessness of landscape and long string of prisoners bound for Siberia, by Mr. Julius Price; and a furrowed field with a stream of black turkeys in the grey of the evening, by Hy. Eugene Delacroix. Uncanny, fascinating, and in its way powerful is the "Glauké and Thaléia," of Mons. P. A. Laurens, a gallery picture, rather than one to live with, but speaking volubly of its author's creative imagination. Mr. A. Normann's Norwegian landscapes, a sober and characterful "Lady in Black," by Mons. J. G. Sabatte, and two airy luminous little pictures, "Evening Sun" and "In the Village," by Mdle. E. Von Eicken, also claim attention.

THE Australian sculptor, Mr. Bertram Mackennal, has just completed a bronze bust of Mrs. Phil May. Although Mr. Mackennal has been in England for some time now, he is not forgotten by the Australians, and a commission has just reached him to execute a very large design for a sarcophagus, which will take many months to complete. Madame Melba, who is herself an Australian, has arranged to give Mr. Mackennal sittings for portrait busts, one being destined for Melbourne when finished, and the other to be retained by the Diva.

At last the City Sewers Commission is realizing the danger and inconvenience of cellar flaps in main thoroughfares. At one time an application was granted almost as a matter of course without a word being said, but now a reasonable hesitancy is exhibited, and flaps are only sanctioned when it is clearly shown that they will cause little or no inconvenience.

THE annual meeting of subscribers to the British School at Athens was held last week at 22, Albemarle Street, with Sir Edward Poynter in the chair. The report of the managing committee showed that in spite of the recent war the school had had a very satisfactory session. The number of students had been considerably above the average, and good work had been done at home and in the field. The students' hostel was now an accomplished fact. In the winter and spring the excavations begun last season on the supposed site of the gymnasium of Kynosarges in Athens were carried to completion. The cost of this undertaking had been met by funds placed at the disposal of the director by private friends. After various difficulties and delays, work was resumed in Melos on the site of Phylakopi early in May, and carried on energetically for four or five weeks. There was now no doubt that the remains of an important prehistoric city had been discovered, the complete excavation of which, in a subsequent session, might lead to results of first-rate interest. It might be doubted whether during the past session any other foreign school in Athens had got through so much work. The main difficulty was still on the financial side. So long as the School had no permanent endowment it could not enjoy entire freedom of action. For three years, at any rate, it could hold its own, thanks to the Government grant of £500, which was obtained through the liberality of Sir William Harcourt. But it should not be forgotten that the outlook beyond that period was uncertain, and that there was still an opening for any generous benefactor who might place the institution beyond any fear of financial anxiety.—The Chairman, in commending the work of the school, remarked that excavations were the life of archaeology. He thought that such energy as had been displayed in spite of the recent war should be liberally supported by the public.—The Director of the School gave an interesting account of the work of the session. Several discoveries of importance to

archæological students had been made, and photographs of vases and statuettes in various states of preservation were passed round the room and scanned with interest.—The report was adopted, and the officers for the ensuing year were elected.—Mr. George Macmillan, who has acted as honorary secretary of the school since it was opened in 1886, retires from that post in favour of Mr. William Loring.

IN presenting the annual report, the Council of the Liverpool Architectural Society expresses its satisfaction at the large attendances which have been present at every meeting, attendances greatly in advance of those of previous years. It regrets, however, that the discussions after the papers have been, in most cases, so meagre, and that they have been left in the hands of a few of the members. It begs to remind the members that they will show their appreciation of the papers read better by a thorough discussion, even though they disagree with the lecturer on some points, than by a mere formal vote of thanks. The Council regrets the retirement of Mr. H. L. Beckwith from the Honorary Secretaryship, a post which he held to the advantage of the society for seven years. The Council has decided that next session, in addition to the eight ordinary meetings, four extra members' meetings will be held. The Council hopes to be able to establish an Annual Travelling Studentship, to be awarded at the end of each Session. Next session being the Jubilee year of the Society, it is hoped to celebrate it in a fitting manner. The Treasurer submitted his annual balance sheet, showing a balance in hand of £26. The number of members on the roll is 121 as against 137 last year.

IN October it is expected that the South London Art Gallery and Technical Institute will be opened. The institution began as an Art Gallery only. Last year it was determined to erect in connection with the Fine Art Gallery a new building as an Art School and Technical Institute. This has now been done, Mr. Passmore Edwards giving £5000 for the purpose. The new Technical Institute stands in front of the old gallery, which will have now a far more imposing and convenient entrance than it formerly had. The new building faces the main Peckham Road, nearly opposite the Central Library.

THE railway bridge constructed by the military engineers over the Adour at Tarbes, in the place of the one which was carried away by the recent floods, has broken down under the weight of two locomotives, which fell into the river. In order to test the structure, an empty train was run on to the bridge and allowed to stand there for half an hour. The amount of yield observed was then about normal. A severer test was afterwards arranged, a train being made up of two engines and several trucks heavily laden with sleepers. Just as the first engine was on the point of reaching the further side, the bridge swayed for a moment and then gave way, both engines and all the trucks attached being hurled into the Adour, where they are still lying in a heap. The collapse of the bridge was due to the bad material used in its construction, and to bad workmanship. The design was efficient, and would have answered had the material been up to specification.

MR. J. C. HORSLEY, R.A., has been compelled through failing health to resign the position of treasurer to the Royal Academy, which he has held for many years. The retiring treasurer's views on Art and Art teaching have not always agreed with those of the younger members of his profession, but he is an excellent man of business, and in this capacity has done good service to the Academy. It may not be generally known that Mr. Horsley has during recent years been chiefly responsible for the collection and arrangement of the pictures in the winter exhibitions of the Old Masters. There will probably be several candidates for the vacant treasurer-ship, for the duties are not heavy, and a comfortable salary is attached to the office. The treasurer is moreover a person in

authority at Burlington House. He is entitled to attend all the Council meetings, and to be present at the judging of the pictures by the Selecting Committee. The treasurer also has a free entry to the galleries while the arrangement of the pictures for the spring Exhibition is in progress, a privilege which is strictly denied to any ordinary Academician, unless, of course, he happens to be upon the Hanging Committee.

The Americans seem to be even more behind the age than the English in the majority of the designs which their silversmiths issue for the benefit of their patrons. The latest is certainly more appropriate than artistic. It consists of a testimonial to the president of the American Exchange National Bank, and is an exact counterpart in miniature of the Bank of England. The fac-simile is correct even to the names of the streets on the corners of the buildings and the lamp-posts on the side-walks. It took twelve months to manufacture.

IT is proposed that application should be made to the Ecclesiastical Commissioners for the appointment of a Commission to inquire into the desirability of amalgamating the parish of St. Mary, Aldermanbury, with the united benefice of St. Lawrence, Jewry, and St. Michael, Bassishaw. It is a fine Church externally—one of Wren's—the old building having been destroyed by the Great Fire. The interior has, however, been greatly modernised, with a not altogether satisfactory result. The original structure dated back to a very remote period, and amongst the memorable interments were those of Henry Condell and John Heminge, the "editors" of the first collected edition of Shakespeare's dramatic works.

THE annual meeting of the general committee of the Palestine Exploration Fund was held at 24, Hanover Square. In the report which was read attention was drawn to important results of the excavations at Jerusalem by Dr. Bliss, and the meeting was afterwards addressed by Dr. Bliss himself, who is on a visit to this country. The limits of the Pool of Siloam have been determined, and portions of the rock-hewn steps which led down to it have been found. The Church which was known to have existed at Siloam has been discovered, and its plan, which presents many features of interest, has been ascertained. The paved street which has been followed a long distance up the Tyropœon Valley is apparently that by which the pilgrim Antoninus (570 A.D.) descended from the "Double Gate" or "Triple Gate" of the Haram to Siloam.

AT Victoria Tower-chambers, Westminster, the Bishop of Rochester presided at the second general meeting of the members of the Clergy and Artists' Association. The Chairman said that although the association had started little more than a year ago, it had already gained the confidence of the public. The object it had in view was to enable the clergy to approach the Artist more directly than was now usual or possible, and to obtain from him his best work for the decoration of churches. They sought also to form a centre where examples of artistic work executed for churches could be seen, and where information could be gained. The Church of England's interests were widespread, and anything that could contribute to better relations between the Church and the people must be welcomed. The living representation of religious subjects by true Artists must inevitably produce useful and far reaching results.—It was stated that many Artists not members of the association had received commissions for decorative church work through the agency.

THE Lords of the Admiralty have lent to the United Service Museum at Whitehall a most interesting collection of relics from the King's palace at Benin, which were presented to them by Rear-Admiral Sir Harry Rawson, K.C.B. These include some curiously-carved ivory tusks weighing as much as two hundred-weight each, and some very primitive and quaintly-fashioned groups of bronze figures, one



of which represents the execution scene. Captain Charles Campbell, R.N., C.B., has also lent a small bronze statuette, evidently of Spanish origin, and the collection also includes some remarkable cast-iron devices, representing the king surrounded by his attendants, and two or three large bowls richly ornamented with gold.

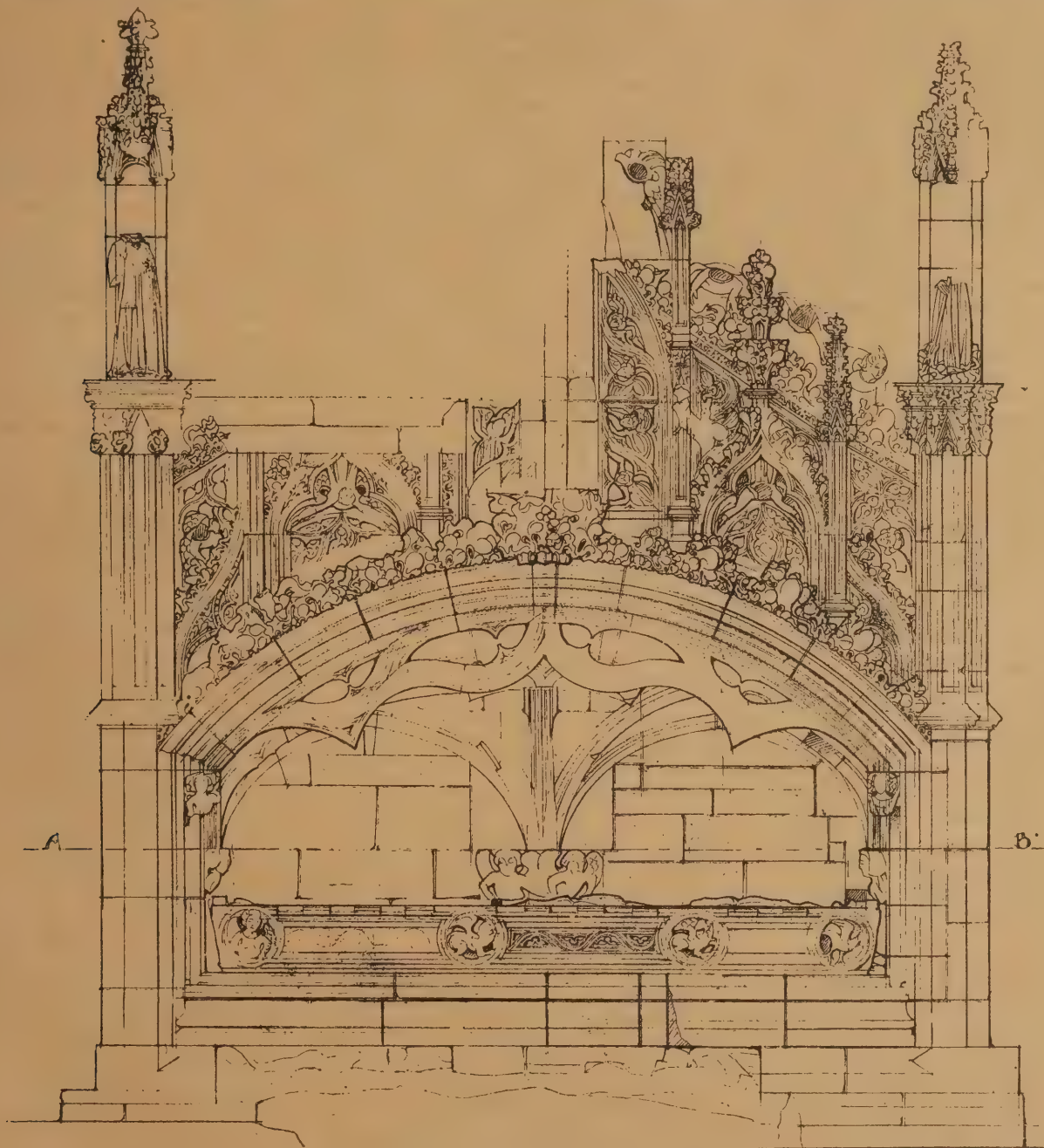
THE County Council is considering a recommendation from the Parks Committee that it should acquire as a public recreation ground about nineteen acres three roods of land lying

nimity. The City Council has rendered itself ridiculous, Messrs Hare and Bodley have been placed in a very unfair position, and the citizens of Oxford will have to pay. And, after all, the only difference between the three Architects is that one does a little less patching-up to the old building, and is probably only deterred from doing more by the warning before his eyes of the fate which has befallen his brother Architects.

THE last Exhibitions in Paris of the students'

work abroad, as seen each year on the 10th of December, would usually hardly do credit to an amateur's sketch-book. America, we notice, has followed the European fashion, and sends her students over here; but as she only gives them 600 dollars yearly, and compels them to work in each city under the supervision of an American Artist, they probably benefit even less than those in whose footsteps they tread.

PUBLIC-HOUSE Architecture and decoration is becoming a special feature in the City. It



TOMB IN ST. MARY'S CHURCH, WELWICK, YORKS. MEASURED AND DRAWN BY W. HAYWOOD.

between Putney Bridge Road and the Thames. It is proposed that the Council should contribute £15,500 and the Wandsworth District Board £10,000 towards the cost. This would leave about £5500 to be provided by public subscriptions.

THE Carfax Tower farce has terminated with the acceptance of Mr. Jackson's proposal, and that Architect is probably the only person who can survey the result with equa-

works who gained the Prix de Rome is described as remarkable only for its "infatigable médiocrité"—a mediocrity which has been increasing of late years to such an extent that the question is being asked, "What is the good of this elaborate machinery, this Palace at Rome, and this State subvention, if the result is only to turn out a set of working designers?" The same might probably also be said of the travelling scholarships of our own Royal Academy, for the outcome of the students'

is recognised that the old style tavern is no longer commensurate with the requirements of the present generation, and, as a consequence, many improvements and structural alterations have been, and are being, effected by owners and proprietors. Those who remember the old "Whittington" in Moor Lane, Fore Street, will hardly recognise the new and modern building which has now sprung up in its place. The present erection stands also on the site of an adjoining shop, purchased for the extension.



## Professional Items.

**AYR.**—At the Dean of Guild Court on the 21st inst., the following plans were approved of and passed: John Armour, double cottage in Campbell Street; Robert Carson, dwelling-house in Hawkhill; Mitchell and Son, store in Garden Street; Robert McCreath, two semi-detached cottages in Ashgrove Street; W. A. Vass, tenement in Fort Street.

**BRADFORD.**—The new higher Board school erected by the Bradford Board in Byron Street and Barkerend Road, is to supersede premises rented in the same neighbourhood which have been objected to for some considerable time by the Education Department. The cost of the building, exclusive of the site, but inclusive of special science and art fittings and other furnishing, will be a little over £15,000. The school is a specimen of simple treatment in the English Renaissance style, which has now generally taken the place of Gothic for school purposes, and lends itself excellently to ample lighting. The principal front is to Byron Street, and shows on the basement a series of ten large arches, which, with the exception of four glazed arches in the centre, lighting a laboratory, give access to a covered playground. Corresponding to these arches on the floor above is a series of windows, 10ft. by 6ft. 6in., with arched heads, and the two floors above are lighted by a similar number of two-light windows with mullions and transoms. At the Barkerend Road extremity of the school are bold moulded entrances, and a large bay window, belonging to a cookery room, is a conspicuous feature. The schools are restricted to two departments, one for girls and one for boys. The staircases in the school are constructed with an especial view to the prevention of accident from haste or panic. Coming to the contents of the different stories the basement comprises covered playgrounds, teachers' rooms, cloak-rooms, and a physical laboratory. On the ground floor the accommodation includes a large assembly hall, about 70ft. long and 29ft. wide, four class-rooms to hold sixty scholars each, a large cookery class-room, and teachers' rooms. The rooms on the first floor include an assembly hall of the same dimensions as that beneath, and five class-rooms. The top floor consists of science and art rooms. Over the assembly halls is a large chemical laboratory (about 70ft. by 22ft. 6in.), fitted up with four working benches to accommodate fifty-six students. At one end of the floor is a science lecture-hall. In an angle of the building, between the laboratory and the lecture-hall, is a preparation-room adjoining and serving both, and a balance-room and store-room also belong to this suite. The heating and ventilation of the school are on the Leicester plenum system, which provides for the renewal of the air by a powerful fan driven by a gas engine. The plans have been prepared by Mr. C. H. Hargreaves, Architect, Bradford, and the allotment of the principal contracts was as follows:—Messrs. John Moulson and Sons, masons and joiners' work; Messrs. Taylor and Parsons, structural iron-work, ranges, and grates; Mr. J. Wood, plumbers' work; Mr. James Smith, slaters' work; Mr. W. H. Hargreaves, plasterers' work; Mr. J. Arundel, painters' work; Messrs. Ashwell and Nesbit, of Leicester and London, ventilating and heating apparatus; and Messrs. Illingworth, Ingham and Co., laboratory fittings and science and art furniture. The new school stands on a plot of land about 11,100 square yards in area, but the premises only take up about half that space.

**CAMBUSLANG.**—A new Church is being erected for the Free congregation on a site at the corner of Main Street and Rosebank Street. The plans, which are by Mr. A. Lindsay Miller, Glasgow, provide for the re-erection of the Church on the old site, with new halls, &c., to the rear, the whole scheme costing over £4500. Immediately to the west of this the United Presbyterian congregation has secured a suitable site at Rossbank House, opposite the West Established Church,

Main Street, for a new Church and halls to be erected at a cost of something like £4000, and for which plans have been prepared by Mr. William Ferguson, Glasgow, and the work of building will be begun shortly.

**CHATHAM.**—The Queen has signified her approval of the proposal to give the new tower now being erected at St. Mary's Church the name of the Victoria Tower. The Hon. Mrs. Talbot, wife of the Lord Bishop of Rochester, laid the foundation stone of the new tower, which is to be furnished with a peal of eight bells and a clock, on the 21st inst. Archdeacon Cheesham, in his address, stated that the Church had stood on the site almost since the date of the Norman invasion.

**EDINBURGH.**—The Public Health Committee of the Edinburgh Town Council last week again considered the estimates for the erection of the general offices, staff quarters, and scarlet fever pavilion of the New City Hospital at Colinton Mains. It was resolved to recommend acceptance of separate estimates for each branch of the work, amounting to about £89,000. At last meeting of Council the estimate of Mr. Colin Macandrew, amounting to over £93,000, was recommended for acceptance for carrying out the whole of the work, but the matter was re-committed owing to some alleged irregularity in the opening of the estimates.

**HALIFAX.**—At a recent meeting of the Town Council the Watch Committee recommended that of the competitive plans sent in for the erection of a new court-house, police station, &c., on the site of the old Infirmary, the first premium of £50 be awarded to the set marked "Diamond Jubilee," of which the estimated cost was £12,599, and the second prize of £25 to those marked "V.R."—The Chairman of the Committee said he did not agree with his committee on the subject. He maintained, as he had done from the first, that the adaptation scheme was the best, and could be carried out at a saving of fully £6000. With these observations he moved the adoption of the minutes.—Alderman Spencer moved to refer back the minute with regard to the plans bearing the motto "Diamond Jubilee." He maintained that the adaptation plans submitted by the Borough Engineer, which were estimated to cost only £9000, were by far the best.—Eventually the amendment was put and carried, and the whole question was again sent back to the committee.—The names of the authors of the two plans were then read out by Alderman Hodgson, the "Diamond Jubilee" plans being sent in by Messrs. James and Sweet Escott, Architects, Cardiff, and the plans marked "V.R." by Messrs. Leming and Leming, of London.

**HARROGATE.**—The Duke of Cambridge formally opened on Friday last the Royal Baths at Harrogate, a notable pile of buildings, which must contribute in no small degree to the prosperity of the town as a health resort. Internally the equipment is in keeping with the style of Architecture. The baths, of which the foundation stone was laid on July 10th, 1894, comprise six departments. First, there is the central hall or pump room, then the gentlemen's baths, ladies' baths, the general rooms, and the Winter Garden. These are all on the ground floor. In connection with the Winter Garden are ladies' and gentlemen's cloak rooms. The latter is a lofty apartment, paved with marble mosaic, and fitted with walnut joinery. At the east end is an ornamental stone staircase leading to an aisled vestibule on the level of Parliament-street. The central hall is entered from the main doorway at the north end, over which are the arms of the town. This is a very fine apartment, lighted by large clerestory windows of delicately stained glass. Both the central hall and the vestibule are tiled with light-coloured Roman mosaic. The hall opens into the four bathing departments. The gentlemen's baths are approached by a vaulted corridor. There is a handsomely decorated waiting-room and eight dressing-rooms. These open into the slipper baths, which are all tiled in white.

The gentlemen's dressing-hall is a vaulted apartment, 96ft. long, fitted with twenty-four walnut-wood cubicles and six dressing-rooms, floored with parquet, and having a small fountain of Burmantofts ware in the middle. The ladies' department is similar to the gentlemen's, except in matters of detail and decoration. The Turkish Bath is very completely fitted. The whole of the building is lighted by electricity, and heated by low-pressure steam-pipes. The principal contracts have been carried out as follows: Masonry, brickwork, carpentry, and joinery, Mr. Isaac Gould, of Leeds; ironwork and plumbing, Messrs. H. Braithwaite and Co., of Leeds; plastering, Messrs. S. Johnson and Sons, of Mirfield; slating, Mr. Joseph Shepherd, of Harrogate; painting and decorating, Messrs. J. Pollard and Son, of Leeds. Messrs. Baggallay and Bristowe, of London, are the Architects.

**HOLLOWAY, N.**—The Great Hall of the Northern Polytechnic Institute in the Holloway Road was formally opened a few days ago. The educational buildings at present erected consist of two blocks—one with a fine frontage on the Holloway Road, and the other roughly parallel with it some 200ft. away. These two blocks are connected by a corridor, on the north side of which is the great hall; while on the south side is a plot of ground, covering nearly twice the area of the hall, on which are afterwards to be erected the remaining buildings of the Institute. Each of the main blocks consists of three floors. In front the ground floor is taken up by the entrance hall, the principal's room, and the secretary's offices. Above are the drawing office, the engineering department, and the physical lecture theatre and laboratory. The second block contains the brickwork shop, the smithy, the carpenters' shop, and the mechanical and chemical laboratories. On the ground floor beside the hall are the gymnasium, and a large room to be fitted up as a common room. The great hall is a lofty and finely-proportioned building approached from the Holloway Road by means of a handsome vestibule. It measures some 100ft. by 55ft., will seat over 1200 persons, and is fitted with a large orchestral platform. The roof is elliptical shaped, and is covered with fibrous plaster divided into panels with ornamental centres, every alternate panel containing an electric light. When lighted up the effect is very good, and the general illumination excellent. In the daytime the hall is lighted by circular-headed windows, supported by stone columns, each bay containing three windows, enclosed in a setting of moulded bricks, whilst the floor is of solid cubes, and has a gradual slope from the entrance to the front of the platform. The gallery has a separate entrance from the Holloway Road, and an emergency exit to the rear. In the front there are three spacious doorways, with three on the north side as exits, leading into a corridor connecting the body of the hall with the orchestra platform. Beneath the platform is a large retiring room, with other rooms for artistes, speakers, &c., whilst suitable lavatories are also provided close by. The heating is by steam, conveyed in pipes along channels each side of the hall. The ventilation has been the subject of careful consideration, and is so arranged that fresh air enters the steam-heated channels from the outside, passes warmed into the building, and is drawn away through the ceiling openings to exhaust ventilators on the roof of the hall, whilst an additional supply of fresh air is also obtained by opening the full width of the side windows, forming a sill made of iron. The Architect was Mr. Charles Bell, 3, Salters' Hall Court, Cannon Street, and the work has been carried out by Messrs. Macfarlane Brothers, of Holloway. Messrs. Clarke and Sons, of Moorgate-street, supplies the heating plant, and Messrs. Kite and Co. the ventilating arrangements, and the plaster ceiling was made by Mr. Tanner, Holloway.

**KELVINBRIDGE.**—An important improvement in the station facilities of the Central Railway has just been added at Kelvinbridge. Since the opening of the railway, the only entrance to this station has been from the Great



Western Road at the west end of the bridge. A bridge has now been constructed leading from the Woodlands Road bridge right up to the platform of the Kelvinbridge Station. The booking office and entrance are at the West-End Park Gate.

**LIVERPOOL.**—The plasterers' dispute in Liverpool still remains unsettled, and the largest building operations are delayed, notably the Post Office, School Board Offices, University Buildings, Fire Police Offices, Cook Street, White Star Offices, Toxteth Infirmary, Teachers' Training College, &c., owing to the attitude assumed by the men. On the 1st of May the men put forward their demands for an increase of wages and alteration of rules. Meetings were held and the matters discussed, with the result that the employers agreed to the advance of wages at the rate of one half-penny per hour, but could not agree to the alteration of rules as suggested by the men, the bulk of the changes being so drastic and one-sided. However, in order to avoid, if possible, a stoppage of work at the busiest part of the season, and also to prove their *bona fides*, the employers suggested arbitration, but this the men would not agree to, and went out on strike. Singularly enough, one of the rules proposed by the men, and to which the masters agree, is that referring to a board of conciliation, the men having hitherto persistently declined arbitration. One rule which the men wish to abolish is a very old one, and is agreed to by all the other trades, viz., "Each employer shall conduct his business in any way he may think advantageous in all details of management not infringing on the individual liberty of the workmen or these rules." Another rule which the men seek to enforce, and to which the masters most strenuously object, is "That the society delegate be allowed to go on the jobs to speak to the foreman during working hours." The employers naturally contend that this would prove an intolerable interference with their business, and would lead to incessant friction. Then on the apprentice question the men and the masters are at loggerheads. The former desire to limit the number of apprentices, while the latter urge that the supply of plasterers is at present insufficient for the demand, and if the apprentice system is curtailed the supply will be still further diminished. There are many more technical points of a minor character in the rules, but those quoted are sufficient to show the necessity for arbitration. If the men have faith in the justice of their demands they should welcome the offer of the employers and accept arbitration, and thus put an end to a dispute which has already gone too far, and involved both sides in serious losses.

**MORECAMBE.**—The new Victoria Pavilion in connection with the Morecambe Winter Gardens, opened a few days ago, has been erected by Messrs. S. Whitehead and Sons, of Oldham, from the designs of Messrs. Magnall and Littlewood, Architects, of Manchester, and the façade, which is of terra-cotta from Ruabon, is provided with two large balconies, from which a fine view is obtained of the scenery across the bay. The Pavilion, standing back as it does at a distance from the roadway, has a most striking appearance. For a place of entertainment the span of the roof is said to be the largest in the world, measuring no less than 118ft. from wall to wall, whilst from the floor of the auditorium the roof is 65ft. high. The ceiling is covered with a very fine fibrous plastic work in the Italian Renaissance style, from the designs of Mr. Bardell (Messrs. A. R. Dean and Co., Birmingham). The stage is very large, being 72ft. wide, 35ft. deep, and 60ft. to the grid floor. The entire building is illuminated by electric light, generated by the Winter Gardens Company's own plant, the wiring and the lamps being supplied by the Keighley Electric Lighting Company.

**TAMERTON.**—A fund has been opened for the restoration of the Parish Church of Tamerton Foliot. The nave and south aisle of the Church were re-built in 1850. In the blizzard of 1891 two large elm trees fell on the north

aisle. A new aisle was built, and many internal improvements carried out under the direction of Mr. G. H. Fellowes Prynne, and the church was re-opened in September, 1895, by the late Bishop Knight Bruce.

**WINDHILL.**—A new Infants' School, erected at Woodend, Windhill, by the Shipley School Board, and opened a few days ago, has been designed on the Central Hall principle, and affords accommodation for 260 children. Messrs. Kendall and Baker, of Leeds, were the Architects, and the contractors who have carried out the various works are as follow:—Executors of the late Mr. Fred. Ives, Shipley, masonry and joinery; Messrs. B. and T. Thornton, Shipley, slating; Mr. A. Higginbotham, Idle, plumbing, glazing, and heating apparatus; Mr. E. Walker, Idle, painting; Mr. O. Lister, Ilkley, concreting and wood-block floor laying; Mr. T. Keighley, Idle, plastering; Messrs. Walker & Co., Idle, wrought-iron railing, &c.; and Messrs. A. W. Kershaw and Co., Lancaster, ventilation.

**YARMOUTH.**—Another permanent addition to the attractions of Great Yarmouth was made last week, by the opening of a revolving observation tower erected on the north beach near the Royal Aquarium. The structure is 125ft. in height, and is built entirely of steel on concrete foundations. Including the machinery it weighs about 125 tons. A circular platform built round the tower, and constructed to accommodate about 160 passengers, is raised to the summit and lowered by means of steam power. As it ascends, the platform revolves by electric power at the rate of one revolution in three minutes. There is another platform at the summit, to which access is obtained from the revolving apparatus, and which is hoisted to an additional height of about 20ft. From this elevation a magnificent view is obtained. At night the structure is illuminated by 50 incandescent electric lights and by three arc lights. At the base of the tower are spacious bars and dining rooms.

ANOTHER statue of Joan of Arc is to grace Paris. The beautiful piece of sculpture by M. Paul Dubois, exhibited in the Salon of 1895, will occupy the centre of the Place des Petits Pères, opposite the Church of Notre Dame des Victoires.

We learn that the Carpenters' Company has appointed Mr. H. Phillips Fletcher, F.S.L., A.R.I.B.A., as surveyor, in the place of Professor T. Roger Smith, who had held the appointment for many years, and who has now joined the Court of the Company.

THE Corporation of Newport invites tenders for the erection of additional buildings in connection with the municipal electricity works of the borough. Mr. Robert Hammond, Ormond House, Great Trinity Lane, is the consulting electrical engineer to the Corporation.

An endeavour is being made to raise a sum of money to place a bust of Mr. Tate in the gallery which has hitherto passed by his name. As his connection with it will probably be obliterated as soon as possible by the Government, there is certainly a reason for the endeavour.

Two French civil engineers and three hydrological experts of the same nationality have just arrived in Russia in order to study on the spot the question of constructing a canal between the Volga and the Don. The expense of the undertaking is approximately estimated at 65,000,000 roubles.

THE Harrow, Uxbridge, and High Wycombe Railway Bill was recently under the consideration of the Select Committee of the House of Lords. The Bill, which originally contemplated the provision of a railway from Harrow to High Wycombe by way of Uxbridge, was, by the decision of the Commons Committee, confined to the promotion of a line between Harrow and Uxbridge. This railway, six and a half miles in length, proceeds from a junction of the authorised railway between Ealing and Harrow, by way of Ruislip and Ickenham, to a terminus at Uxbridge. The estimate of the cost is about £180,000.

## SOCIETY MEETINGS.

**Edinburgh Architectural Association.** During the winter session of the Association Mr. Thomas Gibson, of Eglinton Crescent, put at the disposal of the Council a sum of £30, to be given in prizes for the best design for a fireproof dwelling, taking as the basis of the design a house similar to those in the west end of Edinburgh. The Council appointed Mr. W. W. Robertson, of Her Majesty's Board of Works; Mr. Westland, C.E.; and the then president of the Association, Dr. Rowland Anderson, to examine and decide on the relative merits of the designs submitted. In response to the invitation of the Council, five sets of designs were submitted. After their examination, the design submitted by Mr. James Cairns was placed first; that by Messrs. J. Gordon Smart and Louis Blanc, second; and the one by Mr. Alexander Arnot, third—£15, £10, and £5 being awarded to them. The first and second successful competitors are assistant and pupils in the office of Mr. Hippolyte J. Blanc, and the third prizeman is of the office of Messrs. J. D. Peddie and Washington Browne.

**Yorkshire Archaeological Society.**—The second excursion organised by this Society took place on the 22nd inst., the members proceeding to Steeton Hall, which, according to a pedigree of Reygate, in Foster's Yorkshire Pedigrees, was held by the Reygates from the time of Henry III. down to 1375, when John de Reygate, the last male representative of the family, died. The numerous shields were carefully examined, and the vaulted room and other fragments of mediæval work were a source of interest to the visitors. Ledsham Church, which was given to Pontefract Priory by Robert de Lacy, was next visited, and Monkfryston, so called because the Benedictine Monks of Selby were the owners of the place, proved to archaeologists worthy of consideration. Passing on to Birkin, the Church of that place was surrounded with many items fascinating to strangers, the principal feature being that it is one of the most perfect examples of a small Norman Church to be found in Yorkshire. With the exception of the addition of an aisle, it was found that it had been very little altered. Brayton was the last place visited, and there the Church was gone through. The earliest part of the present structure is of about the same date as the Norman work of the Church at Birkin, and represents a Church built under the same influence, but on a larger scale. The tomb of George, Lord d'Arcy (1558) and the arms thereon were matters which proved exceptionally interesting.—Mr. William Brown, the secretary, gave historical notes on each Church visited, and Mr. J. Bilston, F.S.A., submitted the architectural descriptions.

**National Association of Master Builders of Great Britain.**—The annual summer meeting of the National Association of Master Builders of Great Britain was held at Bristol on Tuesday week, under the presidency of Mr. T. F. Rider, of London. The president said that out of sixty-seven demands made upon them this year sixty were with regard to increase of wages. He wished he could go further and say that the increase of wages resulted in an increase in the quantity of work done in the time; but he feared the experience of all of them was what, unhappily, was the experience of their forefathers—namely, that an increase of wages as a rule meant a decrease in work. There was, he thought, no greater fallacy than the one so often enunciated by trade unions—that if they decreased the number of hours a man worked they increased the production which was the result of that man's work. With regard to the Workmen's Compensation Bill, he thought that if a workman proceeded under either the new Bill or the Employers' Liability Bill he should be barred from proceeding under the other. They already had two pistols levelled at their head, and here seemed to be a chance of a third. But the great objection to the Bill so far as the building trade was concerned, lay in the fact that the building trade was not included as a whole or left out altogether. The report,



the adoption of which he moved, referred to the arrogant behaviour of the trade unions, recent instances of which he mentioned in regard to the operative bricklayers and plasterers. The time was rapidly approaching when the building trade would have to fight those unions and decide whether capital was to rule labour or labour rule capital. The report having been adopted, a resolution was carried agreeing with the action of Lord Wemyss in moving the rejection of the Workmen's Compensation Bill in the House of Lords, as the meeting believed the Bill would be found to act injuriously on the conduct of many large industries, and especially on the building trade.

**The Sanitary Institute.**—The Sanitary Institute has just issued particulars of the Health Exhibition to be held in the Camp Road Building, Leeds, from Tuesday, September 14th, until Saturday, October 9th. The Exhibition is held in connection with the Sixteenth Autumn Congress of the Institute, and includes sanitary apparatus and appliances, and articles for domestic use and economy. The principal boroughs throughout the Kingdom will send delegates to the meeting, and nearly six hundred representatives will be present, in addition to the members and ordinary visitors. As the progress of sanitary science has been largely associated with the Victorian Era, it is thought to be a fitting opportunity to illustrate, by means of contrast and otherwise, the greatest advance made during that period. The committee will be glad (as far as practicable) to grant facilities to exhibitors who may be able to show apparatus or appliances illustrating such contrasts. Applications for space should be made to Mr. W. H. Knight, the curator of the Exhibition, and addressed to the offices of the Institute, Margaret Street, London, W. A full and detailed report of the Exhibition will duly appear in the BUILDERS' JOURNAL.

**Society of Engineers.**—An interesting visit was made by a party of the members of the Society of Engineers on Tuesday, the 20th instant, to the ironworks of Messrs. Easton, Anderson and Goolden, Limited, at Erith. The Erith Ironworks were commenced in 1864 by the firm of Easton, Amos and Anderson, and were laid out by Sir William Anderson, then a member of the firm, and now Director-General of Ordnance Factories. Designed at first as an off-shoot from the principal works at the Grove, Southwark, gradual extensions were carried out from time to time, until in 1873 the Grove Works were finally closed, and the machinery and tools moved down to Erith. The works stand on a plot of ground about 17 acres in extent, and having a frontage of about 800ft. to the River Thames, and the various shops are arranged side by side, the general direction being perpendicular to the river bank, so as to allow of the shop travellers working out on a gantry over barges lying in the river. A railway siding extends from the South Eastern Railway into the works, so that easy communication both by water and rail is ensured. The various shops lie between the offices and the river. Commencing from the west side there are covered stores for stock, 95ft. by 43ft., and sheds for patterns covering an area of 150ft. by 90ft. Next to these lies a pattern shop 100ft. by 50ft. with a packing store at one end, and an electrical shop in two bays with a store close by. The dimensions of the electrical shop are 150ft. by 100ft., and room is left at the river end for extensions. East of these shops is a large open yard, and again east of this is the main building, consisting of six equal spans of 43ft. by 600ft. The two western spans are occupied by an iron foundry 240ft. long, a brass foundry and smiths' shop. The next two spans are given up to machine and erecting shops, the roof in the latter being carried up so as to allow for the erection of lofty engines, the high traveller rails being 39ft. above floor level. The two bays next to these are devoted to boiler and bridge building; beyond this is another extensive yard, in which is a gantry used for the erection of caisson and other large work not easily dealt with in the shops. Beyond this is a field which is utilised as a ground for testing gun carriages, and is pro-

vided with suitable butts, &c. One of the principal businesses in which the Company is engaged is pumping machinery of all sorts. Formerly it used to make large numbers of beam engines for this purpose. Of late years it has been developing the direct-acting inverted triple expansion type, a notable installation being at the new Waterworks at Leicester, where three such engines of large size are to be found. The Company has just brought out a new Corliss gear, which is very simple and efficient. It has also introduced a new high-speed engine (called the "Erith" engine), chiefly for direct driving of dynamos, which promises to have a good future before it.

## Correspondence.

MR. JUSTICE CAVE AND ARCHITECTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—In a recent report of the case of Jalland v. Tyler and Hind, it appeared that no less than ten Architects were called upon to give evidence. The learned judge, in summing up, is reported to have said that "there are no such unsatisfactory men as Architects," and that all other scientific men tried to come to some sort of an agreement! Lawyers, and also doctors, disagree, and prosper more or less under the process, and there have been numerous cases where even learned judges have differed from each other, and reversed and re-reversed decisions. If two or three judges cannot agree, it appears less likely that ten Architects should do so.—Yours faithfully,

GEORGE H. BIBBY.

Hampstead, N.W., July 24, 1897.

## Announcements.

### Editorial.

THE EDITOR will be glad to read any suitable matter submitted to him, and will return all MSS. when stamps are sent to pay postage.

All matter must reach the Editor by the first post on Monday morning to ensure its treatment in the current issue.

### Publishing.

The terms for free post Subscription to any part of the United Kingdom are SIX SHILLINGS AND SIX PENCE per annum by half-yearly or annual prepayments.

### Advertising.

SITUATIONS WANTED, SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS.

Per line, Sixpence. Minimum charge, eighteenpence.

Three Insertions for the price of Two.

Prepayments in the above advertisements is absolutely necessary.

Page or Paragraph Announcements, Trade Advertisements, Auction Sales and Contracts Open.

Prices on application.

Small Advertisements for current week's issue are received up to first post Monday morning inclusive.

### Editorial and Publishing Offices:

Effingham House, Arundel St  
Strand, W.C.

As a memorial of the sixtieth year of the reign of the Queen, it is proposed to build an English Church in Lucerne, and an appeal for funds with this object in view is now being made. The cost of the site and the Church will be £7000.

A REMARKABLE collection of portraits of the Royal family formed by Miss Marianne Skerrett, a lady filling a post of confidence in the Queen's service for over twenty-five years from the date of her marriage, was disposed of at Messrs. Sotheby's auction rooms last week. The most important and interesting works in the collection were three drawings by the Queen herself, and also four etchings by Her Majesty (signed), including a portrait of Prince Albert. The collection realised £60.

## Trade and Craft.

### MANUFACTURE OF MOTOR CARS.

The motor carriage industry has taken root far more readily in France and in other Continental countries than it has done in England. There are upwards of forty firms manufacturing self-propelled vehicles in France, and the new industry is in a much more prosperous state across the Channel than it is here. The French have a decided preference for mechanical road traction, for they are not so squeamish about considerations of vibration, smell, and other minor drawbacks so long as they find auto-cars more economical than horsed vehicles, and, while most of the existing tramways are being equipped with cars propelled by steam, electricity, or compressed air, it is stipulated that on all new lines that are laid down mechanical power must be used. The result on the tramways has been that the service is not only vastly improved and made quicker and more regular, but it works out at a considerably reduced cost, so that many a line formerly working at a loss is now making large profits. The experiences of the experimenters with oil-driven motor carriages have apparently not been very encouraging, and all the manufacturing firms are more sanguine about the future than satisfied with the present. In regard to steam, the chief progress recorded seems to have been made by the Scotte road train, which in the transport of passengers has been put to very severe tests in various parts of France, and has come through the ordeal very satisfactorily. It is an omnibus train consisting usually of the motor carriage with a large omnibus attached to it, and the experimental service of these steam vehicles between Courbevoie and Colombes, in the environs of Paris, has during the month or two for which the road trains have been at work given every satisfaction.

### NEW RAILWAY IN THE ISLE OF WIGHT.

The ceremony of opening a new railway in the Isle of Wight took place recently. The line at present is five and a half miles long. It begins at a junction on the Newport and Sandown system called Merston, and proceeds by an upward gradient through Godshill and the picturesque village of Whitwell, at each of which places there is a station, to St. Lawrence, a village to the west of Ventnor. At the summit of the line, near Whitwell Station, the train enters a tunnel 620 yards long, which pierces the Down. It is intended to extend the line through the Steephill Estate and to connect it with Ventnor by a station within a short distance of the Royal Hotel and on a level with the centre of the town. Messrs. C. J. Westwood and Co., of Clement's Lane, London, are the contractors. It is claimed for the new line that it enables the tourist to reach the Undercliff from the centre of the Isle of Wight by a shortened journey of six miles, which is accomplished in about twenty minutes.

A NEW road and railway swing bridge over the Nene, erected by the Midland and Great Northern joint railways, was opened for traffic last week, at Sutton, Lincolnshire. The bridge, which has been three years in construction, cost £80,000, and replaces the structure built by Robert Stephenson forty-six years ago. The new bridge is worked by hydraulic power.

WITH regard to the London County Council's notice, posted on Charing Cross railway bridge, announcing that the structure was in a dangerous state, the South-Eastern Railway Company states that the structure is not in a dangerous condition. The lining of the bridge, it is explained, is slightly out of repair, but could and would be put right in a very short time.

THE tenth annual Exhibition of pictures in connection with the Yorkshire Union of Artists was recently opened in the West Cliff Saloon, Whitby. There are about 270 pictures hung, and about 280 have been rejected on account of the somewhat limited amount of space available. The work exhibited shows a distinct advance upon previous displays.



MESSRS. G. WALLER AND CO., 165, Queen Victoria Street, have obtained the contract for the execution of all sewer ironwork for the vestry of St. George-the-Martyr during the ensuing three years.

A new fire station in Carmelite Street, Whitefriars, was opened last week. The new station, which consists of five stories, is second only in size to the headquarters in Southwark, and has been constructed at a cost of more than £20,000. The building was designed by Mr. Thomas Blashill, Architect to the Council.

The Kaiser Wilhelm railway bridge, between Solingen and Rhemseheid in Rhenish Prussia, the largest structure of the kind on the Continent, has been formally opened by Prince Frederick Leopold of Prussia, representing the Emperor. The total length of the bridge is 511yds., and that of its central span 187yds. It crosses the river Wupper at a height of 353ft. above the water level, and is thus the highest bridge in the world.

### TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**ANNFIELD PLAIN (Durham).**—For the execution of road improvement works, for the Urban District Council. Mr. T. J. Trowsdale, Surveyor, Annfield Plain:—  
 Jos. Goldborough £38 1 6 Gates and Gold-  
 Thos. A. Turnbull 304 19 0 borough, West  
 Joseph Dunn 289 11 0 Kyo (accepted) £259 0 4  
**BECKENHAM.**—For laying surface-water relief sewer, Beckenham and Chaffinch roads, for the Urban District Council. Mr. John A. Angell, Surveyor:—  
 D. Brewer £238 10 8 E. Hes £406 6 3  
 W. Landridge 528 9 8 Mowlem and Co. 398 0 0  
 T. Adam 438 1 3 W. Wadey 391 6 3  
 Killingback & Co. 441 1 5 J. Jackson, Plaist. 347 10 9  
 Thomas and Edge 413 0 0 tow, E.\*  
 \* Recommended for acceptance.

**BRACKNELL.**—For the erection of a cottage, &c., for the Berkshire County Council. Mr. Joseph Morris, County Surveyor, 156, Friar-street, Reading:—  
 C. W. Cox & Son £1,353 0 0 E. C. Hughes £2,118 16 10  
 W. Watson 1,280 0 0 G. Wernham 1,118 5 10  
 C. Woodbridge 1,198 10 0 East and Hyde 1,087 6 0  
 G. H. Tucker 1,194 0 0 J. B. Steward 1,028 0 0  
 F. Newberry 1,173 0 0 Wm. J. May, 997 10 0  
 H. Clerk 1,149 0 0 Bracknell\*  
 \* Accepted.

**BRADFORD (Yorks.).**—Accepted for the extension of engineering works, Thornbury. Mr. Thos. Barker, C.E., 5, Bond-street, Bradford:—

Masonry.—Joseph Coates .....	£421 0
Joinery.—J. Copley .....	365 0
Ironfoundry.—E. and H. W. Kaley .....	193 0
Slating.—Thomas Nelson .....	80 10
Plumbing and Glazing.—R. Townsend .....	55 0
Plastering.—J. Wheaton .....	47 15
Painting.—G. J. Walton .....	10 7

[All of Bradford.]

**CARDIFF.**—For the construction of an underground convenience in the Hayes, for the Corporation. Mr. W. Harpur, C.E., Town Hall, Cardiff. Quantities by Engineer:—  
 Thomas Rees £2,839 8 0 James Allan, 22,458 0 0  
 Chas. H. Parsons 2,499 2 0 Cardiff\*  
 \* Accepted.

**CHESHAM.**—For levelling, paving, &c., Higham-road and three other roads, for the Urban District Council. Mr. A. H. Forbes, Surveyor, Blincher-street, Chesham:—  
 H. Williams† £1,050 0 0 Taylor and Par-  
 T. Bristow, Bros.† 1,038 9 2 son† £889 0 0  
 Abel Mead, Ches- ham† 1,005 0 0 J. Smith† 515 0 0  
 ham†\*  
 † Surveyor's estimate for four roads, £957 15s. 6d.  
 † Total for four roads.  
 † Total for one road.

**DUBLIN.**—For erecting a new factory, Wood-street, Dublin. Plans prepared by Mr. Richard W. Walsh, C.E., 10, South Frederick-street. Quantities by Messrs. Slewin and Clayton:—  
 James Beckett £6,750 Roberts £6,570  
 William Beckett 6,720 John Good 6,560  
 Pemberton and Son 6,666 J. and H. Martin 6,467

WORKS:  
**DARWEN.**

THE ANAGLYPTA CO. LTD., ARE PATENTEES AND MAKERS OF

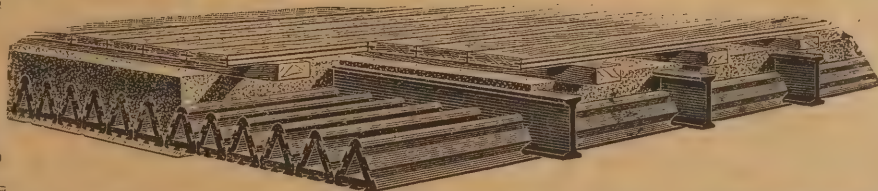


THE CHEAPEST SUBSTANTIAL RELIEF DECORATION,  
IN VERY BOLD RELIEF AND LOW RELIEF.

LONDON WAREHOUSE:  
92,  
Great Russell St.,  
W.C.

## HOMAN'S FIREPROOF FLOORS.

Used in  
nearly  
2000 BUILDINGS.



Roofs, Piers,  
Bridges, Joists,  
and Girders.

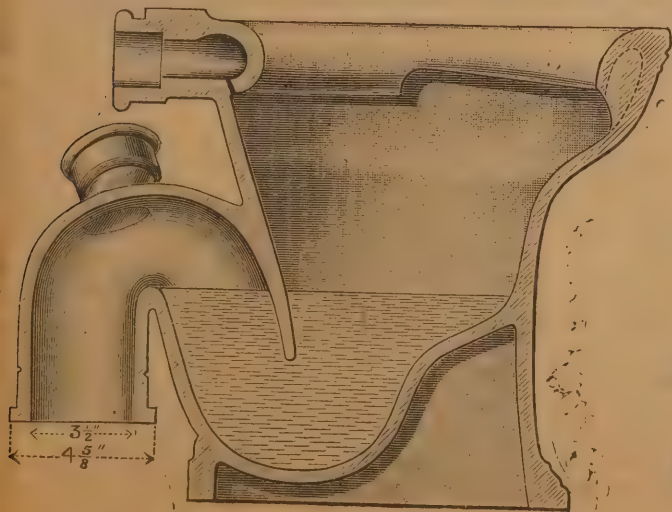
CONSTRUCTIONAL STEEL AND IRONWORK.  
GRANITIC STEPS AND PAVING, ASPHALTE, &c.

**HOMAN & RODGERS, ENGINEERS.**

LONDON { Offices: 17, GRACECHURCH STREET, E.C.  
Works: RATCLIFF, E.  
Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

MANCHESTER { Offices: 10, MARSDEN STREET.  
Works: WEST GORTON.  
Telegraphic Address: "NAMOR, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.



### SHANKS' PATENT "COMPACTUM" WASH-DOWN CLOSET.

LARGE WATER SURFACE, 8½ in. by 6½ in.  
DEEP SEAL IN TRAP, 3 in.

THOROUGHLY FLUSHED WITH TWO GALLONS OF WATER.

PERFECT SEAT EXTENSION.

PORCELAIN SOLDERED JOINT.

Made in "Vitro-Porcelain," a new body, vitreous throughout, non-absorbent, and non-crazing. [The best material for Sanitary Appliances ever introduced.]

Prices and Particulars on Application.

SHANKS & Co., Tubal Works, Barrhead, near Glasgow.



**EAST MOLESEY.**—For making up Beauchamp and Nightingale roads, for the Urban District Council. Mr. J. Stevenson, Surveyor, Council Offices, East Molesey. Quantities not supplied:—  
W. Adamson ... £236 0 0 | S. Atkins, Kings-  
T. Davies and Sons 921 0 0 | ton-on-Thames\* £584 13 6  
\*Accepted.

**HAMPTON-ON-THAMES.**—For the erection of a fire-station, Thames-street, for the Urban District Council, Hampton. Mr. John Kemp, C.E., Council's Offices, Hampton-on-Thames:—  
H. March ... £418 11 | J. Wright, Hampton\* £435 15  
\*Accepted.

**HAVERFORDWEST.**—For additions, &c., to infirmary, for the Trustees of the Pembrokeshire and Haverfordwest Infirmary. Mr. D. Edward Thomas, Architect, Victoria-place, Haverfordwest:—  
Wm. Thomas ... £1,343 | Joseph Lewis Cantlett,  
T. Davies and Sons ... 1,238 | Haverfordwest\* £1,055  
\*Accepted.

**KEIGHLEY.**—For additions to Park Works, for Messrs. Hall and Stells. Mr. John Haggas, Architect, North-street, Keighley:—

Masonry.—T. Moore, Keighley ...  
Joinery.—J. Hartley, Keighley ...  
Slatting.—Thornton and Higgs, Keighley ...  
Plastering.—Eli Sharp, Keighley ...  
Plumbing.—W. Sugden, Keighley ...  
Ironwork.—John Barrett, Crosshills, near Keighley ...

**KINGSTON.**—For extension at Kingston Brewery. Messrs. Yetts, Sturdy, and Usher, Architects. Quantities by Messrs. K. L. Curtis and Sons:—  
Faulkner ... £6,677 | Wheatley and Sons,  
Oldridge and Son ... 6,667 | East Molesey ... £6,630  
B. E. Nightingale ... 6,646

**LANCASTER.**—For erecting four shops, &c., for Messrs. J. and C. Fell. Mr. J. Parkinson, Architect, 67, Church-street, Lancaster. Quantities by Architect:—

Masonry.—William Harrison ...  
Joinery.—Ed. Thompson ...  
Slatting and Plastering.—T. Cross and Son ... £1,882 15 7  
Plumbing and Glazing.—Harrison and Mozer ...

**LEE.**—For rebuilding the "Rose of Lee" public-house, Lee, Kent. Mr. W. J. Ingram, Architect:—

Prestage ... £9,248 | F. and H. Higgs ... £8,677  
Courtney and Fairburn ... 9,227 | Rowe ... 8,600  
Whitehead ... 9,199 | Lascelles and Co. ... 8,598  
Spencer and Co. ... 8,793 | Lily and Lily ... 7,997  
W. Shurmer ... 8,719 | Beet and Gash ... 7,871  
**LEICESTER.**—For the erection of house, cottage, stabling, &c., for the Corporation. Mr. T. W. Pettifor, Architect, Berridge-street Chambers, Leicester. Quantities by Architect:—  
J. E. Johnson and ... Bradshaw and Sons £8,923 5  
Son ... £10,720 0 | W. M. Sharp ... 8,657 14  
M. Martin ... 9,818 0 | Riddett and Son ...  
G. Holt ... 9,463 0 | Prospect-road ...  
Tyers and Yates ... 9,261 0 | Leicester\* ... 8,475 0  
E. Orton ... 8,998 0 | E. Fox\* ... 7,999 0  
\*Accepted. + Withdrawn.

**LEYTON.**—For rebuilding the "Prince of Wales" public-house, High-street. Messrs. Gordon, Lowther, and Gunton, Architects:—

Antill and Son ... £3,850 | Lascelles and Son ... £3,449  
Allen and Son ... 3,830 | W. Shurmer ... 3,446  
Snewin Bros. ... 3,677 | Edwards and Medway ... 3,347  
Jarvis and Sons ... 3,596 | C. Cox ... 3,178

**LITHERLAND (Lancs.).**—For widening, &c., Linacre-road, for the Urban District Council. Mr. W. B. Garton, Surveyor, Sefton-road, Litherland. Quantities by Surveyor:—

W. F. Chadwick ... £496 7 2 | J. Keating & Sons,  
Peter Balmer ... 449 0 0 | 7, Commercial-  
Thos. Horrocks ... 439 5 6 | road, Liverpool\* £414 6 0  
[Surveyor's estimate, £486.]

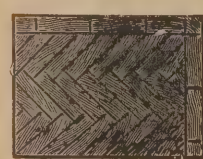
**LITHERLAND (Lancs.).**—For the completion of Violet-road, for the Urban District Council. Mr. W. B. Garton, Surveyor, Sefton-road, Litherland. Quantities by Surveyor:—

Peter Balmer ... £1,037 0 0 | J. Keating & Sons £913 5 5  
W. F. Chadwick ... 983 12 9 | Stephen Ashcroft,  
T. Horrocks ... 941 10 3 | Bootle(accepted) 898 10 9  
[Surveyor's estimate, £1,017 1s. 2d., if Haslingden flags used.]

**THE SMOKELESS FIRE CO. LTD.,**  
Sole Proprietors of Marsh's Patents

FOR THE  
**COMPLETE COMBUSTION  
OF FUEL.**

Ranges, Steam Boilers, Water Heaters, &c.  
**100, SHAFTESBURY AVENUE, LONDON, W.**



**WOOD-BLOCK PAVING.**

(MR. WHITE'S SYSTEM.)  
For Churches, Schools,  
Offices, &c.

Estimates and full particulars on ap-  
plication to  
**THOS. GREGORY & CO.,**

WOOD PAVING AND STEAM  
JOINERY WORKS,  
Clapham Junction, S.W.

**THE  
BATH STONE FIRMS LTD.**  
BATH,

FOR ALL THE  
PROVED KINDS OF **BATH STONE.**

**FLUATE,** for Hardening, Waterproofing, and Pre-  
serving Building Materials.

**LADDERS, BARROWS, STEPS,**

**TRESTLES, SCAFFOLDING,**

**For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

**LLANDILO (Wales).**—For the erection of schools for the Llandilo Fawr School Board. Mr. Hy. Herbert, Architect, Brynmair, Ammanford, R.S.O.:—

B. Howell and Thomas and  
Son, Ltd ... £2,197 18 0 | Evans ... £1,945 0 0  
Ben Davies ... 2,106 17 3 | Ben Jenkins ... 1,995 0 0  
L. Davies ... 2,103 3 8 | D. Evans, Llan-  
Thomas and ... 1,970 0 0 | dilo\* ... 1,751 0 0  
Stephens ... \*Accepted.

**LONDON.**—For the further extension of the Argus Printing Co., Ltd., premises, Temple-avenue, for the Argus Printing Co., Ltd. Mr. Chas. Val. Hunter, Architect, Ward-robe-chambers, Queen Victoria-street. Quantities by Mr. Chas. Robson, Lewisham. Constructional ironwork and fireproof floors by Messrs. Mark Fawcett, and Co., Queen Anne's-gate:—  
Larke and Son ... £22,100 | Shurmer ... £19,900  
J. Greenwood ... 21,650 | Higgs and Higgs ... 19,855  
Lascelles and Co. ... 21,335 | Patman & Fothering-  
Foster and Dicksee ... 20,990 | ham ... 19,821  
H. Williams ... 20,975 | Lawrence and Sons ... 19,776  
Holloway ... 20,387 | Holloway & Greenwood ... 19,569  
Downs ... 19,992 | Jerrard and Sons\* ... 19,547  
\*Accepted.

**LONDON.**—For the erection of warehouse at Shacklewell-lane, Stoke Newington, for Messrs. Lloyd, Atree, and Elbro, Architects:—  
Thomson and Son ... £9,460 | McCormick and Co. ... £7,777  
F. and H. Higgs ... 8,990 | W. Downs ... 7,714  
Foster and Dicksee ... 8,988 | W. Shurmer ... 7,557  
Holliday & Greenwood ... 8,888 | Bowyer ... 7,538  
Johnson and Co. ... 8,800 | E. Lawrence and Son ... 7,474  
Turtle and Appleton ... 8,575 | Grover and Son ... 7,238  
Jarvis and Son ... 7,975 | W. Wall ... 7,275  
Patman & Fotheringham ... 7,780

**LONDON.**—For alterations at No. 28, Bishopsgate-street Within, E.C. Mr. F. Hammond, Architect:—  
Ashby Brothers ... £715 | Shurmer ... £707  
Dixon ... 710 | Larke ... 674

**LONDON.**—For factory at Dalston-lane, N.E. Mr. A. E. Hughes, Architect:—  
H. L. Holloway ... £12,100 | W. Downs ... £10,983  
Adamson ... 11,449 | W. Dabbs ... 10,524  
E. Lawrence and Son ... 11,250 | Chessum and Son ... 9,936  
Faulkner ... 11,137 | W. Shurmer ... 9,889  
Williams ... 10,986

**LONDON.**—For additions to warehouse at Wick-lane, Old Ford, for Messrs. Allan, Cockshut, and Co. Mr. F. M. Elbro, Architect:—  
Holland and Hannen ... £7,777 | W. Shurmer ... £7,147  
Holloway Brothers ... 7,240 | Perry and Co. ... 6,842  
Harris and Wardrop ... 7,197

**LONDON.**—For rebuilding the "Sir Robert Peel" public-house, Walworth-road. Mr. W. J. Ingram, Architect:—

Lang and Son ... £2,529 | Long ... £2,314  
P. and H. Higgs ... 2,450 | Lily and Lily ... 2,259  
Beer and Gash ... 2,359 | Courtney and Fairburn ... 2,199  
Whitehead ... 2,340 | W. Shurmer ... 2,195  
Rowe ... 2,320 | Maxwell ... 2,145

**LONDON.**—For the erection of four shops at Christ-street, Poplar. Messrs. J. and S. F. Clarkson, Architects:—  
Turnbull and Son ... £4,814 | McCormick ... £3,523  
Harris and Wardrop ... 4,565 | W. Shurmer ... 3,492  
Atherton and Dolman ... 4,531 | J. E. Todd ... 3,400

**LONDON.**—Accepted for alterations and repairs to three houses, Brady-street, Bethnal Green. Mr. W. W. Jenkinson, Surveyor, 6, Moorgate-street:—  
Geo. Brittain ... £210

**LONDON.**—For stables, &c., at Gainsborough-road, Hackney Wick, for the Acme Wood Block Company. Messrs. Barnes, Williams, and Co., Architects:—  
White and Co. ... £649 | Britton ... £606  
Outhwaite ... 634 | W. Shurmer ... 585  
Kiddle and Son ... 610 | Jarvis and Son ... 565

**LONDON.**—For alterations to the "Prince Arthur" public-house, Poplar. Mr. F. A. Ashton, Architect. A. E. Symes ... £2,175 | S. Salt ... £1,893  
W. Shurmer ... 2,170 | Brown, Kruse and Co. ... 1,835  
W. Watson ... 2,145 | C. Simmons ... 1,773  
J. H. Cocks ... 2,085 | W. J. Maddison ... 1,725

**LONDON.**—For alterations and decorations at 9, Gt. Marylebone-street. Mr. Reilly, Architect, 23, St. Swithin's-lane:—  
Geo. Brittain, Kennington ... £1,100

**LONDON.**—Accepted for the erection of warehouse, No. 3, New Inn Broadway, New Inn Yard, Shoreditch, for Mr. E. C. Street. Mr. W. H. Punnett, Architect:—  
B. R. Cognan ... £28

**LONDON.**—Accepted for the erection of warehouse, No. 4, for Mr. E. C. Street. Mr. W. H. Punnett, Architect:—  
B. R. Cognan ... £263

**LONDON.**—For alterations to the Master's offices at the Hackney Union, Homerton, N.E., for the Guardians. Mr. W. A. Finch, Architect, 76, Finsbury-pavement, E.C.:—  
W. Silk and Son ... £1,500 | S. R. Lamble ... £1,313  
W. Shurmer ... 1,450 | Chessum and Son\* ... 1,200  
T. J. Mitchell ... 1,393 | \*Accepted.

**LONDON.**—Accepted for the erection of two houses, Greyhound-road, Tottenham, for Mr. W. M. Jeffery, Mr. J. E. Pinder, Architect:—  
W. Hawley ... £540

**LONDON.**—Accepted for the erection of two houses, Culross-road, Tottenham, for Mr. J. Rogers. Mr. J. E. Pinder, Architect:—  
W. Hawley ... £500

**LONDON.**—For painting interior and exterior of Munster-road Schools (Chelsea), for the London School Board. Mr. T. J. Bailey, Architect:—  
W. Hornett ... £695 0 0 | W. Brown\* ... £322 16 0  
F. Chidley ... 531 8 6 | \*Accepted.

**LONDON.**—For interior painting of Saunders-road Schools (Chelsea), for the London School Board. Mr. T. J. Bailey, Architect:—  
E. T. Polley ... £260 0 0 | G. H. Sealy\* ... £238 0  
G. Neal ... 375 0 | W. Brown ... 287 10  
W. R. and A. Hide ... 239 15 | \*Accepted.

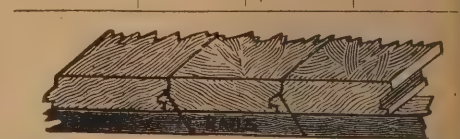
**LONDON.**—For painting interior and exterior of Swan-street Schools (City), for the London School Board. Mr. T. J. Bailey, Architect:—  
F. T. Chinchin ... £318 15 | A. W. Derby\* ... £278 0  
\*Accepted.

**LONDON.**—For interior and exterior painting of Sayer-street Schools (East Lambeth), for the London School Board. Mr. T. J. Bailey, Architect:—  
W. V. Goad ... £398 0 0 | B. E. Nightingale\* £340 0 0  
F. R. Blaxton ... 424 17 6 | \*Accepted.

## FLOORING BLOCKS.



Per 100 Blocks out of sizes.	YELLOW.		PITCH PINE
	At Wharf.	ex Ship within one month.	At Wharf.
17 1/2 x 3 x 3	12 3	11 2	16
17 1/2 x 3 x 2	8 9	7 11	11 8
17 1/2 x 3 x 1 1/2	6 9	6 0	9 1



**PRIME DRY OAK & PITCH PINE FLOORING**

With Special Joint to conceal Nails—

1 1/2 x 4 1/2 Oak, 50/- Pitch Pine, 24/6 per square.  
1 x 4 1/2 " 42/6 " 21/- " "

Above prices include desiccating.

**VIGERS BROTHERS,**  
TIMBER MERCHANTS.

Head Office—67, KING WILLIAM STREET, E.C.  
Mills—LOTS ROAD, CHELSEA.

Telephone No. 601 Avenue.



**THE THORNTON-PICKARD**  
SIMPLEST AND BEST.

**CAMERAS AND  
SHUTTERS.**

THE THORNTON-PICKARD MANFG. CO., ALTRINCHAM.

Illustrated  
Catalogue Free.





LONDON.—For interior painting of Surrey-square Schools (East Lambeth), for the London School Board. Mr. T. J. Bailey, Architect:—  
Holliday & Green-wood £454 0 0  
D. Charteris 390 0 0  
B. E. Nightingale £368 0 0  
F. R. Blaxton 302 17 6  
\* Accepted.

LONDON.—For interior cleaning (old portion), and interior painting (new portion) of Victory-place Schools (East Lambeth), for the London School Board. Mr. T. J. Bailey, Architect:—  
B. E. Nightingale (accepted) £217

LONDON.—For painting interior of Wood's-road School (East Lambeth), for the London School Board. Mr. T. J. Bailey, Architect:—  
Maxwell Bros. Limited (accepted) £524

LONDON.—For cleaning interior of J.M. School, and painting interior and exterior of S.M. School, Pakeman-street (Finsbury), for the London School Board. Mr. T. J. Bailey, Architect:—  
E. Laurence and Sons £408  
Stevens Bros.\* £370  
T. Cruys 407  
\* Accepted.

LONDON.—For painting interior and exterior of Black-wall-lane Schools (Greenwich), for the London School Board. Mr. T. J. Bailey, Architect:—  
C. Foreman £435 0 0  
W. Banks £334 11 6  
E. Proctor 336 0 0  
W. Holding and Son\* 329 0 0  
\* Accepted.

LONDON.—For painting interior of Burrage-grove (Greenwich) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
W. Banks £425  
C. Foreman £379  
Thomas and Edge 399  
E. Proctor\* 390  
\* Accepted.

LONDON.—For painting interior and exterior of Hal-stow-road (Greenwich) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
H. Somerford and Son £527 0  
W. Holding and Son £392 0  
C. Foreman 473 0  
W. Banks\* 360 14  
\* Accepted.

LONDON.—For painting interior and exterior of High-street (Greenwich) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
C. Foreman £502 0 0  
W. Banks £459 11 6  
Thomas and Edge 541 0 0  
E. Proctor\* 400 0 0  
\* Accepted.

LONDON.—For interior painting of Sydenham Hill-road Schools (Greenwich), for the London School Board. Mr. T. J. Bailey, Architect:—  
A. Black and Son £430  
G. Kemp £279  
E. P. Bulled and Co. 293  
J. and C. Bowyer\* 256  
W. Akers and Co. 299  
\* Accepted.

LONDON.—For making-up and paving Little Vale-place and Stanwick-road, S.W., for the Fulham Vestry. Mr. Chas. Botterill, C.E., Town Hall, Walham Green, S.W.:

Stanwick-road, Sec. II.					Little Vale place.				
Road-way.	York.	Imperial	Victoria.	Adamant	Road-way.	York.	Imperial	Victoria.	Adamant
Imperial Stone Co., Green-wich	£ s.	£ s.	£		£	£ s.	£		
J. Ball, Chiswick	144	—	45	—	63	—	29	—	—
Lawrence and Thacher, Up, Tooting	135	—	—	—	—	—	—	—	—
Nowell & Co., Kensington	199	—	—	—	105	33	—	—	—
E. Parry, Fulham	177 10	69 10	—	—	190	35 15	—	—	—
J. Mears, Fulham	170	—	—	—	93	—	—	—	—
H. J. Greenham, Hammer-smith	192	—	—	—	104	—	—	—	—
G. Wimpey & Co., Ham-mersmith	199	—	—	—	112	—	—	—	—

LONDON.—For interior cleaning of Hackney Divisional Offices (Hackney), for the London School Board. Mr. T. J. Bailey, Architect:—  
G. Barker £79 0  
W. Silk and Son\* £49 0  
G. Wales 52 16  
\* Accepted.

LONDON.—For exterior painting of Sydney-road Schools (Hackney), for the London School Board. Mr. T. J. Bailey, Architect:—  
G. Wales £348  
Stevens Bros.\* £238  
W. Silk and Son 247  
A. W. Derby 227  
\* Accepted.

LONDON.—For interior painting of Wenlock-road School (Hackney), for the London School Board. Mr. T. J. Bailey, Architect:—  
McCormick and Sons £454 0  
J. Grover and Son £358 10  
Perkins and Co. 404 0  
Stevens Bros.\* 351 0  
T. Nicholson 368 0  
\* Accepted.

LONDON.—For painting Haggerstone Road Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
McCormick and Sons £570  
G. Barker £546  
W. Shurnar 553  
J. Grover and Sons\* 533  
\* Accepted.

LONDON.—For painting Heber-road Schools for the London School Board. Mr. T. J. Bailey, Architect:—  
Holliday and Greenwood £777  
Rice and Son\* £495  
\* Accepted.

LONDON.—For painting High-street Schools (Bromley, E.), for the London School Board. Mr. T. J. Bailey, Architect:—  
W. G. Beaumont & Son £330  
A. W. Derby £302  
D. Gibbs and Co. 310  
J. T. Robey\* 300

LONDON.—For painting London Fields Schools for the London School Board. Mr. T. J. Bailey, Architect:—  
McCormick & Sons £717 0 0  
G. Barker £320 0 0  
F. Britton 583 4 6  
Silk and Son 500 0 0  
C. Willmott 578 14 0  
J. Morrison\* 498 0 0  
\* Accepted.

LONDON.—For painting interior and exterior of West-minster-bridge-road Schools (Southwark), for the London School Board. Mr. T. J. Bailey, Architect:—  
F. G. Minter\* £107 10  
G. Foxley £102 10  
\* Accepted.

LONDON.—For painting Portman-place Schools (Tower Hamlets), for the London School Board. Mr. T. J. Bailey, Architect:—  
W. G. Beaumont & Son £548  
A. W. Derby £477  
G. Wales 540  
A. R. Symes\* 389  
\* Accepted.

LONDON.—For painting exterior of "Latchmere" School (West Lambeth), for the London School Board. Mr. T. J. Bailey, Architect:—  
H. J. and G. Mallett £270  
E. B. Tucker £249  
Holloway Bros. 250  
H. Brown\* 195  
\* Accepted.

# **McNEILL'S FELTS** (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.) **McNEILL'S SLAG WOOL** (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

**F. McNEILL & CO.,** Head Office, Bunhill Row, London, E.C.; Slag Wool Works, Kirkintilloch, near Glasgow.

## THE **ST. PANCRAS IRON WORK COMPANY,** **ENGINEERS & IRONFOUNDERS.**

Manufacturers of  
**IRON STAIRCASES**  
 (Straight and Spiral).

**IRON ROOFS, FOOT BRIDGES,**  
**IRON DOORS,**  
**VERANDAHS, BALCONIES,**  
**PORCHES, GATES & RAILINGS.**

**GENERAL WROUGHT & CAST-IRON WORK.**

LARGE SHOWROOMS AT

**The St. Pancras Iron Works,**  
 PANCRAS ROAD, LONDON, N.W.  
 (Close to King's Cross, St. Pancras and Euston Stations.)

**BUILDERS' JOURNAL** Reading Cases may be had on application to the Manager, price 1s. 9d.



London Agents: HENRY WARING, 10, Queen Victoria Street, E.C.



LONDON.—For alterations and additions to the "Queen Hotel," Manchester-road, Poplar, E., for Mrs. G. Marner. Mr. Fred. A. Ashton, Architect, 177, Romford-road, Stratford, E.—

A. E. Symes ..... £1,585  
G. Veale ..... £1,375  
C. Simmons ..... 1,580  
Spencer and Co. .... 1,368  
W. Watson ..... 1,390  
J. and H. Cocks\* ..... 1,350  
W. J. Maddison ..... 1,380  
\*Accepted.

LONDON.—For the manufacture, supply, delivery, and erection of three triple-expansion engines, and six centrifugal pumping engines, together with condensers and all accessories complete, at the proposed new pumping station at North Woolwich, for the London County Council:—

Fleming and Ferguson, Ltd. .... £13,950 0  
D. Stewart and Co., Ltd. .... £10,324 15  
Drysdales and Co. .... 11,950 0  
John Cochrane\* ..... 7,320 0  
\*Accepted.

For the manufacture, supply, delivery, and erection of two Lancashire boilers, with all fittings complete, at the proposed pumping station.

D. Stewart and Co., Ltd. .... £1,261 13 4  
John Thompson ..... 1,025 0 0  
Clayton, Son, and Co., Ltd. .... 1,163 10 0  
Co., Ltd.\* ..... 1,000 0 0  
Tinkers, Ltd. .... 1,135 0 0  
\*Accepted.

LONDON.—For erecting new premises for the Stratford Co-operative Society, Plaistow. Mr. B. Pite, Architect:—

Atkin and Green ..... £2,400  
Co-operative Builders ..... £2,290  
W. Watson ..... 2,350  
W. Shurmer ..... 2,284  
W. Beale ..... 2,363  
Pattison ..... 2,370  
Barrett and Power ..... 2,343  
Thomson and Son ..... 2,219  
Gregor and Son ..... 2,330  
Harris and Wardrop ..... 2,144  
J. A. Reed ..... 2,306  
\*Accepted.

LONDON.—For new wing, &c., to the convent, Clarendon-square, W.—

W. Watson ..... £13,250  
Smith and Sons ..... £11,397  
Patman and Potheringham ..... 12,276  
B. E. Nightingale ..... 11,375  
W. Shurmer ..... 11,575  
Minter and Co. .... 11,104  
W. Beale ..... 11,104

LONGTON.—For rebuilding "Coach and Horses" and premises, for the Burton Brewery Company, Limited. Mr. Edward Forshaw, Architect and Surveyor, Burton-on-Trent.

Quantities by the Surveyor:—

Ball and Robinson ..... £1,750  
Tomkinson and Bettelley ..... £1,750  
T. R. Yoxall ..... 1,750  
P. H. Bennion, Longton (accepted) ..... 1,729

MAIDENHEAD.—For a steel lattice bridge, 65ft. span, Bray, for the Berkshire County Council. Mr. Joseph Morris, County Surveyor, 156, Friar-street, Reading.

Price & Cornhill £2,362 10 0  
Jesse Tildesley ..... 972 0 0  
W. Richards and Son ..... 850 0 0  
J. O. Brettell ..... 717 12 0  
Cross and Cross ..... 798 0 0  
G. H. Tucker ..... 664 0 0  
Matthew T. Shaw ..... 796 0 0  
Thos. Woodall ..... 654 16 6  
J. Shewell & Co. .... 754 18 11  
A. J. Ellis ..... 602 1 9 1

MANSFIELD.—For alterations and additions to the Mansfield and Mansfield Woodhouse District Hospital, in commemoration of her Majesty's Diamond Jubilee. Mr. R. Frank Vallance, hon. Architect, Mansfield:—

H. Vickers ..... £1,774 0 0  
J. F. Price ..... 1,646 13 0  
J. H. Vickers ..... 1,687 4 8  
Fishers Brothers ..... £1,608 12 2  
Gilbert and Gabbitass ..... 1,650 0 0  
J. Mansfield\* ..... 1,520 0 0  
\*Accepted.

MANSFIELD.—For new banking premises, Market-street, Mansfield, for Messrs. Samuel Smith and Co., bankers, Nottingham. Mr. R. Frank Vallance, Architect, Mansfield:—

J. A. Adams ..... £7,985 0  
Gilbert and Gabbitass\* ..... £7,369 0  
H. Vickers ..... 7,660 4  
\*Accepted.

MANSFIELD.—For erecting a dwelling-house, Pleasley-hill, Mansfield, for Mr. Alfred Archer. Mr. R. Frank Vallance, Architect, Mansfield:—

C. G. Percival ..... £395 0  
J. W. Sweltridge, Mansfield\* ..... £255 10  
E. Turners ..... 300 0  
\*Accepted.

MIDDLETON (Lancs.).—For the execution of sewerage works, Wince Brook (Contracts Nos. 2 and 4), for the Corporation. Mr. H. L. Hinnell, C.E., 41, Corporation-street, Manchester:—

Contract No. 3.  
G. Freeman and Sons, Hollinwood, Oldham.  
Contract No. 4.  
J. Ainscouth and Son, Oldham.  
[As per schedule of prices.]

NORWICH.—For the execution of sewerage works, Contract 6, for the Corporation. Mr. A. E. Collins, C.E., Guildhall, Norwich:—

Workman ..... £45,500 0  
Geo. Osment\* ..... £24,828 0  
Monk and Newell ..... 33,896 7  
B. Cooke and Co. .... \*Accepted.  
Battersea\* ..... 29,632 0  
\*Withdrawn.

[City Engineer's estimate for above work, £30,000; plus £2,000 for contingencies, £32,000.]

OXFORD.—For alterations to Fish Market, and north end of No. 2 Avenue, Meat Market, for the Corporation:—

Ward Bros. .... £1,580  
W. Rose ..... £1,395  
T. Ward ..... 1,580  
J. Wooldridge\* ..... 1,239  
\*Accepted.

RHOSROBIN (near Wrexham).—For erecting St. Peter's Church, Rhosrobin, Rhosddu, Wrexham. Mr. J. H. Swainson, Architect, Wrexham:—

Turner Bros. .... £1,130  
W. H. Wycherly and Company ..... £999  
Davies Bros. .... 1,073  
Thos. Rogers and Son, Brynbo\* ..... 820  
E. C. Probert ..... 1,028  
W. E. Samuel ..... 975  
[Bricks, terra-cotta, tiles, and sand, and carting same found.]

\*Accepted at £845, including fir in place of spruce.

SEVENOAKS.—For levelling, paving, &c., Mount Harry-road, East, for the Urban District Council. Mr. Jabez Mann, C.E., Council Offices, Sevenoaks:—

Thomas Adams ..... £1,070 0 0  
E. Iles, Mitcham Common, Surrey\* ..... £1,644 9 0  
John Jackson ..... 1,942 14 6  
Sidney Hudson ..... 1,895 15 6  
[Surveyor's estimate, £1,781.]

\*Accepted according to schedule of prices.

SNARESBROOK.—For the erection of residence, stabling, &c. Messrs. Gordon, Lowther, and Gunton, Architects:—

J. Williams ..... £3,893  
E. Lawrence and Son ..... £3,635  
Munday and Co. .... 3,799  
W. Shurmer ..... 3,553  
Patman & Fotheringham ..... 3,098  
Jolliffe and Son ..... 3,250  
Sagey and Sons ..... 3,043  
Snewin Brothers ..... 3,248

STAINES.—For the supply of 400 tons of granite and 1,000 tons of flint, for the Urban District Council. Mr. E. J. Barrett, C.E., Town Hall, Staines:—

Per ton.  
W. Griffiths 1 1/2 in. Guernsey Granite ..... s. d.  
Mowlem and Co. .... 15 10  
A. and F. Manuelle ..... 15 6  
L. Summerfield ..... 14 9

1 1/2 in. Leicester or other Granite.  
Clee Hill Dhu Stone Company (per J. G. Bull and Co.) ..... 15 0  
Trickett and Sons ..... 14 6  
Enderby and Stoney Stanton Granite Company, Narborough, Leicester\* ..... 14 1  
Narborough and Enderby Granite Company ..... 14 5  
Van Praagh and Co. .... 13 3  
Croft Granite Company ..... 12 5  
T. Whitwick Granite Company ..... 12 3  
T. Whitwright ..... 8 11

Flint.  
E. J. Broderick ..... 6 11  
Farnham Flint Company ..... 6 7  
W. Norris, Farnham\* ..... 6 7  
\*Accepted.

UPTON PARK.—For alterations, &c., to the "White Hart" public-house, Upton Park. Mr. F. A. Ashton, Architect:—

A. E. Symes ..... £2,675  
Hearle and Farrow ..... £2,300  
J. and H. Cocks ..... 2,502  
W. J. Maddison ..... 2,265  
W. Shurmer ..... 2,470  
C. Simmons ..... 2,200  
W. Watson ..... 2,420

WALTHAMSTOW.—For erecting dwelling-house, Greenleaf-road, for Mr. John Clark. Mr. H. C. Marston, Surveyor, Walthamstow:—

Padley ..... £165  
G. W. Barker\* ..... £425  
Stewart and Wayman ..... 450  
\*Accepted.

WALTHAMSTOW.—For erecting residence at Prospect Hill. Mr. J. William Dunford, Architect:—

G. Burrage ..... £1,972  
E. Fuller and Son ..... £1,940  
J. A. Reed ..... 1,944  
W. Lawrence ..... 1,893  
W. Shurmer ..... 1,944

At Hoe-street, Walthamstow. Messrs. Gordon, Lowther, and Gunton, Architects:—

E. Lawrence and Son ..... £5,505  
S. J. Scott ..... £5,347  
Edwards and Medway ..... 5,397  
W. Shurmer ..... 5,347  
W. Dabbs ..... 5,397  
J. Chessum and Son ..... 5,300  
Snewin Bros. .... 5,332  
Coxhead ..... 5,134  
Bateman ..... 5,347  
Castle ..... 4,845

WALTHAMSTOW.—For carrying out certain repairs and renovations at the undermentioned schools, for the Walthamstow School Board. Mr. W. A. Longmore, Architect, Walthamstow:—

Jarvis.—Marsh-street Schools (boys) ..... £149 15  
Jarvis.—Cannon-road Schools (girls and infants) ..... 2 5  
Evans.—Cannon-road Schools ..... 140 0  
Challis.—Higham Hill School ..... 86 10  
Penn.—Maynard-road Schools ..... 80 10  
Studd.—Pretoria-avenue Schools ..... 75 10  
Evans.—Markhouse-road Schools ..... 69 10

WATFORD (Herts).—For the erection of branch bank for the London and South Western Bank, Limited. Messrs.

Pridmore and Anderson, Architects, Watford. Quantities by Mr. R. J. Stamp:—

Yerbury ..... £4,890  
Waterman ..... £4,744  
Brightman ..... 4,885  
Turners, Limited ..... 4,694  
Godson and Sons ..... 4,874  
Eames ..... 4,690  
Andrews and Son ..... 4,860  
Lamble ..... 4,690  
Tennant ..... 4,796  
Beer and Gash ..... 4,690  
Judge ..... 4,767  
Wiggs (accepted) ..... 4,420

WHITCHURCH (Wales).—For the execution of sewerage works, for the Llandaff and Dives Powis Rural District Council. Mr. W. Fraser, C.E., 17, Queen's-chambers, Cardiff:—

Frank Ashley ..... £296 0 0  
Eli Rees\* ..... £290 15  
Wm. Amos ..... 340 5 0  
Ed. Williams ..... 288 3 0  
Mackay and Davies ..... 330 10 0  
Ed. Moore ..... 280 13 8  
Wm. Cox\* ..... 296 11 0  
Jas. Wood ..... 258 15 8  
Varnes & Shaplin ..... 296 8 0  
Williams and Thomas, Cardiff\* ..... 253 1 0  
A. S. Morgan & Co. .... 294 0 0  
Thos. Harris ..... 291 3 0  
\*Too late. \*Accepted.

WHITCHURCH (Lancs.).—For the erection of stables, workshops, and sheds at the Town's Yard, Withington, for the Urban District Council. Mr. A. H. Mountain, C.E., Town Hall, Withington:—

Stabling. Workshops, Sheds, &c. Total.  
Evan Roberts and Son ..... £287 0 0  
£1,295 0 0  
£1,082 0 0  
Race and Newbould ..... 316 2 10  
Ed. Williams ..... 1,338 11 0  
Amos Mason ..... 340 0 0  
£1,230 0 0  
£1,570 0 0  
A. V. Sharatt ..... 332 0 0  
£1,222 0 0  
£1,554 0 0  
J. and J. Parish, Withington\* ..... 310 0 0  
£1,107 10 0  
£1,417 10 0  
\*Accepted.

ARCHITECT and SURVEYOR in good practice in Devonshire, and holding Public Appointment, wishes to DISPOSE of his BUSINESS in consequence of ill-health.—Apply, DEVON, Office of BUILDERS' JOURNAL, Arundel-street, Strand.

TO LOCAL SURVEYORS.—ASSISTANCE in the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL. 19

QUANTITIES.—The Central London Surveying Office, assisted by a Competent Staff, is prepared to promptly PREPARE QUANTITIES, MEASURE-UP WORK, &c., guaranteeing strict accuracy. References given.—Address, SECRETARY, Walbrook-chambers, Walbrook, E.C. 11

Price 3s.

GLOSSARY OF TECHNICAL TERMS used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms. London: E. and F. N. SPON, 125, Strand.

CIVIL SERVICE TECHNICAL EXAMS.—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required.—For particulars and testimonials apply CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

R.I.B.A. EXAMS. PREPARATION personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Lending Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

BRICKS. LIME. CEMENT.  
**EASTWOOD & Co., Limited,**  
47, BELVEDERE ROAD, S.E.

**LONDON PLATE-GLASS INSURANCE CO. LTD.**  
Head Office: 49, Queen Victoria St., E.C.  
Glass of all kinds covered by the Policies of this Company.  
MODERATE RATES. PROMPT REPLACEMENTS.  
SURVEYS AND ESTIMATES FREE.  
Ten per cent. of the Premiums returned every six years in cases where no claim has arisen.  
Applications for Agencies Invited.  
Liberal Terms for Business Introduced.

**PORTABLE HOISTING ENGINE, Three**  
Portables, 18in. Horizontal, four others, Deal Frame, Log and Deal, Joiner's Bench, Moulding Machine, Lathe, Saw-sharpener, Drilling Machine.

POVIS, BALE & Co., Appold Street, London.

Jubilee Panel in Red and Buff Terra Cotta, commemorative of the 60th Year of Her Majesty's Reign.  
**SEMI-ENCAUSTIC PAVING TILES.**  
(Specially suitable for Entrance Halls, Conservatories, &c.)  
**BROWN & DRAB GLAZED BRICKS.**  
White and Coloured  
Enamelled  
Bricks.  
**STANLEY BROS. (LTD.) NUNEATON.**  
Glazed Sinks.  
RED CRESTING & FINALS.  
Red and Buff Chimney-Pots.  
Roofing and Ridge Tiles,  
Glazed Pipes, Blue Bricks, Quarries, Copings, &c  
ILLUSTRATED LIST ON APPLICATION.

**GODWIN'S TILES**  
for PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Churches, Public Buildings, and Private Residences Paved with these Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, WITHINGTON,**  
Patronised by Royalty. | Established 1848. | Near HEREFORD.

20,000 yards  
FLOOR TILES  
in Stock.  
Quick Supply!  
Best Quality!  
Low Price!



# Surveying and Sanitary SUPPLEMENT.

JULY 28TH, 1897.

## WORKHOUSE PLANNING.

(Continued from page xciv.)

By GEORGE H. BIBBY, F.R.I.B.A.

### IX.—CONCLUSION.

ALTHOUGH parochial law provided to some extent for the support and care of the poor, yet it was not until the year 1730 that workhouses or poorhouses became general. The kind of building that was then erected must have, usually, been poor in the extreme; for instance, a workhouse was erected in the year 1733 at Birmingham at a cost of £1173 3s 5d. for the accommodation of 600 paupers! This sum will be estimated as extraordinarily small in these times, yet an old writer names the building as one "which the stranger would rather suppose was the residence of a gentleman than of six hundred paupers. We cannot pass through this splendid edifice without being pleased with its internal economy; order influences the whole, nor can the cleanliness be exceeded; but I am exceedingly concerned that I cannot pass through without complaint. We cannot with indifference behold infants crowded into a room by the hundred, commanded perhaps by some disbanded soldier, termed a schoolmaster, who, having changed the sword for the rod, continues much inclined to draw blood with his arms; where every individual not only re-breathes his own air, but that of another. The whole assembly is composed of the feeble, the afflicted, the maimed, and the orphan, the result of whose confinement is a sallow aspect and a sickly frame."

In planning sleeping rooms it should be noted that the bedsteads for ordinary inmates must be about 2ft. 6in. wide, and fully 6ft. long, and made of iron, and a space for a chair must be allowed for between each bed; the bedsteads for the sick should be 6ft. by 2ft. 9in., and for the bedridden, the lying-in cases, and women with children, the width should be from 3ft. to 4ft.

It is important, for the purpose of giving notice of an outbreak of fire, that every distinct part of the building, whether detached or not, should have proper means of communication, either directly or indirectly, with the chief officials' quarters, and for this purpose telegraphic or telephonic communication should be provided; all buildings occupied by the workhouse inmates should also possess some convenient fire-extinguishing apparatus, such as fire-buckets, chemical fire-engines or extinguishers; in large buildings, and where the supply of water is sufficient, a system of main pipes and hydrants may with advantage be provided and arranged with fixtures, so that nozzles may be fixed forthwith upon an alarm of fire. These should be placed on or near to a staircase, and on each floor level.

Fire-escapes and ladders, and canvas shoots, &c., should not be very much relied

upon as means of exit in the event of an emergency. If the dormitories, &c., are properly planned with two means of exit at each end leading to two staircases, such additional precautions need seldom be provided.

In certain rural districts the workhouse is occasionally to be found in some remote hamlet or village, far from a town, from whence supplies may be drawn. Such a workhouse exists at Stanford Rivers, about three miles from the small town of Ongar, in Essex, and is the most isolated building of the kind with which I am acquainted. Such buildings should of course be provided with special appliances in the event of fire or panic, as it would be impossible to rely much, or at all, upon assistance from a Fire Brigade Station situate in a distant town; and the provision of an adequate supply of water in such cases is a subject that requires the most careful and serious attention.

Precautions against fire, and the provision of appliances to deal with fire, should one break out, are amongst the most important duties which the Architects and others concerned with workhouses are called upon to carry out. The outbreak of a serious fire in a building occupied largely by sick, infirm, or imbecile paupers, is an event to be provided against with the greatest care, and the neglect of proper and reasonable precautions has frequently led to horrible scenes and loss of life. The duties, therefore, of workhouse managers with reference to the possibility of the occurrence of fire include: *First*, the precautions to be adopted to prevent an outbreak of fire; *second*, the means that have to be provided to secure the safety of the inmates in case a fire should occur; and, *third*, the means that have to be provided to extinguish fire. The public authorities who have given the greatest attention to such matters as the above are the London County Council and the late Metropolitan Board of Works, and the care and skill with which these have dealt with theatres and music halls has rendered such buildings (as regards panic and fire questions) to be models for study by those interested in the erection of workhouses, hospitals, and all other public buildings.

The London County Council has also set an example, for imitation by other authorities, as to the precautions to be insisted upon in the construction of factories and workshops throughout the country in reference to fire or panic. This is a subject of even greater importance than the safety of theatres, &c., inasmuch as the latter are occupied for only two or three hours, while factories and workshops are sometimes filled with people working for ten or twelve hours daily in the midst of goods likely easily to take fire, explode, or otherwise cause injury. During the past four or five years the factories and workshops of London have been under survey and inspection by experts from the Architects' department of the London County Council, and numerous improvements have been made, in all parts of the metropolis, to the means of escape from many factories

and workshops. There is (said a leading official of the Council) no more important work in the hands of the London County Council than that which is carried into effect by the factory inspectors and surveyors, all of whom have had an Architectural training, and whose duties are likely to be enormously increased as the surveys continue to advance.

Workhouses, hospitals, asylums, and many other descriptions of buildings (in the provinces especially) require similar attention, and this can only be effectually given by Architects who have devoted great care and consideration to the subject, and whose professional remuneration should be in accordance with the great importance and responsibility of the duties performed. Unfortunately, some public bodies remunerate their clerks and other officials (who have no technical knowledge) at a higher rate than their Architect officials, although the latter may have had a costly education and may be highly qualified for the duties they perform. It should be the duty of the members of the Royal Institute of British Architects, and especially the Council, to endeavour to influence for all Architects a fair remuneration for their labours, whether these are in public offices or private practice. The common and paltry excuse for giving a fully competent Architect's assistant a salary of three guineas per week is: "There are plenty of men who would be glad to come for less." The public hear that assistants are to be cheaply had, and naturally consider that the Architect in practice may also be "bated down."

In the larger towns and great cities plans for workhouses and extensions thereto are occasionally obtained after limited or open competitions; but in many districts a local surveyor, with or without the assistance of a specialist, is entrusted to prepare the plans and specifications.

The Local Government Board require that the plans, sections (longitudinal and transverse), and elevations for new workhouse buildings, or for alterations to existing buildings, are to be drawn to a scale of one-eighth of an inch to one foot, unless, from the extent of the intended buildings, the use of this scale would render the size of the plans inconveniently large. They should show, in addition to the usual details, the proposed number and position of the beds in the several wards, and should be accompanied with a general plan, drawn to a scale of one-sixteenth of an inch to a foot of the entire premises (exclusive of the intended agricultural land), showing the site of the proposed works, the course of the drains and their outfall, and the position of any intended sewage and water-tanks. Figured dimensions should be given, the points of the compass should be clearly indicated, and the specification of works, and also a description of the general system of heating and ventilation, should accompany the plans.

It is also required that all plans of new buildings should be submitted in sketch outlines before detailed plans and drawings



are prepared, so that all defects of construction and arrangement may be duly considered and detected before any expense in the preparation of complete plans has been incurred.

In Architecture there is a tendency (as in other professions) for the practitioner, as he advances in years, to become conscious that he has become antiquated in his methods of work, and that the plans he produces are in many respects too suggestive of those he has prepared in previous years. Then it is that he looks round for a young and able man as his assistant and partner in order that he may avail himself of the most recent knowledge procurable, and those modes of procedure which are more easily secured by the young than by those whose earlier training may have prejudiced their attempts to keep up with the times. This is certainly the course that should frequently be adopted with regard to workhouses and asylums, but more especially the former. The regulations of the Local Government Board and of the Commissioners in Lunacy, although containing so much that is valuable and suggestive, are yet framed in such a manner as to restrict Architects from great attempts to be original in their schemes, but of course, superior as the younger Architect may be in recent methods, yet he has usually more to learn from the experience of his senior than the latter has from him.

So far as my own observation has informed me, there are large numbers of Architects in many parts of the country who from time to time endeavour to obtain specialist Architectural assistance upon the subject of the best modes of planning workhouses, asylums, hospitals, and buildings of a kindred nature; some of these are Architects of the highest position, others are persons who appear to rely entirely upon the work of others in the preparation of their plans, specifications, and reports; drawing a full commission from their clients, but paying as little as possible to their assistants. If the latter should complain, they may be reminded that "there are plenty of others to be found willing to do the work for less."

Many of these workhouse and asylum commissions are for buildings of great magnitude, the Architect's remuneration amounting in some instances to £10,000 or £15,000, or even more. The present scale of professional practice and charges of Architects, sanctioned by the Royal Institute of British Architects, was confirmed so far back as at a general conference of Architects of the United Kingdom held in the year 1872, but it is in some respects very indefinite, and requires revision and improvement, for Architects and their assistants are generally (and as a result of the present system of Architectural education) far more highly qualified than was the case twenty-five years ago, when the existing scale of charges came into force. If Architects are just to themselves, to each other, and to those who assist them, the public will have good reason to be more liberal in their views about Architectural matters than hitherto, and fewer members of the Profession may, as a result, find their last home in the workhouse.

THE END.

RECENTLY Mr. R. H. Bicknell, C.E., Local Government Board inspector, held an inquiry at the White Lion Inn, Chasetown, with respect to an application by the Lichfield Rural District Council for sanction to a loan of £2600 for works of sewerage and sewage disposal. It was stated that the assessable value of Chasetown was £19,131, there being no outstanding loans. The estimated population was 2000. A system of drainage was carried out fifteen or sixteen years ago by the Rural Sanitary Authority, but as the sewage emptied into an open ditch complaints had arisen, and in an action tried at the Birmingham Assizes in December, 1895, Mr. R. H. Ashmall, farmer, Hammerwich, obtained £200 damages for loss of lambs owing to a water-course passing through his land having been poisoned with sewage matter. The necessity for a proper scheme of sewerage had consequently been brought to the front. There was no opposition.

#### NEW POSITION OF THE L.C.C. WORKS DEPARTMENT.

THE General Purposes Committee of the London County Council brought up a report at last week's meeting of the Council, indicating re-arrangements necessitated by the decision recently come to in reference to the Works Department. It recommends, firstly, that the resolution of last March reappointing the Works Committee, be rescinded; and, secondly, that a number of new standing orders be adopted. The paragraphs that define the condition of things that will prevail under the new system are as follow:

(1.) All works ordered by the Council to be carried out without the intervention of a contractor shall, unless in any case otherwise ordered, in future be carried out by the manager of the Works Department, who shall be responsible to the Executive Committee in the same way as a contractor would be. The Finance Committee shall have control of the finances of the Department.

Any Committee contemplating the execution of any work shall, before coming to a decision as to how the work shall be carried out, obtain an estimate from the proper officer. When the estimate is received, if the Committee should then decide to recommend the Council to have the work carried out without the intervention of a contractor, it shall, before reporting to the Council, refer such estimate, together with full plans and specifications, to the manager of the Works Department for his examination and report.

(2.) The manager shall, subject to supervision by the Establishment Committee as regards officials appointed by the Council, have the control of the staff exclusively employed in connection with the works of construction, repair, and maintenance undertaken by the Works Department.

(3.) The manager shall, unless in any case otherwise ordered, carry out jobbing works and repairs, including the work of the erection of hoardings, fans, and shoring.

(4.) All works referred to the manager to carry out, for which bills of quantities and, where necessary, complete specifications and drawings are not supplied, shall be considered as jobbing works.

No Committee, however, shall order a work to be carried out as a jobbing work unless it is satisfied that there is sufficient reason for not treating the work in question as an estimated work, and, except as regards dangerous structure work and works undertaken on emergency, in every instance the Committee shall have laid before it by the engineer, architect, or other certifying officer, as the case may be, a rough estimate of the cost.

A schedule of prices agreed upon between the manager of the Works Department and the architect and engineer, upon which in respect of jobbing works the estimates, measurements, and certificates of the architect, engineer, or other certifying officer shall be based, shall be revised periodically.

(5.) The officer under whose supervision the work has been carried out by the manager of the Works Department, shall certify, as in the case of the contractor, as to the satisfactory completion of the work and the amount of his financial estimate, or the value on the schedule of prices, as the case may be.

The functions of the manager are thus defined:

"The head of the Works Department is to be styled 'manager of works,' and is to be responsible, unless in any case it is otherwise ordered, for the execution of all works executed on behalf of the Council without the intervention of a contractor; he is also to be responsible under the Finance Committee for advising as to the purchase of plant and material, the employment and supervision of all officers and workmen in his department or employed on works, and the care, regulation, and direction of all workshops and depôts connected with the Works Department, including the Central works; and is also to be responsible to the Finance Committee for the custody, issue, and use of all plant, materials, and stores purchased in connection with works executed; and, in addition to the other con-

ditions on which he holds his appointment, he is to give his whole time to the duties of his office, and is not to take any private business; and any fees received by him either as a witness or in any other capacity, and any discount or allowance on materials purchased, are to be paid to the Council; and, further, on retirement he shall not be entitled and shall not make any claim to any retiring allowance under the Superannuations Act, 1866, and he shall be subject to the Council's regulations in respect of a superannuation and provident fund."

There are a number of rules dealing with the financial side of the subject, it being provided that the accounts of the cost of all operations of the Department shall be kept by a Works Accountant, who shall be responsible to the Finance Committee. Separate accounts are to be kept of the cost of each work. In the Finance Committee will be vested—

"The financial control of the Works Department, and the supervision of the purchase of materials, plant, horses, &c., required for works carried out by the Works Department, and of the accounts connected with such works, and the making of the necessary regulations with regard thereto."

Considerable interest will attach to the fate of a series of recommendations in the report of the Housing of the Working Classes Committee. These recommendations propose that, subject in each case to the Works Manager being satisfied with the architect's estimate, several extensive building operations, representing a total approximate value of £66,627, be carried out by the Department.

#### LONDON COUNTY COUNCIL.

##### REVIEW OF THE YEAR.

DR. COLLINS, in a review of the work of the London County Council for the year, given at last week's meeting, said that during the second year of the third Council, ending March 31st last, there were thirty-six meetings. The twenty-eight standing and four special committees held more than 1600 meetings during the year.

##### FINANCE.

The Money Act of 1896 enabled the Council to issue a new description of stock, which, unlike its present stocks, would not be compulsorily redeemable at any fixed date, though it would be redeemable at the Council's option on conditions fixed on its creation. The county rate, which for the financial year 1896-97 was 15d., was reduced during the current year to 14½d. The purchase of the North Metropolitan Tramways Company and the London Streets Tramway Company, involving an expenditure of nearly three-quarters of a million of money, was the largest financial transaction which the Council had carried through. In doing this the Council had acquired a remunerative undertaking, and would receive in rent more than £50,000 a year.

##### THAMES TUNNEL.

One of the chief events of the year had been the completion of the Blackwall Tunnel, and the experience gained had led the Bridges Committee to recommend and the Council to approve another tunnel beneath the Thames between Greenwich and Millwall, for pedestrian traffic only, at a cost of £70,500.

##### FIRES.

The statistics presented by the Fire Brigade Committee indicated that while the fires in London in 1896 numbered 3616, a total which had only been exceeded once in the last ten years, yet the percentage of the whole classed as "serious" was the lowest recorded during that period, namely, 3 per cent. Hydrants to the number of 23,253 had now been provided over eighty-three square miles of the county.

##### PARKS AND OPEN SPACES.

The Parks Committee now exercised the Council's control over seventy-nine open spaces, with an acreage of 3635, as against forty such spaces, with an acreage of 2656, inherited from their predecessors. The Council had during the past year assisted the



acquisition of recreation grounds in poor and crowded districts at Bermondsey, Walworth, Hoxton, and Islington. In the outlying and more favoured districts of Hampstead and Sydenham open spaces which were threatened had been preserved, in view of the approach of bricks and mortar, and no doubt wisely. Misapprehension of the Committee's intentions in regard to works on Hampstead Heath had, he trusted, been allayed. Not a ruthless vandalism, but an æsthetic solicitude, had prompted the Committee to plant for the future so as to preserve the picturesque of the present; while it had tended the gorse with a reverence worthy of Linnaeus. The Council's bands had given 767 performances in the parks during the season.

#### PUBLIC HEALTH.

The Public Health Committee, besides its administrative duties in regard to licensing offensive trades, slaughter-houses, &c., and the registration and regulation of common lodging-houses, exercised the Council's powers as the central health authority for the whole of London. A survey had been made of the sanitary condition of various districts, and representations addressed to the local authorities where the strength of the sanitary staff had appeared to be inadequate. The year 1896 was characterised by the lowest death-rate but one in London since registration of deaths began in the year of Her Majesty's accession. It amounted to 18.2 per 1000 living on a population of 4,421,955. For the decade 1885-94 the death-rate of London was lower than that of any of the capitals of Europe. This year the death-rate for the first half was only 16.5 per 1000.

#### THE WORKS DEPARTMENT.

Owing, doubtless, to recent events, they had not as yet received the report for 1896-7 of the Works Committee. As the Department had recently been the subject of inquiry by a special committee, and of considerable discussion in the Council, there was less need for detailed notice. Fictitious entries in the books of the Department were last autumn discovered by the comptroller in the ordinary course of his audit. The officers concerned were punished by immediate dismissal. Mr. Waterhouse stated that "these entries had no reference to any misappropriation of moneys, nor did they conceal any action whereby any employé of the Department was pecuniarily advantaged."

#### TECHNICAL EDUCATION.

The Technical Education Board last year spent £115,532, the bulk of which sum was devoted to grants to about 100 institutions giving approved technical instruction and subject to inspection by the Science and Art advisers of the Board. A central School of Arts and Crafts was opened last November in Regent Street. It was the first attempt made by the Board to supply technical instruction directly under its own management. Besides technical drawing and design, classes were there held in stained glass work, lead work, enamelling, bookbinding, colour printing, and heraldic drawing. A sum of £21,405 was last year absorbed by scholarships.

#### LOFTY IDEALS.

In conclusion, the Chairman said:—"The Council's work is so vast and varied, its influence has been felt so deeply, that it seems almost incredible that our body is but eight years old. In that time much has been accomplished and some progress has been made. Of course there have been failures, for the Council has the defects of its qualities. The long-delayed and overdue municipalisation of London generated an impetuosity which perhaps attempted more than could be immediately achieved, but the ideals aimed at have been lofty ones. These ideals were justly recognised and formulated in the gracious reply to the first address this Council has presented in person to the Sovereign on the throne in these words—"Ever to strive to further advance the welfare of the vast population of the metropolis, and do all that lies in our power to keep London worthy of its place as the capital of the Empire."

#### TRAMS ON THE EMBANKMENT.

An animated discussion took place on the recommendation of the Highways Committee for the Council to seek power in the next Parliament for the construction of a tramway from the existing termini of the London and South London Tramways Companies at Westminster Bridge Road, along the centre of Westminster Bridge and the whole of the Victoria Embankment to Blackfriars Bridge. —The Earl of Hardwicke moved that the report be referred back, but this was defeated, and the recommendation was carried.

## Surveying and Sanitary Notes.

THE Committee of the House of Commons has considered the proposals of the Corporation of Newport with the object of improving the water supply of the town and district. The preamble of the bill was proved, subject to certain conditions. The Committee thinks it would be a graceful act if the Corporation were to give to the district council a small sum to help it in covering over the swallow-holes. Mr. Freeman, on behalf of the Corporation, said the Corporation was quite prepared to assist the rural district authority by giving the sum of £300, to be employed in filling up the swallow-holes.

MR. RIENZI WALTON, on behalf of the Local Government Board, recently attended at the Urban Council offices, Bognor, for the purpose of inquiring into the applications of the West-hampnett Rural District Council to borrow £4000, and the Urban Council of Bognor to borrow £500 in connection with the scheme of sewerage proposed to be carried out in the parish of South Bersted. The details of the scheme have frequently been discussed at meetings of the two bodies concerned. There was practically no opposition to the scheme, a report upon which will in due course be made by the Inspector to the Local Government Board.

THE Chairman of the Shoeburyness Urban District Council recently witnessed, with a number of friends, the opening of a new sewerage scheme and waterworks at Shoeburyness. The various works were explained by Mr. G. R. Strachan, partner with Mr. Mansergh, the engineer. Mr. Frederic Gregson, the clerk of the Council, said Shoeburyness was very much to be congratulated upon the scheme. Nine years ago, when it was begun, the population was a little over 2000, and the assessable value something over £7000. Now the population was 4000 and the assessable value £12,000. The total cost of this work would amount to about £12,400. Mr. Strachan said the water was obtained from a total depth of 475 feet. All the machinery was in duplicate, and they had been able to throw 200,000 gallons in twelve hours with a depression in the well of not more than 50ft. The tower was 60ft. high, and the tank at the top was capable of holding 43,000 gallons. The water was soft, coming as it did from the direction of the Isle of Thanet.

At a meeting held last week of the Morley Town Council, plans were adopted for new premises in Queen Street for the London and Midland and the London and Yorkshire Banks. It was decided to make an application to the Local Government Board for sanction to borrow £8000 for the erection and furnishing of baths, according to plans and specifications submitted by Mr. Fox. With reference to the new sewerage works, the town clerk reported the condition of the negotiations for the purchase of land. It was resolved to instruct him to write fully to the Rivers Board and the Local Government Board explaining the present position of the negotiations. It was further resolved that all traders should be required to construct such works on their premises as

would effectually keep out of the sewers all solids and any liquids likely to cause injury to the sewers, but that, subject to this, trade effluents should be received into the sewers and dealt with at the sewage works, the owners of all premises to bear themselves the expense of connecting with the sewers.

MR. WAKE, C.E., Sunderland, consulting engineer to the Aberdeen Harbour Board with respect to the proposed works in connection with the Aberdeen Graving Dock, is in favour of retaining the Graving Dock on its present site—lengthening it if thought necessary—but that Tory would be a desirable site for the dock if in the future it were found needful to remove. He is not in favour of the proposed site at the ship-building yards. He is of opinion that a first and essential step to be taken in the reconstruction of the dock is to surround it on all exposed sides with sheet piling. He proposes that the entrance should be slightly widened, and that the two lowest altar steps of the dock should be taken away and the bottom of the dock raised.

THE second annual meeting of the member of the British Association of Waterworks Engineers was held last week at the Town Hall, Westminster. The retiring President, Mr. G. M. F. Gaskin, Nottingham, in the course of a valedictory address, referred to the Nottingham and Newark Water Bill, and strongly advocated the election of Water Boards, concluding by moving that a sub-committee on this question be re-appointed. This was seconded by Mr. H. Ashton Hill, and carried, the old sub-committee, with the addition of Messrs. W. Whitaker and W. Watts, being re-elected. Mr. H. Ashton Hill, engineer to the South Staffordshire Waterworks Company, was then elected President of the Association for the ensuing year. In the course of his presidential address Mr. Hill said that the Association had amply justified its existence even in these early days. It came into being only fifteen months ago, and in February last it had a roll of 110 members and 32 associates. After giving an epitome of the work of the Association during the past year, Mr. Hill briefly described the works of the South Staffordshire Water Company. He also touched on various matters connected with the duties of a water engineer. After luncheon Mr. W. Whitaker, F.R.S., read a paper on "Some Middlesex Wells." Mr. L. N. Ritson contributed a paper on "The Removal of Internal Corrosion from the Mains of the Kendal Waterworks." Mr. W. Ingham, water engineer, Torquay, contributed a paper on "The Water Supply of Torquay," and Mr. Alfred Fowler, Leeds, read one on "Pumping Machinery," in which he described the pumping station at Everton, belonging to the Liverpool Corporation. The water flows from Lake Vyrnwy, and Rivington Reservoir into a covered reservoir adjoining the engine-house, and is pumped thence into an overhead tank to supply the highest parts of the city. The water engineer, Mr. Parry, decided that the new plant should be able to raise any quantity from 600 to 5000 gallons per minute to the mean vertical height of 102.39ft. This pumping machinery was supplied by Messrs. Hathorn, Davey, and Co., of Leeds, who guaranteed a duty of 120 million gallons per 112lb. of Welsh coal, at a maximum or mean speed, and eighty million at the minimum speed. The paper described in detail the special features of the machinery, whose working had proved entirely satisfactory. In conclusion, the writer asserted that, though the demand for high-duty pumping machinery had not been so keen in this country as abroad, owing probably to cheaper fuel, still, if exceptionally high-duty pumping machinery were demanded, the orders might confidently be placed at home.—Mr. Walter G. Kent read a paper on "The 'Venturi' Meter for the Measurement of Water in Large Mains," and the last paper discussed was one by Mr. L. Holme Lewis on "Hydraulic Power Supply," read by the secretary in the absence of the author.



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
July 30	Crowborough—Residence, Workshops, &c.	Provincial Gas Works Limited	The Engineer, at Works, Crowborough.
" 30	Newport, Mon.—Buildings, &c.	Electricity Committee	Conyers, Kirby, and Son, Stow-chambers, Newport.
" 30	London, S.E.—Swimming Bath	Baths and Washhouse Committee	E. T. Anson and Son, 7A, Laurence Pountney-hill, E.C.
" 30	Barnsley—Dwelling-house, Shaw-lane	Town Council	Wade and Turner, 10, Pitt-street, Barnsley.
" 30	Brighton—Alterations, Municipal School of Art	Governors	F. J. C. May, Town Hall, Brighton.
" 30	Carnarvon—School, Bethel-road	Pioneer's Industrial Society	E. L. Jones, 14, Market-street, Carnarvon.
" 30	Dewsbury—Houses (28), &c.	Brewery Company	Holtom and Fox, Westgate, Dewsbury.
" 30	Woburn Sands—Enlargement of School	W. Allen	W. Poole, Sydney-cottage, Woburn Sands.
" 30	Worksop—Two Semi-Detached Villas, &c.		Company's Office, Victoria-square, Worksop.
" 30	Worksop—Three Dwelling-houses, &c.		Company's Office, Victoria-square, Worksop.
" 30	Harrogate—Alterations, &c., Beechwood Hotel		H. and E. Marten, 5 and 7, Charles-street, Bradford.
" 31	Aberdeen—Additions, &c., Farm Offices, Bakebore		Collie, Advocates, 25, Union-street, Aberdeen.
" 31	Birkenhead—Buildings, Church-road	Guardians	E. Kirby, 5, Cook street, Liverpool.
" 31	Leeds—Alterations, &c., Meter-house	Gas Committee	R. H. Townley, Municipal Offices, Leeds.
" 31	Rishworth, Yorks.—Walling, Rishworth Hall-lanes	Urban District Council	R. Horsfall and Son, George-street, Halifax.
" 31	Weston-super-Mare—Two Dwelling Houses, &c.	Urban District Council	Price and Wooler, Architects, Weston-super-Mare.
" 31	Goosnargh, Preston—Alterations, &c., Hospital	Trustees	E. Garlick, 33, Winckley-square, Preston.
" 31	Sheffield—School and Offices	Norton School Board	J. Norton, Alliance-chambers, George-street, Sheffield.
" 31	Thornhill, Yorks.—Wall, Bunker's Hill	Urban District Council	S. W. Parker, Council Offices, Thornhill.
" 31	Kirkby Lonsdale—Additional Cloakroom, School	Managers	Leck Hall Lodge, Kirkby Lonsdale.
Aug. 2	Buckie, Scotland—House		J. Simpson, Bank Accountant, Buckie.
" 2	Kirkpatrick Fleming, near Carlisle—Public Hall		G. D. Oliver, 5, Lowther-street, Carlisle.
" 2	Mardy, Wales—Extension of Chapel		J. Rees, Architect, Hillside, Pentre.
" 2	Portpatrick, Scotland—Tower, &c., Blackhead	Commissioners Northern Lighthouse	D. A. Stevenson, 84, George-street, Edinburgh.
" 2	Southmolton, Devon—Two Houses, South-street	W. Moor	F. W. Pether, Bridge-buildings, Barnstaple.
" 2	Horfield—Extensions to Bishop-road Schools, &c.	School Board	W. V. Gough, 24, Bridge-street, Horfield.
" 3	Beachy Head, Sussex—Six Houses, &c.	Admiralty	Watch-room, Beachy Head.
" 3	New Tredegar—Forty Houses, Cwmnyfog Farm	Steam Coal Co., Limited	Architect, 26, Duffryn-terrace, New Tredegar.
" 4	Glanamman, Wales—Alterations, &c., School	School Board	H. Herbert, Brynmair-lane, Ammanford, R.S.O.
" 4	Sunderland—Widening Bridge, Tunstall-road	Corporation	Borough Engineer's Office, Town Hall, Fawcett-st., Sunderland.
" 4	Manchester—Caretaker's House, Nurseries	Corporation	R. D. Callison, Town Hall, Manchester.
" 6	Great Yarmouth—Cottages (Fourteen), Southtown	A. F. Clowes	C. G. Baker, Town Hall-chambers, Great Yarmouth.
" 6	Hereford—Laundry Works, Bodenham-road	Sanitary Laundry Co., Limited	A. Lovesey, 2, Offa-street, Hereford.
" 7	Nanpean—School and Appurtenances	School Board	S. Hill, Architect, Redruth.
" 7	Rawdon, near Leeds—Four Terrace Houses (stone)		F. Mitchell, Architect, 71, Albion-street, Leeds.
" 7	Morecambe—Church, St. Barnabas		Austin and Paley, Architects, Lancaster.
" 8	Jarrow—Altering Sheds, New Jetty, &c.	Corporation	J. Petree, Borough Surveyor, Jarrow.
" 9	Branksome, Dorset—Infants' School, Heatherlands	School Board	Clerk's Office, Matlock House, Branksome.
" 9	Eccles, Lancs.—Pavilion	Parks Committee	Borough Surveyor's Office, Town Hall, Eccles.
" 10	London, N.—Infirmary	Islington Guardians	The Clerk, St. John's-road, Upper Holloway, N.
" 10	Plymouth—Enlargement of Station, &c.	Great Western Railway Co.	The Engineer, Plymouth Station.
" 13	Scarborough—Eight Dwelling-houses	Admiralty Commissioners	21, Craven-street, Strand, W.C.
No date.	Carlisle—Additions to Cumberland Infirmary	Building Committee	J. G. Howitt, Infirmary, Carlisle.
"	Tottenham—Schools	School Board	A. N. Butler, 16, Finsbury-circus, E.C.
"	Griffithstown, near Newport, Mon.—House and Stables	Dr. O'Keefe	Lansdowne and Griggs, Architects, Newport, Mon.
"	Draycott—Extension, Victoria Mills	E. T. Hooley	G. S. Doughty, Architect, Britannia-chambers, Nottingham.
"	Harrogate—Additions to Victoria Hotel	Bently and Co.	A. E. Kirk, Architect, 13, Bond-street, Leeds.
"	Cadoxton-Barry, Glam.—Hotel and Stables, Holton-road		H. Tudor Thornley, Architect, 100, St. Mary-street, Cardiff.
"	Ilkley-in-Wharfedale—Grammar School		C. H. Hargreaves, Architect, Exchange-buildings, Bradford.
"	Bedlington—House, Westend		N. Stoker, Shop-row, Bedlington Colliery.
<b>ENGINEERING—</b>			
July 31	Sheffield—Underground Tanks	United Gaslight Company	F. W. Stevenson, Company's Office, Commercial-st., Sheffield.
" 31	Manchester—Straining Well and Forebay	Corporation	Secretary, Waterworks Offices, Town Hall, Manchester.
Aug. 2	Aberdare—Reservoir	Urban District Council	Surveyor's Office, Town Hall, Aberdare.
" 2	Cashel, Ireland—Gas-holder, &c.	Town Commissioners	Town Hall, Cashel, Ireland.
" 9	London, N.—Calvert, &c., Highgate	Hornsey Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 12	Morecambe—Widening Pier, &c.	Pier and Pavilion Company Limited	Mangall and Littlewoods, 42, Spring-gardens, Manchester.
" 28	Craiova, Roumania—Water Supply	Communal Council	Mairie, Craiova, Roumania.
" 31	Cairo—Iron Bridge	Ministry of Public Works	Inspector of Irrigation, 2nd Circle, Cairo, Egypt.
<b>IRON AND STEEL—</b>			
July 31	Sheffield—Cast-iron Columns	United Gaslight Company	F. W. Stevenson, Office, Commercial-street, Sheffield.
<b>PAINTING—</b>			
July 31	Bingley, Yorks.—Painting, &c., at Cemetery	Burial Board	Clerk to the Board, Bingley, Yorkshire.
Aug. 3	Bury, Lancs.—Painting, &c., Technical Schools	Corporation	Borough Engineer's Office, Bank-street, Bury.
" 4	Norwich—Painting Asylum, &c.	Norfolk County Council	T. W. B. Heslop, County Surveyor, Norwich.
<b>ROADS—</b>			
July 31	Denton—Fencing and Footpath Formation	Urban District Council	Lomax and Lomax, Engineers, F.O'd-street, Bolton.
Aug. 2	Maidstone—Road Material	Urban District Council	F. Bunting, Surveyor, Fair Meadow, Maidstone.
" 2	Wesham, Lancs.—Flagging, Kerbing, &c.	Fylde Rural District Council	W. H. Henshaw, Surveyor, Wesham, Lancs.
" 3	Hounslow—Making-up, &c. (three contracts)	Urban District Council	W. A. Davies, Town Hall, Hounslow.
" 3	London, E.—Removal of Dust, &c.	Shoreditch Vestry	C. N. Russell, Coronet-street, Shoreditch, E.
" 3	Brentford—Granite	Urban District Council	N. Farr, Clifden House, Boston-road, Brentford.
" 4	Greenwich—Yorkshire Stone	Board of Works	141, Greenwich-road, S.E.
" 9	Hanwell—Broken Granite	Urban District Council	District Council Offices, Hanwell.
No date.	Barnard Castle—Road Metal	Urban District Council	J. I. Dawson, Council Office, Barnard Castle.
<b>SANITARY—</b>			
July 30	Bexley, Kent—Sewers, &c.	Urban District Council	A. Williams and Sons, 18, Great George-st., Westminster.
" 30	Durham—Sewers, &c.	Rural District Council	G. Gregson, 43, Western Hill, Durham.
" 31	Llandaff and Dinas Powis—Sewerage	Rural District Council	W. Fraser, 17, Queen's-chambers, Cardiff.
Aug. 2	Pudsey—Sewerage Works	Urban District Council	R. W. Cass, Surveyor, Council Offices, Pudsey.
" 3	Aberdeen—Sewers	Town Council	W. Dyack, Surveyor, Town House, Aberdeen.
" 3	Ben Rhydding, Yorks.—Sewerage Work	Urban District Council	J. Waugh, Sunbridge-chambers, Bradford.
" 3	Slough—Sewer, Windsor-road	Urban District Council	W. White Cooper, 1, Mackenzie-street, Slough.
" 4	Consett, Durham—Sewage Work	Urban District Council	R. Robinson, 6, Dixon-terrace, Darlington.
" 4	Evesham—Sewers	Rural District Council	J. E. Wilcox, Union-chambers, Temple-road, Birmingham.
" 17	Luton—Drainage Works	Town Council	Borough Engineer's Office, Town Hall, Luton.
Sept. 7	London, E.—Pipe Sewers, &c.	Shoreditch Vestry	J. R. Deacon, Surveyor, Town Hall, Shoreditch.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 1	Burham, Kent—Design for Drinking Fountain	£21	Diamond Jubilee Committee.
" 7	Neath—Plans for Schools	£30, £15	School Board.
" 13	Surbiton—Council Chambers and Offices	£75, £50, £25	Urban District Council.
" 31	Bury, Lancs.—Plans for Art Gallery and Public Library	£100, £50, £25	Corporation.
Sept. 22	London, S.W.—Designs for Public Baths, &c.		Vestry of St. Mary, Battersea.





### Art and Public Interest.

A RECENT issue of the Times devotes a leading article to a survey of Art during the Queen's reign, which, as might have been expected, is largely a survey of painting. Is not this fact, that the leading journal of the Empire is not yet alive to the consciousness that Art does not consist principally of painting, an object lesson on the value and reality of the growth of appreciation and interest which it chronicles? If the Times and the intellectual, cultured public to whom it is supposed to appeal has no wider conception of Art, what are we to expect from anyone else; and of what real value is the present popular interest? In a column and a half, it devotes just nine lines to sculpture, and eleven to Architecture; the rest is devoted to painting and book illustration. Is this a correct measure of popular appreciation of these Arts? The writer points out that the Arts play a far larger part in life than they played sixty years ago. He notices the growing number and importance of Exhibitions, remarks that "the year's Art" contains over five thousand names, and that of these, they who since 1860 have achieved affluence and social position form a larger minority than at any earlier date. He says that "this of course implies nothing as to the intrinsic worth of the Art produced, but it implies that the public interest in Art has increased so as to call into existence a very large class of Artists and to make many of them wealthy men." This is the first time we have heard that the public interest could ever call an Artist into existence. We had an idea that an Artist was born; that his gift came from Nature and not from the public. We should be disposed to say, that whatever the number of Artists born in a generation might be, that number would not be increased or decreased by any amount of public interest, or its opposite. That the number of these Artists who may elect to make their living by the exercise of their powers, is possibly influenced by the state of popular appreciation, may be a fact, and this may be what the writer means. His sentence, as it stands, leads one to imagine that he is under the impression that Art is a sort of commercial product—that it obeys the law of supply and demand. That he

has only to demand it, offer to pay for it, and he is sure to get it. That if, for instance, all the money spent every year on the Navy, or on the Turf, was devoted to the buying of contemporary pictures for the nation, at liberal prices, that all these innumerable pictures would be at once forthcoming, and that they would all be Art; and that the number of Artists would be thereby increased. The real result would be the spoiling of much good canvas by incompetent amateurs, and great energy on the part of the "market produce" man, whom unfortunately we have always with us; but it would hardly stimulate Nature to produce one single Artist more. To the Artist this attitude of mind on the part of the leaders of public opinion is just

but he would like this interest to be just a little more intelligent. The Englishman has often—and never more often than now—been compared to the ancient Roman, and he feels flattered by the comparison. We are afraid that the comparison does hold good to some extent in matters of Art. The Roman patronised Art, but he did not feel it. He understood its use as displaying his wealth and his cultivation, but it never really entered into and influenced his life. He took it up and administered it with a sublime tolerance; used it as an instrument to certain Governmental ends, regulated and labelled it, and perhaps had the saving grace to see he did not understand it. For all his civilization and his empire, where Art was

concerned he was an utter barbarian. There is a decided similarity in all this to the attitude of mind displayed by the English Government and people. During the last sixty years we have grown rich, we have educated our children to a higher standard, we have had a period of profound peace, during which we have all made the "grand tour;" in short, we have found time and inclination to patronise the Arts, or to be more exact, "Art," i.e., painting and "Liberty" knick-knacks. Like the Roman, we think it gives elegance and distinction to our wealth and social position; in fact, it has become a fashionable distraction. But does this show a truer appreciation and knowledge? We think not. And is such a state of comfort and humdrum content stimulating to the Arts? Again we think not. This state of things, this continual babble about Art by people to whom the meaning of the word is a blank, has a tendency to divorce Art from life, to the detriment of both; a tendency to drive Art into exclusiveness; to make the Artist retire into himself with a shrug of his shoulders, and denounce the rest of mankind as barbarians. Art has been accustomed to go its own way, it has grown used to centuries of neglect. The Edinburgh Review was neither the first nor the last to "cultivate literature on a little oatmeal," a diet upon which many an Artist has been known to thrive. But if there is one thing more than another calculated to irritate and disgust, it is the patronage and the inept banalities of a public which measures its Art by the foot superficial. The Times notices that in a modern Academy Exhibition almost the only quality that the Artists possess in common is a manual dexterity far greater than was possessed by any but a very few a generation ago. After giving a reason for this it remarks: "But of great Art there is little and will be little until the modern world shall have come to some kind of agreement as to what the Artist's function is and what his aims should be." Now, with all respect, this is a matter with which the



VILLAGE CHURCH TOWERS OF EAST DEVON. SKETCHED BY R. W. SAMPSON.

heartrending. It does not perhaps altogether become him to complain of the public interest, which often secures him a commission and a living, though he more often sees these go to his imitators, the practitioners of painting;

will be little until the modern world shall have come to some kind of agreement as to what the Artist's function is and what his aims should be." Now, with all respect, this is a matter with which the



modern world has nothing whatever to do. There never was any doubt as to what the Artist's function is and what his aims should be. The Artist's function is simply to produce Art and his aim should be to produce the very best. Beyond that he has neither function nor aims. The doubt may be as to what is the best Art, and what is the best way of producing it, but these are matters for the Artist to settle; the modern world can best help him by leaving him severely alone to develop his powers as Nature and his reason dictate. If the "modern world" wants great Art, let it set to and live a great life, it may then find its greatness reflected in its Art; as it is the Artist finds the modern world—well—not exactly inspiring. We see in this remark the tendency of the modern world to bring Art within its administrative machinery, to find its proper place in the social structure and to fit it in; to regulate and control it, in fact to come to some kind of agreement as to what its function and aims should be, precisely as the Romans did before. Let us take a lesson from history and not repeat its mistake. We have lately seen Art told off to serve the ends of commerce, to assist in keeping out the German manufacturer. A Government department, officials without number, and rules and regulations enough, one would think, to run the whole Empire, have been established to control it. We know the effect of all this on Art; perhaps the Times can tell us its effect on the German manufacturer. Great is the genius of the English people for government and administration, but there are some things that will not be governed—that refuse to be administered. Of these is Art. It is not a system, but a quickening spirit.

#### NATIONAL DEFENCE.

##### A GIGANTIC SCHEME AT GIBRALTAR.

THE new naval dock and harbour works at Gibraltar have now begun to assume tangible shape. At present there is no place available between Malta and England for our men-of-war to refit, or be docked, and what this would mean in case of war can be imagined. Happily Parliament has voted the money required, and the new defence works when completed will be another link in our chain of defence, and will materially increase the value of the Mediterranean Fleet, by enabling it to refit after an engagement, without any portion of it leaving that sea. The outward aspect of part of Gibraltar has changed, as has even the very shape of the "rock," since the latter part of 1894, when work was commenced, so great is the quantity of stone that has been used, and Gibraltar supplies it all. People who knew that part of the place called Rosia, and the New Mole Parade, would hardly recognise it to-day. The "Parade" has ceased to exist, as has

##### THE OLD DOCKYARD APPROACH,

and several prominent buildings, including the old clock-tower, have been pulled down to make room for the docks. The clock from the tower is to be put up in a new tower building. This clock marked the hour our victorious fleet entered Gibraltar Bay, after the "glorious battle of Trafalgar." The erstwhile New Mole Parade is now part of one of the dock basins, and is excavated some 40ft., the solid limestone retaining walls of which are now complete. The lower batteries along the line wall have been dismantled, as the guns could no longer be fired with safety, and the fortress is to-day well defended from the "Upper Rock." The naval dockyard is now approached by a fine broad road, with an easy slope so that carriages can drive down to the quays, a great contrast to the old style, when it was necessary to go down some hundred steps, and all baggage, &c., had to be lowered over a bastion wall in a primitive way by means of a

hand crane. Speaking generally, the new works are as follows:—

1. The extension of the new or naval mole.
2. The construction of a central mole, to take the form of a breakwater.
3. The extension of the old mole or "Devil's Tongue," to be the mercantile portion of the harbour. This mole is to be provided with coal sheds, as already exist on the naval mole.
4. The construction of three docks capable of accommodating the largest battleships and cruisers.

The naval entrance to the harbour will be 200yds. wide, the width of the commercial entrance being as yet undetermined. The total area to be enclosed by the new harbour will be some 640-acres. The sea-water ditch which surrounded the outer defences of the fortress has been filled in, and seaward for a distance of about 240 yards quays are to be built, which will run due west up to the

in number, and of the following dimensions: 850ft., 600ft., and 550ft. And it is stated that they and the harbour are to be completed by 1900, but though the harbour may be finished, there is but

##### A VERY REMOTE POSSIBILITY

of the docks being completed for another eight years or so—and this is the opinion of a first-rate engineer on the spot—unless the Government gives the work out to contract, when it is just possible that they might be ready in four years' time. At present the work on the docks is not in full swing; in fact, the Admiralty has not yet decided whether the construction of the docks is to be put out to contract or carried on by the newly-formed "civil staff" under the "Defence Loan." The money has been voted, and work should be carried on with the greatest possible speed. It is said that alterations of plans at home have much delayed the work. As to the position of the docks, it is to be regretted that



VILLAGE CHURCH TOWERS IN EAST DEVON. SKETCHED BY R. W. SAMPSON.

entrance of the docks. The original length of the new mole was about 1330ft., which during the last two-and-a-half years has been extended another 950ft., or to a total of 2280ft. Up to this point the section of the work is similar, the base being about 270ft., and the width at the top is 100ft. Coal sheds, with a capacity of about 9000 tons, exist on the original portion of the mole, and these will probably be extended to the end of the whole work, which is to have a total length of three-quarters of a mile. Up to a length of 760yds., or 2280ft., the

##### BUILDING OF THE QUAY WALL

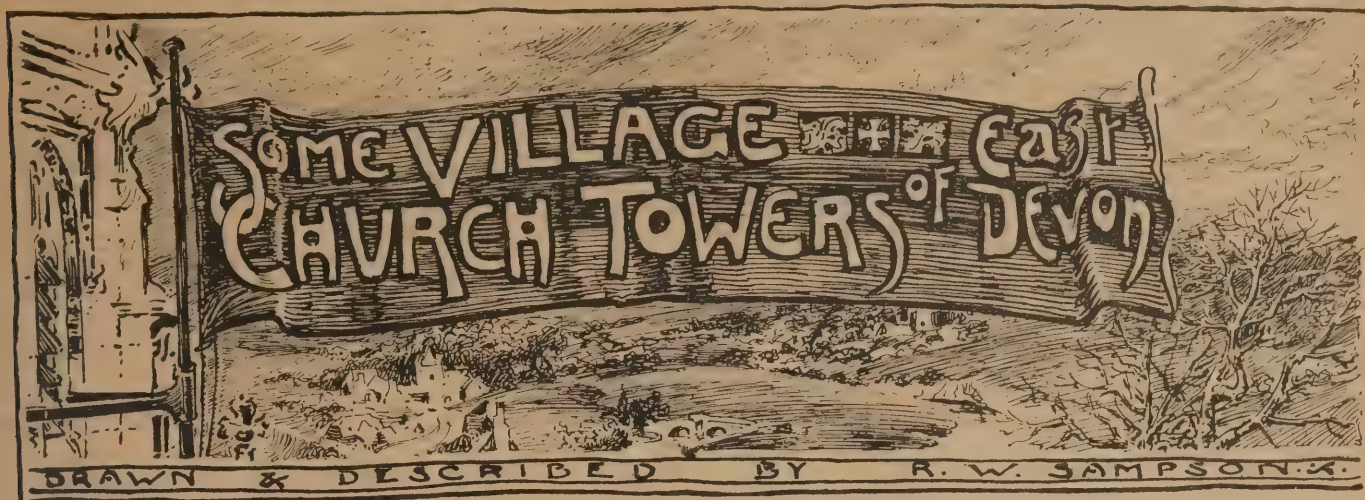
is in a forward state; beyond this the mole is being pushed out to a greater distance of some 1700ft., and rubble footings are in progress. This, the last section of the work, will be only some 30ft. wide at the top. When the mole is completed eight battleships will be able to go alongside the quay at one time, and the new harbour will afford a perfectly secure anchorage for "the whole Mediterranean Fleet," both against weather and torpedo attacks, as the entrances to the harbour will be secured by booms, if required. The central mole is to be about 2700ft. in length, and is to be of section similar to the last 1700ft. of the naval mole. The average depth of water is 60ft., so it will be seen that enormous quantities of stone are required for the extensions. In a single day as many as 1300 tons of stone have been deposited in the sea by barges—all three moles are being constructed simultaneously by an English firm of contractors, who are doing their work rapidly. The docks are to be three

no other suitable site could be found, as they will be liable to be shelled by Spanish land batteries on the opposite coast of Spain, which is well within range of modern guns. Doubtless expense would be great, and there would be other objections, but could the docks have been constructed on the west of the "Rock" they would be secure from hostile fire from land batteries. In the construction, Spanish labour is almost entirely employed, some 2500 Spaniards entering the fortress at morning gunfire from the towns of Algeciras and La Línea. About £650 sterling is paid daily in wages, but when the docks are in full swing the wage bill will be much higher. The

##### STONE FOR THE WORKS

is obtained from quarries at Catalan Bay, on the east side of the Rock, and from Europa at the south end of the Rock. A double line of railway runs from Catalan Bay across the north front to a long wooden pier, where the stone is tilted into iron lighters, which are towed three at a time out to sea, and the material deposited. To facilitate the works, a tunnel is now being bored right through the Rock, from east to west, a distance of three-quarters of a mile, and this will save much time and labour. This tunnel has been in progress for about eight weeks, and already some 230 yards has been excavated at either end. It is suggested, as the tunnel would be a weakening of the defence of the fortress, that after it has served its temporary use, it might be concreted, and made into a tank for drinking water.





MANY of the Churches and Church Towers of East Devon are of more interest pictorially than Architecturally, by which I mean that in many cases a Church with a simple square tower has been so happily placed in the landscape as to immediately take the attention of the painter, focussing and lending interest, as it does, to the whole surrounding country. Such an one is Axmouth, placed on the margin of a broad tidal river, at but a little distance from the sea, and, backed by a lovely hill, it shines like a jewel in the setting sun, and makes one long for the skill of a Turner, that he may carry away with him so sweet a scene; and yet, on closer inspection, it is only the very rabid sketcher who would stay to note so very ordinary a piece of work, resembling as it does so closely, one might almost say, scores of others.

Newton Poppleford, here illustrated, is another instance in which distance lends enchantment to the view. Perched upon a hill in the middle distance, it is most helpful to the composition of the landscape, as many a painter has found—for the village is much visited by the fraternity of the brush; whereas a closer acquaintance only leads to disappointment, for the tower is little better than a ruin, though even then far preferable to the remainder of the Church, which has been "restored"—writ large. I know not what it was like before, but I think it highly improbable that it was lined inside with *white glazed bricks*, as it now is. And, bless you! the villagers think it a marvel of elegance. What more would you have?

There are examples, however, both of picturesquely situated and restored Churches which will more than repay the closest inspection, and the most notable amongst those here illustrated is Sidbury (accidentally misnamed on drawing Sidford), which with its oak shingle spire, may be seen to advantage from a dozen points, making a charming picture from almost any of them, with its village of plastered and thatched cottages nestling around it. The tower, originally Norman throughout, has still Norman arches, and carvings of much interest on the ground story, and the belfry also retains its original form; the parapet and pinnacles added at the last restoration, for it had undergone restoration before, when the tower was capped with a most unsightly roof, and the before-mentioned oak shingle spire form a very happy combination, and if it were not that this article is devoted to towers, there is much in the rest of the Church well worthy of note and description. The restoration is one of the best I have seen either in this or any other county, and the new stained glass is unimpeachable; but Sidbury is fortunate in having a wealthy Lord of the Manor, to wit, Sir Charles Cave, father of the promising young Architect of the same name.

Talaton, again, perhaps the most charming of the unrestored towers here shown, is alike of interest to the landscapeist or the Architect. Built of a soft white stone in the last period of the Gothic age, it has suffered considerably

at the hands of Time, and the detail is not readily distinguished, but the outline and proportion are alike beautiful, whether viewed from the churchyard or from half a mile away, and the niches and figures round the staircase turret are a somewhat unique and very happy introduction. The Church contains a very fine oak screen, and a monument to the daughter of Sir William Chambers, gentleman, and Surveyor of Works to His Majesty King George III., as the monument has it—better known to us as the Architect of Somerset House.

Whimpe, to make free with Gilbert's lines, "would pass very well for good Gothic in the dusk, with the light behind it," and it was thus

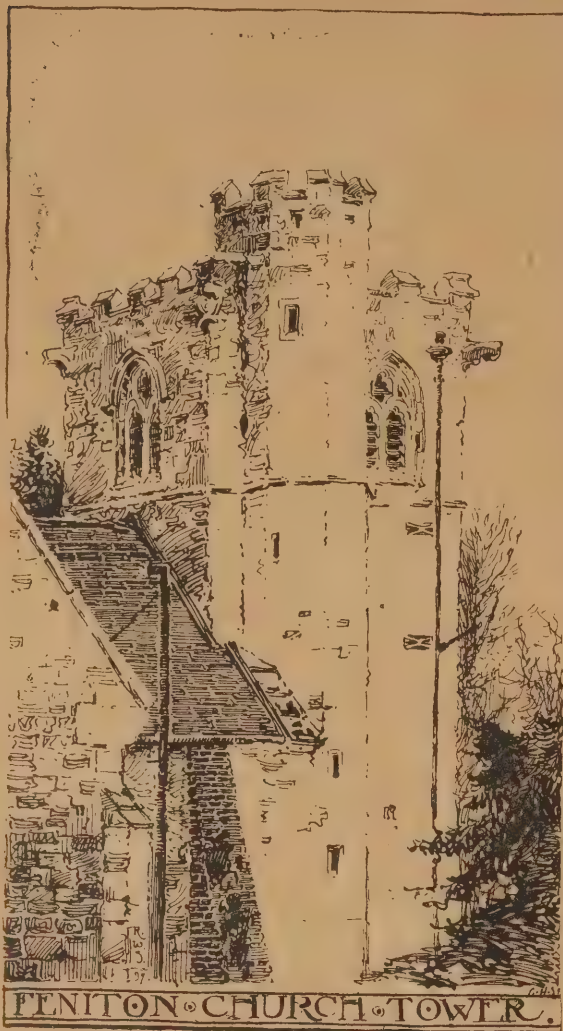
I first saw it from the train. Its squat appearance is not without charm, but its detail will not bear close inspection.

Harpford, the dominant feature of a tiny village at a distance of about a mile from Newton Poppleford; this tower is, again, similar in many respects to a number of others in the district, though, perhaps, more badly built than some, the walling being of rough stone plastered and finished, I should think, originally rough cast, now in a very bad state of repair. The body of the Church has been restored—badly, as usual—but the tower for some reason, probably want of funds, has been left severely alone.



SKETCHED BY R. W. SAMPSON.





The author of a guide-book of the neighbourhood of Branscombe is a wise man, and his method of avoiding the difficulties of the subject of Architecture is delightfully simple and effective, for it would apply equally to almost any old Church in the country. He simply says: "The Church, an ancient building of stone, is in the Norman and later styles," he mentions the name of the vicar, and that there are some curious ancient monuments, with kneeling effigies, and so disposes of one of the most interesting and charming old Churches in the county, to attend service in which is to imagine oneself back in the seventeenth century at least. No handiwork of the demon Restorer is here to be seen—nothing can have been touched for at least a hundred years, and the newest thing in connection with it I should imagine to be its vicar, and he is so old in its service as to have become part of its very self. Perched up there in his Jacobean three-deck pulpit (from which he has been known to descend to chastise an unruly juvenile member of the congregation), he does not at all jar on the old-world picture which the place inevitably conjures up. Indeed, there is nothing to do so, for the pews are very high, and effectually hide the nineteenth century female head-dress, which even in this dear, old, sleepy hollow has forced its aggressive splendour.

But to resume the subject of towers, the guide-book description will not quite do for this one, for it is Norman from base to parapet, and has the somewhat unusual feature of a round staircase turret; it is not placed at the west end of the Church, as is the general rule with these village Churches, but in the centre of a long nave, and in this respect resembles Colyton.

In making my selection of towers to illustrate this article, it has been my endeavour to give as many types as possible, and, though they are not all of equal merit architecturally, they give a better idea of the variety of design

of the towers than could be shown if merit and merit alone were rigidly adhered to, and considering that the district from which they are drawn would be covered by a radius of ten miles, I think it must be admitted that the locality can bear favourable comparison with many other parts of the country more noted for their past efforts in this direction. Somerset, to wit, so noted for its beautiful Perpendicular towers, can hardly boast so much variety of outline, and, although superior in detail to most of the East Devon Churches, are inclined to suggest that the same Architect may have been the author of the greater number of them; a drawback, if it be one, which cannot suggest itself here.

Colyton Tower is unlike anything I have seen in Devonshire. It is a Church which even now (after perhaps even worse restoration than has fallen to the lot of many) is full of interest for the student apart from its tower, which I am inclined to think is doubtful Gothic, though it is credited locally as being good, and of the period it purports to be; but a cistern-head of eighteenth century design disturbs one's peace of mind on the subject, and certainly the large gilded weathercock and its supports are contemporaneous with those rain-water heads. However, it is by no means offensive when viewed at close quarters, and when seen from the hill approaching the village from the west, it is exceedingly pretty.

This tower, and a good portion of the walling of the Church, is built with very large snapped and coursed flints; the quoins, parapet, and lantern being of ashlar. The rebuilding of one of

the piers supporting the tower is said to have been wonderfully performed many years ago by a local amateur Architect. Let us hope he was also responsible for the new seating and other things; it will at least relieve the Profession of the addition of another sin to its already heavy burden.

Colyton has at one time been a place of some importance, and has here and there some mouldering but interesting bits of architectural detail. Shute House and Ford Abbey, both houses of much interest, the former the residence for the last century of the Pole family, and Ashe House, the birthplace of the great Duke of Marlborough, is also close at hand on the borders of Dorset.

Few villages of its size can boast such a Church tower as Broadhembury, a really fine tower, with good detail and some unusual features. The pinnacles, for instance, are octagonal on plan, and are ornamented with miniature battlements and very small crockets. The staircase turret has a conical lead roof, and the battlements round this are unusually small. The walling is of a hard flint-like stone with Ashlar quoins, those ap-

pearing dark in the illustration are of a red stone, much more in use in Mid-Devon, where it is found.

Next to the tower the most interesting feature of this Church is its north porch, with its Jacobean gates and exquisitely carved perpendicular doorway. Next to this, perhaps, is the interesting fact that the living was once held by Augustus Toplady, of hymn-writing fame.

This Church has had the good fortune to have been restored under the able guidance of Fellowes Prynne, who is at present engaged upon the beautifying of the neighbouring Church of Peyhembury, and that in a most sumptuous manner, at the sole expense, be it known, of the vicar. Would that more were like him!

I should much like to describe this Peyhembury Church, but as its tower is of no interest, it is beyond the scope of this article.

Whether entering the village of Feniton from the right or the left you fail to spy the Church, a most unusual thing, for the Church is most often the one thing that advertises the fact to the wayfarer on the high road that a hamlet nestles yonder; but here the sweet little building is carefully hidden away, round the corner, so to speak, and hedged in all round with tall trees, as if to protect it from Cromwellian observation from the London Road, which passes the spot quite hidden from view but a few hundred yards distant.

The tower of Feniton Church, as will be seen from the illustration, is a simple, well-proportioned, and graceful building, which calls for no further comment, whereas, like Peyhembury, a great deal might be said of



SKETCHED BY R. W. SAMPSON.



the other part of the Church. The south wall of the nave, for instance, contains a row of the most charming Perpendicular windows, and the interior, amongst other things, has a lovely carved and much gilded oak screen, of very similar design, however, to those in Talaton and Peyhembury Churches.

Perhaps I ought to apologise for the introduction of Sidmouth Church tower, for, strictly speaking, Sidmouth is not a village, but a charming little seaside town revelling in all the advantages of a glorious climate and an Urban District Council, which latter ever and anon threatens to mitigate the advantages of the former by the heated and coloured atmosphere of their discussions as to whether one dustman is sufficient for the needs of the town, or some equally important question.

But, beside this, Sidmouth enjoys the distinction of having had Her Majesty the Queen a resident on its shores in her childhood, and the Church tower contains a stained glass window in its west front put in by Her Majesty in memory of her father, the Duke of Kent, who died here, so that the tower being a good one, and the town serving as the base of my operations in taking these notes, I may, perhaps, be excused for giving it in this series.

There is an octagon staircase turret on the south side of the tower, and the only noticeable features, other than the before-said window, are the belfry windows, which seem to be filled with odd bits of tracery in place of louvres.

The Church, a large one, is situated almost in the centre of the town, but, with the exception of its tower, has no claim to be considered of any architectural interest.

Drifting and being fixed by chance into this beautiful locality of East Devon, and making the acquaintance of another victim of circumstances in the shape of a would-be literary man, who was at that time occupying himself in about equal degrees between the tuition of a delicate boy, the ancient game of his forefathers, golf—for he and his pupil were from north of the Tweed—and setting all the countryside afire with his advanced Radical theories, it came about that he and I, being of totally different temperaments, chummed, and tramped the county round for many a mile on many a Saturday afternoon, and it was then it occurred to me that a series of sketches such as these, only of a more general interest and character, assisted by his graphic pen, might catch the eye and fancy of an editor somewhere, and so be the means of defraying the cost of tobacco, tea, and other refreshments consumed upon these "Tramps at Home," for such was to be the title of these wanderings of ours. Alas, that title was the one and only one brilliant idea that occurred to my friend, the literary man. We would tramp, and alighting on a likely spot, which always included a pub, we would part—I to sketch, he to hunt up the village "know-all," and take copious notes for future copy on his return home.

A NEW bridge spanning the Regent's Canal at King's-road, St. Pancras, was opened last week.

AN anonymous donor has given funds for a fountain to be erected in Albert Square, Manchester, to commemorate the Queen's Jubilee, and the bringing of water from Thirlmere to the city. The design will be entrusted to an Architect and not to a Sculptor.

THE opening of the new Town Hall at Hammersmith took place on the 22nd ult. The Town Hall, which has been erected at a cost of £25,000, provides accommodation for the vestry officials, as well as a council chamber, committee rooms, and a public hall seating between 600 and 700 persons. Externally the building has a very handsome appearance.

THE Jack Straw's Castle at Hampstead was sold last week for £34,500. The inn, which is a very old one, is situated on the top of Hampstead Heath, and an inscription on the bottom-most of a flight of steps leading up to its main door records that it is on a level with the cross on the dome of St. Paul's Cathedral. It has associations connected with Dickens, Thackeray, Du Maurier, and Lord Leighton.

#### BRITISH ART ABROAD.

THE International Exhibition at Brussels is now in the full tide of success, the entrance money, subscriptions, and concessions having already, it is said, more than paid the expenses of the undertaking. The first reason for this financial success is that little or no outlay was required for the main building, which is the same that was originally put up in the Parc du Cinquantenaire in 1880 for the Exhibition which celebrated the fiftieth year of

"Old Brussels"—Bruxelles-Kermesse—with very prettily contrived streets and shops, and, in the evening, the customary amusements. Before speaking of the Fine Art department, and especially of the British section of it (writes a correspondent of the Times), I may touch very briefly upon the general industrial department, which is, of course, in the eyes of the organisers and the general public, the most important. Here the success is very varied, for while two countries, Belgium and France, are remarkable, the rest,



SKETCHED BY R. W. SAMPSON.

Belgian independence. In one wing of this roomy but ugly edifice is installed the Belgian South Kensington, a permanent museum of antiquities, chiefly mediæval and national, some of which—especially the wood carvings—are very fine. The corresponding wing is used as a great *salle des fêtes*, for orchestral concerts and formal functions of every sort; and between and behind are large exhibition buildings of the usual kind. Outside we have restaurants and lounges, gardens which are illuminated at night, and the inevitable

including England, are but poorly represented. From Belgium of course one expects a great deal on such an occasion, and the show is large and good. In china, glass, lace, silversmiths' work, and furniture, Belgium is admirable, though the work is in many cases scarcely to be distinguished from that of France, from which most of the models come. But, though there is little originality, there are taste and good workmanship, offering what to the English visitor is rather a painful contrast to much of what is to be seen in





the British Section. Still more is this the case with the French section, which is first-rate, and a stroll through which is a real pleasure. This section, it may be urged, has had an unfair advantage; it had a great deal of money to spend on its installation. So it had; but this would have counted for little without two other elements, taste and subordination. The matter was put absolutely into the hands of a small commission, and everybody had to accept the place and the showcase assigned him. Hence the delightful *coup d'œil* of the whole section, whereas our own is, if the truth must be told, ugly, unsystematic, and unattractive. If our industrial section is ineffective in comparison with the display made by some other nations, the case is different in the department of Fine Art. Here a strong Committee, headed by Sir Edward Poynter, has worked well, and even more than this must be said of the honorary secretary, Mr. Isidore Spielmann, F.S.A., who has devoted much time and boundless energy to make the section a success. The result has surpassed all expectations, and everybody, from the King of the Belgians downwards, has been surprised and delighted with the excellence of the British work. It is true that England is no longer regarded by foreigners as it was regarded fifty years ago, as a barren and a stony land in which

#### THE ARTS CANNOT GROW.

We began to make our mark in 1855, and we deepened it at many other dates, especially in the Paris Exhibition of 1889. Now the richest Frenchmen compete with the richest Englishmen in buying English pictures—old ones, to be sure; Sir Joshuas, and Turners, and Constables; and from them the knowledge filters down slowly, so that the Belgian amateur and Artist are not utterly taken aback when they find Englishmen who can paint. But this knowledge is a plant of slow growth, and it will not grow at all unless advantage is taken of each opportunity that presents itself. It is pleasant, therefore, to

record that Mr. Spielmann and his committee have brought together the best collection of modern English pictures and drawings that has ever left the shores of England; better than the collection made for Paris in 1889, or than that made for Chicago in 1894. There is very little sculpture, and the "black and white" would look better if more space had been assigned to it, and if

#### SOME OF THE BEST MEZZOTINTS

had been better hung. The oil pictures are over 200 in number, the water-colours rather more than half as many, and in the former department very few living British Artists of eminence are omitted. Mr. Whistler is not here, but he is of uncertain nationality and of no school. Mr. Guthrie and some of his Scottish brethren have sent nothing; but the list of exhibitors is, if we allow for these omissions, singularly complete. Of illustrious painters who have lately died we have fine works by Millais, Leighton, and Henry Moore, each of whom has made a real impression upon the Belgians. Millais's "Bubbles," hackneyed as it is, meets with proper admiration for its fine painting, its grace, and the understanding of child-life that it reveals; his "Mrs. Jopling," though the colour in one or two places appears to have changed, is accepted as a masterly and most convincing portrait; but the chief tributes are borne to that marvellous little picture

#### "THE WHITE COCKADE."

How is it that a man who could paint this and the two pictures now at the Guildhall, "The Huguenot" and "The Gambler's Wife," did not more often paint to this scale, where his extraordinary technique, his unrivalled power of getting what Artists call "quality" into a picture, served him far better than in any but a very few of the life-size subjects? Lord Leighton's pictures are not his best, but "Corinna of Tanagra" is a fair example of his late formal manner, and the child called "The Listener" is a brilliant little work in its way. The sea-pieces by Henry Moore have shown the Belgians what was long ago discovered by the Parisians, that England possessed in him the greatest sea-painter of his time, though the two pictures here are not of the first rank

ago at the Academy. Of these "The Wheel of Fortune" has made perhaps the deepest impression; Belgium was not prepared to see such fine symbolism expressed so nobly, or with such perfection of paint. It is worth recording that when this picture, which was one of the earliest arrivals, was being put in position, the Belgian Committee was so much impressed that it straightway raised

#### THE STANDARD OF EXHIBITION

in its own section and refused several pictures which awaited admission. Bad work, it thought, should not be tolerated in the same gallery with a picture like this. Mr. Alma-Tadema and his family are also here in force, but the Belgians have long been familiar with the work of the eminent pupil of their own Leys, nor will they admit that long residence in London has made an Englishman of him. Sir William Richmond's "Prince Bismarck" attracts attention, both for its subject's sake and for the careful painting of the head; and the Belgian Artists have plenty of admiration to spare for the elaborate detail, the brilliant technical qualities of Mr. Dicksee's "The Mirror," while, like ourselves, they complain of its unreality. The vast "Mariamne" of Mr. J. W. Waterhouse puzzles them a good deal, for neither Catholics nor Freethinkers are well up in the history of the Herods; and in looking at Mr. Gow's "The Sands of Boulogne, 1805"—Napoleon contemplating the invasion of England—they are inclined to echo the malicious little remark of the King of the Belgians the other day to the Committee showing him round, "If the sea was so calm, why did he not invade?"

#### OUR LANDSCAPES

have much success, especially the picture of the late Mr. Vicat Cole, the shorepieces of Mr. Hook, the beautiful "Ides of March" of Mr. North, the "Cider Country" of Mr. Parsons, and the works of Mr. David Murray, Mr. Boughton, Mr. Aumonier, and Mr. Corbet. So have the water-colours, of which the Exhibition contains a very fairly representative collection, though the drawings are chosen rather from the Institute than from the Old Society. It is a pity that there is nothing by Mr. Albert Goodwin, or by the late Alfred



VILLAGE CHURCH TOWERS OF EAST DEVON. SKETCHED BY R. W. SAMPSON.

among his works. Of our living painters a leading place is taken by Mr. Watts ("Head of Mr. Walter Crane"); by Sir E. Burne-Jones, who sends the later version of

#### "LOVE AMONG THE RUINS,"

and Mr. Balfour's "Wheel of Fortune"; by Sir Edward Poynter, who exhibits two small pictures, "On the Terrace" and "Knuckle-bone Players," and a landscape in water-colour; and by Mr. Orchardson, who sends that portrait of Mrs. Joseph which had so much success when it was shown a few years

Hunt, or by Sir John Gilbert, who might have stood for romantic imagination, subtlety, and wealth of colour. Failing them the people of Brussels are inclined to place almost at the head of our landscapists in water-colour three men who are no longer with us, H. G. Hine, George Frupp, and Thomas Collier, of whom the two former lately died at a ripe old age, while the last was cut off in early life, having shortened his years by his devotion, in season and out of season, to our capricious English Nature, whether she smiled or frowned. Hine's marvellous renderings of the South Downs and





VILLAGE CHURCH TOWERS OF EAST DEVON. SIDMOUTH. SKETCHED BY R. W. SAMPSON.

the delicate foreground in Fripp's "Glencoe" are examples of an

#### ART THAT IS HARDLY PRACTISED

to-day, especially in Belgium and Holland; but Artists, whatever their training, cannot fail to appreciate work so genuine and skill so unusual. Mrs. Allingham's pretty Surrey scenes have the success which belongs to the idyll, not less in our agitated modern time than when the world was simpler; and the pleasant Art of Miss Gow also finds admirers. The "New Barn, Rottingdean," of Sir Edward Poynter is a drawing which we do not remember to have seen before; it has style and colour, the marks of all the rare landscape work of this distinguished Artist. The zealous "British representative," who remains in Brussels to watch over the interests of the British section, Mr. John Fulleylove, lends one or two of those drawings of famous buildings which are such a marked feature of the Institute Exhibitions; his "British Museum" is an admirable work, in which the Artist shows that he has realised the essentially fine qualities of that front,

#### SMOKE-BEGRIMED AND FORBIDDING

as it now is. A word may be given to the other sections of the department of fine Art, of which some are interesting and one or two important. Italy is unfortunately very bad;

B B B 2

only one Artist emerges, Signor Casciaro, of Naples, whose pastel views of that region are of rare and excellent quality. From Germany there is very little, while Holland naturally sends a good deal, the pictures of Israels, of James Maris, of Mesdag, and of the late Johannes Bosboom, well maintaining the reputation of the School. France, again, is strong, and gives ample evidence of the vitality which, whatever we may think of her Artistic ideals, still animates her painters, her sculptors, and her medalists. We have a good many well-known pictures or designs from M. Puvis de Chavannes, M. Carolus-Duran, M. Jules Lefèvre, and others of the older generation; a beautiful full-length portrait by M. Blanche; a wonderful man's head by M. Gabriel Ferrier, in Holbein's manner; landscapes by MM. Pointelin, René Billotte, and Demont; and a whole roomful of sculpture. To this school the Belgians show some natural affinity, but the influence is by no means exclusive, and men like M. Fernand Khnopff on the one hand and M. Van Hove on the other look elsewhere — M. Khnopff to Sir E. Burne-Jones and the Italian primitives, and M. Van Hove to the early Flemish painters. Probably M. Van Hove will not make many disciples, but his work has great technical merits, and one respects his ideals.

#### ANTIQUARIAN RESEARCHES IN YORKSHIRE.

TO call those Danes' graves which do not and never have contained Danes' bodies, is not a case of *lucus a non*, but proceeds from a definite method of our ancestors. When they came across anything they did not understand, they attributed it either to the Danes, from whom they suffered considerably, or else to the Devil, from whom they feared they might suffer in time. So they had Danes' dyke at Flambro', a work evidently done by people who only knew how to use flint instruments, whereas Danes were perfectly acquainted with iron; and they had Devil's dyke, and Devil's punch-bowl, &c., everywhere. So the fact that the graves in Danes' Dale, about four miles north of Driffield, were always called after our Danish invaders, did not deceive any one who knew how loosely such nomenclature was bestowed. For a long time the antiquaries and barrow openers of Yorkshire had their eye upon these graves, but all investigation was forbidden as long as the late Colonel Broadley, M.P., lived, as he feared the remains might not be treated with proper reverence. Last year he died, and the new owner, under certain stipulations, allowed the graves to be opened. What little was previously known as to their contents was owing to an accident of a storm in 1881, when, some trees being uprooted, several graves were exposed to view. The bodies inside them were found doubled up

#### IN TRUE ANCIENT BRITISH FASHION,

the knees pulled up towards the chin, the arms more or less doubled so as to admit the hands to approach the head. One or two things were settled then. The bodies belonged to a pre-Christian age, as was shown by the direction of the head. Of three bodies then visible one had its head towards the north, another to the south, and the other to the west. A few pieces of pottery found were declared by Professor Herbst, the Copenhagen archaeologist, not to be Scandinavian, either in shape or fabric. From the skulls exposed it was considered they belonged to a distinctly marked community of men, but of what date could not be certain until further investigation was made. Moreover, the absence of any iron instrument increased the doubts about them; not that it proved iron was unknown at the time, for the wet and corrosive nature of the soil would in the course of centuries have destroyed all trace of it. The secret of the graves remained a secret. The day for unravelling the secret arrived on July 7, when, under the auspices of the East Riding Antiquarian Society, permission to open the graves was obtained, and the necessary excavations carried out. Eleven mounds were exposed, of which only three contained anything besides the corpses all in the curled up position referred to, and in one was discovered the

#### IRON TYRE OF A CHARIOT WHEEL,

the iron bit and trappings of a horse, and a bronze pin, beautifully designed and enamelled. These were sufficient to enable an antiquary to settle beyond doubt the date to which the graves belong. They were neither those of Danes, nor of those who fought against Harold (as another tradition said), but belonged to an age at least a thousand years before the Conquest, and prior to the Roman invasion. Here was additional evidence to prove, if evidence was wanted, that the people who opposed the legions of Caesar in this island were far from being naked savages with their bodies covered with woad, but were clothed as sufficiently as we are, had buttons to their dresses, and other conveniences. They were people possessed of a considerable amount of civilisation, and had beautiful weapons and implements, because nothing could exceed the grace of the spear-heads and swords used by them, specimens of which are so frequently found on the Yorkshire Wolds. The tyre of the chariot-wheel and the bits of the horses were proof of a belief in immortality, they being placed there for their owner's use in another world, and also proved that Caesar was met by men who



drove well-made chariots, albeit the great authority on the subject, Canon Greenwell, said he had never yet seen any trace of the scythes which are said to have been attached to the wheels, and which did such execution upon the legs of the enemy. What is certain is that Caesar met with such a reception from

#### THESE EARLY IRON-USING PEOPLE

that he never made the attempt again, and it was not till a century later that, under Claudius, the Romans conquered the country. The finding of the enamelled pin started the question whether these ancient Britons were or were not the discoverers of enamel. It seems quite certain that no trace of enamel is found in any Roman ornament before the Romans came in contact with the inhabitants of Britain, and it is equally certain that after that the presence of enamel was frequent. It is generally supposed that these bronze-using people came from South Germany, and may have brought the secret of enamel-making with them. They conquered the stone-using people, but did not extirpate them, but lived with them and inter-married with them. Extirpation only follows where the conquering people are vastly superior to those conquered, as the Spaniards were to the Caribs of the West Indies, or the whites to the North American Indians. These introducers of iron into Britain are sometimes described as the round-headed people, as distinguished from the long-headed people, whom they found here, and conquered. The enamelled pin is to rest in York Museum, and the mounds have now been covered up. It is, however, something to have settled the date of the introduction of the use of iron in our country, and to have corrected a false impression as to the nationality of the occupants of the graves.

#### ABERDEEN'S NEW COLLEGE BUILDINGS.

COMPARATIVELY few, probably, of the hundreds who in a week pass the gates of Blairs College, Aberdeen, ever think of moving inside these gates to remark the quaint and rambling college buildings, soon to be displaced by new erections. The building scheme as a whole involves, of course, a completely new college, for the present one has for a considerable time been felt to be wholly inadequate for the requirements. It was gifted to the Church by Menzies of Pitfodels exactly seventy years ago, and, an old building then, it may well be imagined to be somewhat insufficient now. The complete scheme, however—which will cost something like £20,000—is not expected to be attained for some time to come. The first section is now being finished, and Canon Chisholm has the pleasure of showing visitors the first fruits of what, when completed, will be one of the finest piles of buildings in connection with the Roman Catholic Church in Scotland. The new college, when completed, will consist of a front block, facing towards the river, and east and west wings, forming

#### THREE SIDES OF A SQUARE,

with the hollow facing southward. A handsome tower will raise its graceful crest above the surrounding woods, and indicate to the country round about the situation of this seat of learning. The section all but complete is the west wing—a building three storeys high and about 150ft. long, and of outside appearance and internal arrangement that make it very complete in itself. The building, as will be gathered, fronts the west. It is built of Aberdeen grey granite, pointed, which gives it a clean and dressy look; and increased style is gained by projecting forward a short wing at each end and finishing one of these in a bow-window form and the other with a balcony. Here the professorial staff will have airy and handsome quarters, whence, in hours of relaxation, they may enjoy the magnificent prospect up the valley of the Dee that now unfolds itself to the view. The building is

#### TRAVERSED BY A CENTRAL CORRIDOR

12ft. wide. The ground floor is appropriated mainly to class-room purposes. As the ground

floor will be the special quarters of the students, the first floor will be the possession of the Rector and professors. At the north end, above the students' study, is the Rector's sitting-room, with attendant apartments. Then along the corridor that follows the line of the more spacious corridor below are the professors' rooms, each professor having a compact little sitting-room on one side of the corridor facing the west, and a bedroom on the other side with an exposure towards the rising sun. At the south end of this corridor, and above the students' recreation-room, is a large recreation-room for the professors, with the open balcony to which reference has already been made. The upper story is wholly utilised as three large dormitories for the students. Provision is made in the new dormitories for a hundred, and these lofty, airy, and magnificently-lighted rooms are a great change from the sleeping apartments of the old house.

#### THE CUBICLE SYSTEM

is adopted for the beds. A double row of cubicles runs down the centre of each dormitory, separated by a longitudinal partition, a cubicle for each student, and, as the side walls of the cubicles rise only to a height of half-a-dozen feet, ample play of ventilation is afforded. All the internal furnishings of the college—dadoes, skirting, linings, &c.—are in rich pitch-pine, with plastered walls and ceilings. Natural ventilation is adopted, and heating by hot-water circulation. Electricity is to be the artificial lighting—a striking change from the paraffin lamps that do duty in the old house—the engine and boiler houses being situated at the southern extremity of the new block. In the same vicinity is a line of low buildings, comprising students' cloak-room, boot-room, lavatories, &c., all in the same forward state as the adjoining larger building. At the present time the place is in the hands of plasterers and joiners, but it is anticipated that it will be ready for occupancy at the close of the vacation on Sept. 1st. It will be seen that the new block—which is estimated to cost about £8000, and of which Mr. Robert G. Wilson is Architect—is complete in respect of its educational, recreative, and sleeping accommodation for the students and the professorial staff.

#### WILTSHIRE ARCHÆOLOGICAL SOCIETY.

THE members of the Wiltshire Archæological and Natural History Society are holding their summer meeting at Bradford-on-Avon. The report stated that at the present time there were 333 annual members, 21 life members, and 19 exchange members, making a total of 373, which was a decrease from the numbers last year. The additions to the library and museum had been again considerable, and they were distinguished in the magazine with the donors' names. The railway proposed to be constructed by the Great Western Company from Pewsey to Salisbury would pass near many of the important relics to which solitude and remoteness were protection; and, with 40,000 acres for military manoeuvres, the absence of the protection of solitude and remoteness was likely to become a melancholy reality before their next meeting. Education and improved taste must be relied upon for the due preservation of the relics of Salisbury Plain. The cutting and levelling of some short lines of railway in the county ought to give geologists an opportunity for further research. Among the places of interest visited was the old Saxon Church, the members being under the guidance of Mr. C. S. Adye, who gave some interesting particulars respecting the structure. It was the Church of St. Laurence, and the late Canon Jones, vicar of Bradford-on-Avon, discovered it. There are nave, chancel, and a porch on the north side of the nave. The original step of the chancel, although much worn, is still *in situ*, and is well worthy of inspection.

#### THE WALLS OF THE CHURCH

are of various thicknesses from 2ft. 4in. to 2ft. 6in. There were no doors to the entrances on the north or south side, and Mr.

Adye conjectured that the nave was at all times open to the people, while the chancel would only be exposed to view during Divine service. The building was evidently insufficiently lighted, as there were only three original windows. The chancel window remains just as when it was first built; but the other two windows have been mutilated. Mr. Adye suggested that perhaps the deficiency of light might be due to the fact that glass was difficult, if not impossible, to obtain. A visitor asked if service was held in the edifice now, to which Mr. Adye replied that the building was regarded rather as an interesting relic, and it was so near the Parish Church that there was no necessity for service there. He, however, gave his archæological congregation a capital "sermon in stones," and observed that though the trustees had to keep the Saxon Church in repair, yet contributions forthcoming left some profit. While the party were viewing

#### THE EXTERIOR FEATURES

he called attention to the fact that although the structure was small, yet it was striking on account of the height. When first discovered by Canon Jones the Church was used as a school, and there was a master's house built on one part, while a large stable hid the Architectural features. On the east side was an old house covered with ivy, which hid the Church from view. Inside, the nave was divided into rooms for the school, and the chancel formed a labourer's cottage—to such base use did it become. On obtaining possession the trustees took down the modern buildings, lowered the ground, and removed the partitions and doors, and exposed the original work. They replaced missing portions of the old work, but did not remove a single stone of the original structure. In taking down the chimney stack erected between the chancel and the nave all the stones of the arch, except one, were discovered. Canon Jones found out the Church through directing his attention to the building as he gazed on it from a hill in the locality. He believed that there were a nave and a chancel, and this was the first intimation of the original structure. The interior had been so altered that no one could have recognised it as built for ecclesiastical purposes.—The Parish Church, which is dedicated to the Holy Trinity, was next visited, under the guidance of Mr. Adye. It is a noble structure, though opinions differ as to the

#### VALUE OF THE RESTORATION

carried out by Messrs. Manners and Gill, of Bath, in 1866. The original Church was built in the twelfth century, and in the fourteenth century the chancel was lengthened by about 16ft., and it is now 48ft. long from east to west. The nave was formerly separated from the chancel by an oak screen and a wood loft, and the screen must have been richly coloured, to judge from the remains. Some of the monuments are interesting, there being some in connection with the families of Tugwell, Clutterbuck, Hobhouse, Gaysford, and Bethell. There is a tablet to the memory of Lieutenant-Colonel H. S. Shrapnel, inventor of the Shrapnel shell, who lived at Midway Manor, in the parish, died in 1849, and his remains were interred underneath the chancel, the spot being indicated by a brass. One fine Architectural feature in the Church is a magnificent fourteenth century window in the chancel.—Barton Farm was visited specially to see the spacious tithe barn, which was erected either towards the

#### END OF THE FOURTEENTH

or at the commencement of the fifteenth century. It was the tithe barn of the Abbots of Shaftesbury, and is 170ft. long and 20ft. wide. There are four porches, viz., two on the north and two on the south side. The farmhouse contains some remains of the original building, the date about the same as that of the barn, and this might have been the residence of the agent of the Abbot. As to the barn, it is the largest structure of the kind in the West of England. An apartment in the farmhouse had special attraction for the archæologists, it being a room over the gateway, and probably used for entertainments, since there is a minstrels' gallery.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS





SYMBOL OF ST. JOHN THE EVANGELIST. THE ORIGINAL OF OAK IN SOUTH KENSINGTON MUSEUM.  
DRAWN BY F. H. WARING.





SYMBOL OF ST. MATTHEW. THE ORIGINAL OF OAK IN SOUTH KENSINGTON MUSEUM.

DRAWN BY F. H. WARING.



LIBRARY  
OF THE  
UNIVERSITY OF ILLINOIS



## Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,  
August 4th, 1897.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost, in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble Church for every town in England; such a Church as it should be a joy and a blessing ever to pass near in our daily ways and walks, and as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

"ANYONE can paint a picture," a famous French Artist once told his pupils, "but genius is required to sell it." English painters, to judge by the sales at the Academy, are not bountifully gifted with the kind of genius necessary to enable them to dispose of their pictures. The middle of July has passed, and in a few days' time the Exhibition will close, yet only a small proportion of the two thousand and odd works of Art at Burlington House have changed hands. A few more purchases may yet be effected at absurdly low prices—for this is the time when the crafty bargain-hunter tempts the disheartened Artist with an offer of £20 for a hundred-guinea picture—but to all intents and purposes the legitimate sale season at the Academy is at an end. So far, up to July 15th, 180 pictures and other works have been sold at Burlington House, the sum total realised being £16,084 15s. This amount compares favourably with last year, when the sales were exceptionally bad, or with 1893, when they amounted only to £13,319. Some few years earlier, however, things were far better, for in 1888, 284 works were disposed of at the Academy, the amount realised being no less than £21,599.

ONE of the most striking facts in connection with the sales at the Academy of 1897 is the curiously unequal manner in which the sum total of £16,384 15s. is divided among the sixteen rooms at Burlington House. For example, in the First Gallery, pictures to the value of £1395 16s. have found purchasers, yet in the Second Gallery, where the chances of selling are supposed to be really good, the sales amount only to £603 10s. The pictures which have fetched the best prices in these two rooms are Mr. H. J. Draper's "Calypso's Isle" (£315), Mr. La Thangue's "Summer Morning" (£300), and Mr. Ernest Waterlow's landscape, "A Tranquil Stream" (£400). In the Third Gallery—the room of honour at the Academy—the sales amount to £4171 15s. Here twelve pictures have been sold, including Mr. Napier Hemy's "Pilchards" (£1200), purchased by the Chantrey Trustees, Mr. G. H. Boughton's "After Midnight Mass" (£1200), and the veteran Mr. Sidney Cooper's "Brae of Balquhiddy" (£600). Six pictures have found purchasers in the Fourth Gallery, where the total of £989 12s. includes the sum of £525 paid by the Chantrey Trustees for the picture by Miss Kemp-Welch, "Colt Hunting in the New Forest." In the Fifth Gallery the sale total rises to £1762 10s., including £1000 for Mr. La Thangue's "Harvesters," and £500 for Mr. J. C. Dollman's "St. Anthony," while in the Sixth Gallery the amount is even higher, reaching as it does £1933. The principal sales in this room are Mr. Blair Leighton's "In time of Peril" (£600), and Mr. E. Holyoake's "Madame Roland on her Way to Execution."

THERE are several miscellaneous statements of some interest in Dr. Collins' annual address. It is not perhaps surprising, but it is a very remarkable fact that in the administration of

the Building Act, the Council have had to deal with no less than 4032 dangerous structures during the last year, which does not, of course, include any temporary erections in connection with the Jubilee commemoration. The number of sky-signs—which are certainly dangerous as well as ugly structures, though they are not included in the figures given—is rapidly diminishing under the Act of 1891. Of the 120 that remain licensed for a third extension of a period of two years, the majority must be removed before the close of this year. It is something to be thankful for that the erection of "sky-signs" was stopped so promptly. It is appalling to think how London, which is none too beautiful as it is, would have been disfigured if the Act had not been passed.

THE opening of the Hotel Burlington at Dover, on Saturday, adds one more to the many important improvements which are taking place at the old Cinque Ports town. The hotel is situated opposite the Promenade Pier in the centre of Dover Bay, and commands a sweep of the Channel, with the Castle and cliffs on the east and Shakespeare's Cliff on the west. It has 380 rooms, all of which have a good outlook. Messrs. Maple and Company, of Tottenham Court Road, have carried out the furnishing and decoration, which is in the Georgian style. The hotel is luxuriously furnished throughout, and possesses all modern improvements in the way of lighting, heating, and sanitation. It has a very commodious lounge and ball room furnished and decorated in Oriental style. The furnishing alone has entailed an expenditure of nearly £7000. The hotel was declared open by Mr. Henniker Heaton, M.P. for Canterbury. In the course of his remarks he congratulated the Government on the fact that it had induced the House of Commons to spend three and a half millions on the construction of an immense national harbour at Dover. The details of the plans, he said, had not been publicly announced, but it was understood that the harbour would be the largest and most important on the British coasts.—An article on the subject appears in this issue.

SUBURBAN theatres of London are increasing rapidly. There is the Grand being erected at Fulham, the Coronet at Notting Hill Gate, the Broadway at Deptford, the Alexandra at Stoke Newington Road, the Royal County at Kingston, and the Albert at Tottenham. The Standard at Shoreditch is under process of entire reconstruction, so as to bring it in line with the requirements of the times, and on the 27th ult. was opened at Crouch End the Queen's Opera House. The house at Crouch End will furnish accommodation for 1500 people, and there is a stage 54ft. in width, supplied with an iron fireproof curtain. Proper precautions, approved by the authorities, have been taken to reduce the risk from fire, and it may be laid down as a general principle that the London County Council is entitled to the thanks of its constituents for having kept a sharp eye on this department of public safety in the theatres of London. The ceiling of the new house has been tastefully ornamented, and the orchestra is sunk below the level of the auditorium, so that the audience on the floor are not distracted or their view impeded by the instrumentalists. The stalls are comfortably fitted, and the dress circle occupies the front seats of the balcony, the upper circle being behind. There is a roomy pit to hold about 400, and the approaches and exits of the building appear to be of a satisfactory character. Provision has been made whereby the house can be adapted for other purposes.

PUBLIC opinion in Holland is at this moment much moved by the sale of three important pictures from the famous Six Collection, the last survivors of those which were formed during the lifetime of the great painters of the seventeenth century. Every art-loving visitor to Amsterdam knows the house where hang Rembrandt's magnificent "Burgomaster Six," and, perhaps, a hundred other pictures of the highest class. Innumerable attempts

have been made at various times to induce the family to sell, but till now without success. At last they have yielded so far as to cede, fortunately not the Rembrandt's, but three others—Cuypp's "View on the Maas," the Terburg, and the Gerard Dou. These have lately been sold, after long negotiations, for a prodigious price.

SIR E. J. POYNTER, in the new preface to his "Lectures on Art," warns young students against the "strange tendency of the day among a certain class of painters to neglect the study of form in favour of so-called impressions hastily and more or less dexterously thrown on canvas." He continues, "when a clique of self-styled 'Impressionists' and their apologists in the Press are only too ready to absolve them for incompetency in drawing and slovenliness of execution—nay, rather to applaud them for their sins in this respect as indicative of a higher form of genius—they may, and often do, imagine themselves ready to set forth on their career as fully equipped Artists before they have acquired even the necessary rudiments of instruction. If the student will take the trouble to understand the work of Michael Angelo, or, indeed, of any of the great Italian masters of Design, he will find their 'impressions' of life and nature to be not less vivid than those of any modern painter, and executed with a command of the resources of Art which has almost passed out of knowledge."

THE proposal of the London County Council to seek powers next year for establishing and working river steamboat piers will certainly meet with very general approval. We have now, it is true, a service of steamboats running, but it is impossible that any such service can be satisfactory till we get an entirely new system of piers. Between Hammersmith and Woolwich there are twenty piers on the north side of the river and thirteen on the south. They are many of them badly placed, difficult of access, and very poor in character, while their maintenance costs considerably more than they can be made to yield in tolls. If the County Council gets the power, it will probably affect an entire reform, and among other changes may be expected to establish piers in the middle of the stream at the bridges. It would be an important point with the Council, too, to establish quick and easy communication between the north and south banks. The Council has obtained a deal of evidence as to what ought to be done, and has sketched out a very carefully thought-out scheme.

THERE was another alarm at Quarry Bank on Saturday week owing to the fall of the gable end of a factory which had previously been in great part cracked and demolished by the subsidence of the surface. Beyond this, however, some of the residents were much perturbed by the imperative advice of Lord Dudley's mining engineer not to sleep on the premises they now occupy. Shots are heard at intervals both by night and by day from the shallow mines below, and they cause distinct and alarming vibrations in the houses and their contents. A club-room on Mr. Tranter's premises has been split and gapes open to the sky—one of many indications that there is only too good ground for the urgent advice to the occupiers not to sleep again on the premises. A school near the spot which has become endangered has been propped to allow of its use being continued for the present, and signs of the movement and dislocation of the surface are to be seen in many places.

THE Post Office Sites Bill, as amended by the Select Committee, has just been issued. As originally introduced by Mr. Hanbury and Mr. Akers-Douglas, the Bill proposed that certain disused burial-grounds attached to the parishes of Christ Church, Newgate Street, St. Botolph Without, Aldersgate, and St. Leonard, Foster Lane, generally known as the Postmen's Park, should be maintained as a public garden, and that for that purpose the Postmaster-General should pay to the London Parochial Trustees the sum of £100 per annum,



and the said trustees should pay to the Vicar and churchwardens the sum of £200 per annum so long as the public garden was maintained in good order. The London Parochial Trustees have power to build upon or lease for building purposes a plot of land lying between the garden and Little Britain, and as the garden was largely used by the employees of the Post Office, and would be seriously injured if the Little Britain land should be built upon, the Vicar and churchwardens, in consideration of the same being maintained as an open space and part of the said public garden, agreed to assign to the Postmaster-General the £200 per annum payable to them by the London Parochial Trustees. This portion of the Bill was struck out by the Select Committee, and the Bill now simply provides for the acquisition of lands by the Post Office in London, Brighton, Norwich, Plymouth, Southampton, Oban, and Cork. There is a special proviso, for the protection of the London and South-Western Railway Company, that in case the Postmaster-General should at any time abandon a part of the land at Southampton he should offer it to the South-Western Company.

An interesting series of water-colour drawings has just come into the possession of the Carnavalet Museum in Paris. The drawings consist of a number of portraits of prominent persons belonging to the court of Napoleon III., who are represented in the costumes they wore at fancy dress balls and when figuring in tableaux vivants. The Empress Eugénie is shown as a Bohemian Girl, the Marquise de Gallifet as an angel, the Comtesse Walewska as Diana, the Princesse de Metternich as a demon, the Comtesse de Pourtales as an Indian dancing girl, and Mme. de Gortschakoff as Salammbo. The collection also includes a photograph of the Emperor, Empress, and Prince Imperial taken on a small yacht on the lake of Fontainebleau.

On Saturday prizes were awarded to lady students in the thirty-seventh session of the Crystal Palace School of Art, the judges being Mr. J. B. Burgess, R.A., Mr. Basil Bradley, R.W.S., and Mr. E. Roscoe Mullins. The competing works denoted good instruction. For this Mr. H. A. Bone is responsible in painting, drawing and modelling from life; Mr. J. Scott, R.I., for painting from costumed figure; and Mr. S. J. Hodson, R.W.S., for the sections of Architecture, landscape, flowers, and animals from life. Animal drawing is particularly good as regards time sketches and in the painting of heads, but weakness made itself apparent when the whole of the beast is treated. The student esteemed the best, and who received the scholarship in Art, is Nina Rothney, certainly the most accomplished, winning the silver medal for a full-length back view in oils from the life, commendation for a ten minutes' time sketch, and a certificate for an excellent drawing of the Parthenon "Fates." For illustrative design, Winnie Hunt was certificated for a clever clay sketch of "Good News from Ghent"; and for applied design, Dorothy Selous had like award for an upright panel of lusted gesso with figure and foliage design. A plaster statuette from life of a man reading, rightly gained a certificate for Winnie Hunt. In drawing from life, A. Margaret Page took the silver medal for a full-length of a man less than life size, drawn accurately and with spirit, and a half-length from the same model, drawn on a larger scale, evoked commendation from the judges for M. Josephine Streatfield. The best of the water-colour drawings of animals was the head of a white horse, by Ada Furneaux; and in Architecture, E. A. Holdsworth won the silver medal for a water-colour drawing of the Alhambra Courts, while two more of Mr. Hodson's pupils (Marion Fox, with a bronze statue against carved walls, and Gwyndd M. Hudson, with crimson tulips) were commended. Miss Hudson was likewise certificated in Mr. Scott's class for the water-colour drawing of a monk scouring a pewter dish. Exhibits from members of the sketching club prove that this school of Art is not one of those whose results rest only on studio work.

A NEW Church at Balholm Sogne Fjord, Norway, recently dedicated, has a special architectural interest as being built on the model of the Stave-kirke or ancient wooden churches of Norway, which are quite unique among ecclesiastical buildings in Europe. It is the first Church built in that style since the thirteenth century, but travellers in Norway will remember the curious specimens which remain at Borgund, Eidsborg, Vik, and other places.

THE construction of the City and Waterloo line seems to have been a very successful piece of work so far as it has gone, which is very near to completion. According to the Act authorising the railway, another twelvemonth might be taken for the work. There is good reason to hope that it may be in working order by the end of the present year. The two terminal stations are being made, and the rails are being laid down, together with the electrical conductors, while the installation at Waterloo is being rapidly proceeded with. With the station underneath Waterloo considerable advance has been made, and so far as that, and, indeed, all other portions of the undertaking itself are concerned, another six months will, it is believed, be ample time for completion. There may, however, possibly be some delay over the connection of the line with the circular subway in front of the Royal Exchange. An incline is to run down from this to the City terminus of the Waterloo line, and in the way of this connecting slope there is a great tangle of all sorts of pipes and drains and sewers, and some of these, at least, will have to be diverted and reconstructed. That may prove a long and troublesome business, but nothing else seems likely to stand in the way of the opening of the new line by the end of the present year.

A RAILWAY or tramway running up and down the precipitous face of the Devil's Dyke, near Brighton, was opened on Saturday. There are already established at the highest point of the Dyke an aerial railway running from hill-top to hill-top, and a number of other contrivances, in which the excursionist appears to take delight, for securing locomotion under novel conditions. The steep-grade railway, however, claims some amount of utility, in affording rapid communication between the Brighton Railway Company's branch terminus, at the head of the Dyke, and the villages lying in the plain at the foot of the Dyke hills. It is of the same type as the cliff railways at Scarborough and elsewhere, although the engineer, Mr. C. O. Blaber, has introduced some new features in the details of construction. The whole length of the line is 840ft., the "lift" being 395ft. From the top there is a run of 240ft. at a gradient of 1 in 1.8, the second and steepest part being 1 in 1.5, and the last and lowest gradient 1 in 2.9. The vertical curves between the different gradients have about 1000ft. radius. There being a scarcity of water as well as of solid fuel at the head of the Dyke, the hauling power is obtained from a Hornsby-Ackroyd oil engine. The haulage ropes are two 2in. steel wire cables, and the cars, each seating fourteen persons, are fitted with powerful brakes, by which a car running down hill would be promptly stopped before any great momentum had been obtained. The brakes are also designed to prevent the cars from leaving the track. There is a powerful brake on the shaft of the main hauling pulley, worked by a foot lever, as well as from the platform. Spring buffers are provided at the lower end of the line, but there is an obvious need of buffers also at the top.

THE Church of St. Michael, Wood Street, the site of which, as previously announced, has just been sold by auction, stands at the corner of Wood Street and Huggin Lane, and occupies an area of 3700 superficial feet. The Church was one of the buildings destroyed by the Great Fire, and was re-built by Sir Christopher Wren, who completed it in 1675. It is by no means a handsome structure, and its warmest admirer would not feel justified in

calling it a masterpiece of the great Architect. Possibly Wren, under the pressure of business, left the design to one of his assistants, or, perhaps, he followed the wishes of those who employed him, and made the structure as plain as possible—it was erected at a cost of £2600. The Church has been already dismantled, and is now a mere shell.

IN Old St. Pancras Gardens, once a churchyard, three notable glee writers—Samuel Webbe, John Danby, and Stephen Paxton—were buried. Webbe's gravestone cannot be discovered, so a granite obelisk has been erected in its stead, and the weather-worn memorials of Danby and Paxton have been restored. The three were unveiled by Mr. George Risley a day or two ago.

GENERAL satisfaction will be felt at the action of the County Council in sending back that part of the report of the Highways Committee which dealt with the lighting of the Embankment. While it is highly desirable that this great and handsome thoroughfare should be made more useful and attractive to the public at eventide by electric illumination, it would be a great pity to disfigure the promenade by a tall chimney close to Charing Cross terminus. The proposal was to construct a generating station at that point. This would have entailed the erection of a high and smoky shaft, which must have proved a blot on the scene. We have enough of tall chimneys on the south bank of the Thames, and can well afford to dispense with their presence on the north side. It would be much better even to suffer some waste of electric power by placing the station either near the Surrey end of one of the bridges or in some side street, rather than have it abutting on the frontage of the Embankment.

A WORK of great importance has been undertaken by the London County Council—a register of historic buildings in the metropolis. So far as the parishes of Bow, Poplar, and Bromley are concerned, the particulars have been completed by the Committee for the Survey and Registration of Old Memorials of Greater London. The information is the result of a complete survey of these parishes, and an account is given of each building which has historic or architectural interest. Similar records are to be prepared for other parts of London, and it is intended to print the collection as a valuable memorial of the metropolis and a warning against any contemplated act of vandalism. As a beginning, the General Purposes Committee asks authority to expend £100 in putting the existing manuscript into type.

THE astonishing revelations which are made at the meetings of the Select Committee on the Museums of the Science and Art Department follow one another with such rapidity that something like a weekly commentary is necessary to keep pace with the discoveries of the investigators. There seems from the evidence given lately to have been a great deal of manipulation of the official records; and the apparent unwillingness of Sir John Donnelly to produce a report of the objects acquired for the collection, and subsequently withdrawn because their authenticity was questionable, must be reckoned among the most significant of the admissions that the directors of the South Kensington Museum have been forced to make. An equally suggestive deficiency was the absence from the list of "breakages, &c.," of any statement of the losses to the collection caused by the fire in the Indian section. This omission, taken in conjunction with the cheerful indifference of the official staff to the risks which are now proved constantly to threaten the building, has a very unpleasant aspect. Another most objectionable feature is the manner in which the needs of the Art Library are treated by Sir John Donnelly. His opinion about this most important section is worth attention, for it helps to explain some of the inconveniences to which students are exposed in the Library. He is said to consider that it should only be



a catalogue of the museum itself; and doubtless on this plea he would justify the ridiculous inadequacy of the book collection, and the absence of a very great number of Art publications which are absolutely necessary for the proper investigation of points of Art history.

COMPLAINTS have often been heard that the great English school of painting is badly represented in the Louvre Museum. There are in the room devoted to British Artists a few good Constables, a Raeburn, and more or less interesting products of the brushes of Lawrence and Gainsborough. To these were adjoined a series of water-colours by Bonington; but a good deal will have to be done before the collection can be deemed representative. Lately the conservator for paintings, M. Lafenestre, added to the collection a Romney, for which he paid £360, or 9000f. It represents Sir John Stanley, a knight of the olden time, and does not satisfy critics. Romney, however, has got his place in the Louvre, and it is satisfactory at least to find that an attempt has been made to increase the number of English works of Art in the famous French National Gallery.

THE first day's sale of the first portion of Captain F. Brinkley's well-known and extensive collection of porcelain was held on the 27th ult. by Messrs. Christie, Manson, and Woods, and showed a total of between £600 and £700 for 156 lots. The principal articles included the following in Old Nankin: an inverted pear-shaped jar and cover, painted with branches of prunus, 17in. high, and another, 17½in., 23 guineas; a pair of inverted pear-shaped jars and covers, with branches of flowering prunus, 14in. high, £11; an oviform jar, with plum pattern on a marble ground, 9in. high, £14 10s.; and an oviform plum-pattern jar and cover, 9½in. high, £14 10s. The principal articles in Chinese whole-coloured porcelain included a globular bottle, with powdered-red decoration, 20in. high, £19; a turquoise crackle beaker vase, with raised ridges and leaf ornament in low relief, 13½in. high, 10 guineas; a double gourd-shaped splashed fleur-de-pêche crimson and green crackle bottle, 8in. high, £12 10s.; a small brilliant coral-coloured bottle, 6in. high, and a slender fleur-de-pêche vase, 6½in. high, £16 10s.; a jar, coffee-coloured ground, with flakes of dark green celadon crackle, 7in. high, and a small jar, of pale brown dusted with silver, 5ins. high, £14 3s.; a slender vase of splashed sang-de-boeuf crackle, graduating from pale fleur-de-pêche, 17 ins. high, and another nearly similar, 16½in. high, the two, 46 guineas; and an oviform jar, with open lip pierced with small scroll design under the glaze, 8½in. high, £12. The old Chinese enamelled porcelain included a vase, with small neck, enamelled with a flowering tree, and two other vases, 17 guineas; an oviform famille verte jar, enamelled with floral decoration, 9½in. high, 27 guineas; and a pair of vases and covers, with fish in red and white, and aquatic plants in gold on a dark blue ground, 13in. high, 22 guineas.

IN the lecture theatre of the South Kensington Museum, Sir Wyke Bayliss distributed the medals and prizes gained by the students of the Royal College of Art. The report showed that the students had been successful in carrying off 6 gold, 89 silver, and 126 bronze medals, 314 national competition books, 72 Queen's prizes, and 26 art master's certificates. During the year four students in training had been appointed to masterships of schools of Art. The gold medal for the Travelling Studentship had been awarded to Mr. S. Thorogood, the silver medal to Miss F. H. Steele, and the bronze medal to Miss J. M. Twiss. Sir Wyke Bayliss, addressing the students prior to distributing the prizes, said it was for them to fulfil all that their fathers had failed to accomplish in the field of Art—to make the old paths broader and safer, and to discover new ones. The Artist of to-day had two things to fight against—despondency and conceit. The true Artist was always trying and always failing, for beyond his

highest achievements there always lay a still higher aspiration. Art was a living and a growing force. They need have no fear of heresy among their ranks, for its effect was in the end purifying. Finally, he exhorted them to study the accumulated knowledge of the centuries, and to base their own knowledge upon a personal study of Art.

THREE new pictures for presentation to the Royal Exchange are being painted by Messrs. Solomon J. Solomon, Ernest Crofts, and Seymour Lucas. The first-named Artist has nearly completed his work, which portrays "King Charles I. coming to the Guildhall to Disarm the Five Rebellious Members." This picture, which is nearly 17ft. high, is the gift of Sir Samuel Montagu, M.P., the well-known banker. The second picture represents "Queen Elizabeth Opening the Royal Exchange," and is the gift of the Mercers' Company; while the third painting of Mr. Seymour Lucas depicts "William the Conqueror granting the Charter to the Citizens of London," and is presented by the City of London.

THE contents of Hengrave Hall, to be sold by Messrs. Hampton and Sons to-morrow and seven following days, have been collected during two centuries by members of the Kytson and Gage families. The works of Art include examples of Holbein, Van Dyck, Sir Peter Lely, Sir G. Kneller, Van Loo, Baptiste, Keyser, and Teniers. A clock which belonged to James II., a couple of Cardinal Wolsey's chairs, an embroidered shirt that belonged to Henry VII., and some old manuscripts are catalogued.

THE London County Council held its last meeting prior to the recess on the 27th ult. With regard to the evidence to be laid before the Water Commissioners, Lord Onslow stated the Moderate party would not further discuss this measure, but enter their protest against the recommendations and record their votes. The committee's proposals, which practically went through without debate, are to the following effect: (1) That the water supply should not be in private hands. (2) That the undertakings of the companies should be forthwith purchased at their fair and reasonable value, regard being held to special circumstances, rights, and obligations. (3) That the management should, with limitations, be effected by the Council. (4) That the Council should, in the first instance, be the purchasing authority. And (5) that if the undertakings are not acquired, more effective powers of control should be given to the Council, and that the position of the companies should be reconsidered and the law amended.—The Council agreed to contribute £15,500 towards the cost of the acquisition of a piece of land covering nearly twenty acres next the river, near Putney Bridge, for the purposes of an open space. Discussion arose over the question of entrusting work to the Works Department, owing to certain recommendations of the committee in charge of housing schemes. Lord Onslow explained that the Moderates did not wish to deprive the Department of work, but they would do their best to prevent any work going to the Department which could not be finished by March, when the electors would have an opportunity of expressing their opinions. In the end the committee's recommendations were carried, the amendments in favour of inviting tenders being rejected.

THE Vicar of Swansea writes:—"May I through your columns make known to all who are interested in the completion of the Parish Church, that the building committee has made preparation to go on with Stage II. (of the chancel, tower and vestries) at once; and that the considerable loss, which would be incurred by stopping the work, now will, it is hoped, be avoided. In order to go on without a break in the re-building, £2000 is required immediately, in order to complete the £3000 which the Chancellor of the Diocese requires to be in hand before he signs the permission to take down the old chancel."

## Professional Items.

ABERDEEN.—The new Church, which is almost ready for occupation, will be ranked as one of the largest Churches in the North. The building, which was designed by Mr. Stanniforth, Edinburgh, is of Early English Architecture of the transition period. It is cruciform in plan, with additional side gables, giving height for large three-light windows over the side doorways. The tower is 100ft. in height, and in it is the main entrance, which is divided with a shaft in the centre, and ornamented with elaborate carving. The design also includes a commodious hall, without which no Church now-a-days can be said to be complete. The cost of the Church is £8000, but the hall will make the total cost considerably over that sum. Contrasted with the old Church on the river side, it exhibits a remarkable advance from an Architectural point of view, for it would be difficult to find a plainer building than the box-looking structure which the heritors erected for a Parish Church in 1810. The contrast distinctly shows the progress of Nairn from a fishing village to a fashionable watering-place; and also the national renaissance in Ecclesiastical Architecture. The new Church will accommodate 1200 persons. The roof is semi-open, and an oval arch behind the pulpit will contain the organ.

The latest product of the growing taste for imposing granite fronts and doorways for public and commercial buildings is a doorway now completed by Mr. Boddie. It is a striking piece of work, calculated to show effectively the high Architectural merit of Aberdeen polished granite. The doorway, except for the bases of the pilasters, which are in Dyce grey, is constructed of Peterhead red granite. It stands 20ft. high from the ground level, and the doorway space is 13ft. 10in. high by 6ft. 3in. wide. Standing, as already indicated, on grey moulded bases, the flanking pilasters rise with massive front and heavily moulded in-goes to the trusses. The doorway is of fine and uniform colour, and is to be erected in Cannon Street, London.

A meeting of the Finance Committee of the Town Council was held last week, for the purpose of considering the question of the city Architectship. The matter has been for some time under discussion. The resignation of Mr. Lynham has created a vacancy in the Surveyor's staff, and, although no finding has been come to on this matter, the feeling of the meeting was in favour of mature consideration as to the whole arrangements for carrying on the work of the department. As to the city Architectship, the Committee, whilst deferring a final decision, practically agreed to establish a separate department for the discharge of all the Architectural work failing to be performed under the present arrangement with Mr. Rust. The official to be appointed to take charge of the work would be solely the servant of the Council. The whole question was thereupon adjourned for reconsideration to a meeting to be held on August 13th.

BARNESLEY.—At the meeting of the Barnesley Board of Guardians on the 27th inst., Mr. E. Batley in the chair, discussion took place with reference to the proposed new imbecile wards. Mr. Richmond made a proposition rescinding the resolution adopting the plans and estimates. Mr. Littlewood seconded. The Rev. E. J. Saxton referred to the recent decision of the West Riding County Council to provide accommodation for all classes of imbeciles, and he pointed out that if the Board built the new wards it would also have to pay to the general scheme. The proposition was carried.

BIRKENHEAD.—The foundation-stone of a Liberal club which is being erected in Duke Street, Birkenhead, was laid a few days since. The building will contain an assembly room on the first floor, capable of accommodating 400 people, while on the ground floor there will be a smoke-room, billiard-room, committee-room, &c. The Architect is Mr. T. Taliesen Rees,



and the contract is being carried out by Mr. George Snape.

**BLACKHEATH.**—The foundation-stone of new schools, which are being erected at Gorsty Hill, by the firm of Messrs. Lloyd and Lloyd, Coombs Wood Tube Works, was laid a few days ago. The schools, which will be so constructed that they can be used as a Mission Church, are in connection with St. Paul's parish, Blackheath. Messrs. Prothero and Phillpott, of Cheltenham, are the Architects. It is expected that the building will be completed about March next.

**BLACKHILL.**—On Saturday week the new Primitive Methodist Church and schools in Park Road, Blackhill, were opened by the Mayor of Newcastle. The total cost of the building (exclusive of the site), is about £3000, about £2000 of which has already been raised. The premises are erected at the foot of Park Road, and the exterior presents a very handsome appearance, the front of the buildings overlooking the Park. The Church, which will seat 600 people, measures 67ft. long by 43ft. wide, its height from floor to ceiling being 31ft. In the schoolroom adjoining there is provision for 400 children. The designs were prepared by Mr. George Race, C.S., of Westgate, Weardale, and the work carried out under his supervision. Mr. Wm. Whitfield, of Elm Park, Medomsley, was the main contractor; the joiner work was done by Mr. Race; plumbing, Mr. L. Unwin, Shotley Bridge; painting, &c., Mr. Surtees Leslie, Shotley Bridge; and the plastering, cementing, &c., Mr. David Ormerod, Blackhill.

**BLACKPOOL.**—The Architect's report on the condition of the tower and buildings after the recent outbreak of fire states that no damage has been done to the main structure or entertainment portion of the buildings, the fire having been confined to the three landings above the 380ft. platform, where certain wood-work has been destroyed, and where the heat fused the cables, causing the two balance weights to fall. There is not the slightest need for fear, as the tower and buildings are in as stable a condition as when they were built.

**BOOTON.**—It has been decided to erect new Wesleyan Sunday Schools, with class-rooms, reading-room, and central hall for public meetings, at a cost of £2000. Messrs. Gelder and Kitchin, of Hull, are the Architects.

**CARDIFF.**—At a recent meeting of the Cardiff Town Hall Committee, a letter was read from Mr. Alfred Waterhouse, R.A., expressing his willingness to act as Architectural assessor in the competition for designs for the new Town Hall on being paid a fee of 300 guineas. Mr. Waterhouse suggested that it was undesirable that the proposed five per cent. commission to be received by the successful competitor should include travelling expenses. Every inducement, he said, should be afforded to the Architect to devote as much time as possible for personal supervision of the building operations, and nothing should be done to handicap the ablest Architects obtainable in the country. —It was resolved, on the motion of Mr. Robinson, seconded by Mr. Buist, that Mr. Waterhouse's services be accepted at the remuneration named by him. —The committee also accepted Mr. Waterhouse's suggestion that the successful Architect's commission of five per cent. should not include travelling expenses. Mr. Waterhouse also stated that the time for receiving designs should be extended, and the committee resolved that the plans should be in by December 4th, instead of October 31st, as previously proposed.

**CHESTERFIELD.**—At the monthly meeting of the School Board the Chairman read the report received from the Architect to the Education Department respecting the 21 sets of competitive plans for a new school to be constructed in Durrant Road, which had been submitted to the Department. The report stated that the estimates ranged from £4500 to £15,000. The former was as inadequate as

the latter was extravagant, and the Architect to the Department did not consider that any one of the plans represented a building which the Board could regard as satisfactory if carried out. He considered the plan sent in from Houston and Houston, London, to be the best of those submitted, and he placed Hall, Cooper, and Davis, Scarborough, as the second best. It was decided that the premiums of £20 and £10 respectively offered for the first and second best sets of the plans submitted should be paid to these firms.

**COLCHESTER.**—Lexden Church, Colchester, was re-opened on Sunday week after the renovation of the nave. Some time ago a new chancel was built, and in order to make the interior of the building as harmonious as possible, the work of re-seating and decorating the nave, as well as lowering and relaying the flooring, was a short time since entrusted to Mr. E. Beaumont, of Lexden. The nave is now seated with oak pews, the ends of which, abutting on the aisles, are chastely carved in patterns copied from standard antique examples, and the whole floor of the nave has been lowered 6in. and laid with wood blocks. The side aisles, which are also a new feature, and the back of the Church, as well as the porch, have now been floored with red and black tiles. The wooden panelling which forms a dado at the sides of the nave has been decorated with a quiet ecclesiastical pattern. To the font have been added a handsome base, floor, and steps, in various rich marbles. Carved stone, supporting figures of angels, has been added to the chancel arches, as well as some other carving.

**CORK.**—A new Church built in connection with St. Vincent's Convent, Sisters of Charity, St. Mary's Road, was dedicated a few days ago. The Church, which is of the early style of English Architecture, comprises nave, aisles, and side chapels, and two sacristies. The total length is 75ft. by 52ft. An arcade dividing the nave from the aisles is supported by highly polished pillars of red granite, having ornamental caps and moulded bases of Portland stone, and it is richly decorated; height from floor to ceiling, 45ft. The sanctuary is laid with marble mosaic, richly coloured, and the high altar is richly carved. The work has been carried out by Messrs. E. and P. O'Flynn, builders, Cork, from the designs of Mr. W. H. Byrne, Architect, 24, Suffolk Street, Dublin.

**EDINBURGH.**—A new memorial Church is being erected in Edinburgh. The Church is of the truncated cross form, the end of the longer arm pointing to the Ayr Road. The elevation has a central high-pointed gable finished with an ornamental cross, with a buttressed tower surmounted by a spire on one side and a smaller gable relieved by buttresses terminating in ornamental pinnacles on the other side. The main entrance door is in the centre of the front gable, and will be approached by a flight of steps. It will have on either side lancet-headed windows for lighting the corridor. The front gable is pierced by two two-light large windows filled with arched tracery, while above these is a large circular window with moulded flowing tracery. The tower and spire rise to a height of 140 feet, and the angle buttresses of tower terminate in moulded pinnacles with finials and carved crockets. The side elevations will be pierced by large four-light and three-light windows filled with mullions and tracery work. The style of Architecture adopted is the decorated or ornamental Gothic, and the flowing window tracery partakes somewhat of the Flamboyant style. Internally the Church will have a front entrance corridor 8½ft. wide, at one end of which is placed the session-room, with classroom above, while the tower at the other end contains the gallery stair, with side entrance door. The nave will be 44ft. wide and the transepts 52ft., with a length from front corridor to back wall of apse of 68ft. The back wall will be broken up by an opening 27ft. wide, beyond which will be placed a raised platform containing the pulpit and elders' seat; and still farther back there is to be

an apse, which will provide accommodation for organ and choir. The Church will be seated for about 500. Behind the Church there will be a hall which will hold 150, and the minister's vestry. The roof of the Church will be lined with pitch pine, and will be open to the collar beam, and the pews will also be of pitch pine, with moulded ornamental ends. The Church and hall, &c., will be heated by hot-water pipes, and will be ventilated at the ridge. The Architect for the buildings is Mr. D. Menzies, York Place, Edinburgh. The contractors are all local firms, Mr. Richmond being the builder.

**FALMOUTH.**—The Falmouth Town Council recently met to consider the embankment and the extension of Market Strand pier, according to a plan proposed by the borough surveyor, at an estimated cost of £3900. Dr. Banks proposed that the scheme be approved. —Mr. F. J. Bowles, seconding, remarked that the embankment scheme was about eighty years old. This was the most sensible scheme that had ever been before the Council. —Mr. Liddicoat objected to the proposal because it did not extend to Fish Strand. —The motion was carried.

**HEELEY.**—The laying of the memorial stones of the new Church for St. Peter's Mission took place a few days ago. The Church, beneath which there will be a school, will in design be a mixture of Tudor and Gothic. Mr. J. W. Gillott is the Architect, and Mr. J. D. Cook the contractor. The Church will accommodate 800, and the schools about 1000. Including the cost of demolishing the old buildings, the purchasing of the new site, and the renovation of the organ, the scheme represents an outlay of £2200, towards which about £1000 has been secured. The school will be occupied about September, and the chapel will be completed as soon after as possible.

**KILLIN, PERTSHIRE.**—The Sewage and Sewage Disposal Works which have been in construction during a year past are now completed. The town has been re-sewered throughout, and these are provided with man-holes, flushing tanks, and all the most recent improvements in sanitary practice. The sewage is treated by the "International" process, and the installation is erected in the park land owned by Lord Breadalbane, and situated south of the Killin Railway. The sewers are designed to deliver their contents by gravitation only, and every advantage has been taken of the ground for this purpose. The effluent passes in an open concrete channel into outfall pipes leading below the grazing land into Loch Tay. Great satisfaction is felt at the successful result of these works, which are the first of their kind in the West of Scotland. The construction and design is of a model character. The tank is of brick, and fitted with Candy's sludge-lifting apparatus, and the various treatment chambers and the filter cases are constructed of concrete. The completion was commemorated by a ceremonial on Friday last, when the Works were formally declared open by the Convener of the County, Colonel Hope Drummond. The whole scheme has been designed and carried out by Mr. Woulf Brennan, C.E., of Oban, whose plans were preferentially selected by the District Committee of the County Council. The contractor was Mr. Bremner, of Fortingall, Aberfeldy, and Mr. R. Cameron, of Edinburgh, was the Clerk of Works.

**LEEDS.**—The Streets and Sewerage Committee of the Leeds Corporation has decided, subject to the consent of the Council, to widen Meadow Road to 60ft. from Great Wilson Street as far as the end of Water Lane. The Council will be asked to purchase the necessary land. A memorial was received from the tenants and owners of property in Lower Brunswick Street objecting to any proposal to block up the higher end of the street, which would have the effect of preventing easy access to North Street. The Committee informed the memorialists that there was no intention at present of blocking up the street, and promised that if any such step were contemplated in the



future they should have an opportunity of being heard on the subject.—The Building Clauses Committee of the Leeds City Council has sanctioned plans for the erection of a large wooden shed on the Engineers' Drill Ground off Camp Road, in which to hold the next Leeds Cattle Show. The edifice is to be constructed as quickly as possible, so that meetings in connection with the forthcoming Sanitary Congress may be held there. The proposals of the promoters were sanctioned subject to the improvement of the sanitary arrangements, and the provision of better exits in case of fire or panic.

LEICESTER.—The new Jewish synagogue in Highfield Street was opened recently. The lobby is reached through a semi-circular headed doorway, well recessed and of bold proportions, and from which is the entrance to the synagogue, the proportions of which are about 34ft. by 38ft. The synagogue has a semi-octagonal end, through which a recess has been placed to contain the Ark and Tablets with the Commandments. The pulpit is placed on the north-east side of the building, close to the wall, the reading desk being centrally placed. Seating on the ground floor will be provided for seventy-five. Revolving shutters cut off a school-room under the gallery adapted to accommodate seventy children, and when required this space is intended to be utilised as an extension of the synagogue, the accommodation being thus increased by more than fifty seats. In the gallery seats will be provided for seventy ladies. By an ingenious arrangement each seat will form the lid of a box, which will afford a receptacle for books, &c. It is proposed to heat the building by steam coils, and the electric current will be adopted for installation.

LEITH.—At Leith Dean of Guild Court Messrs. Pattisons, Limited, successfully applied for warrant to erect a warehouse nine stories in height at Bonnington. Messrs. Pattisons have recently acquired the old sugar refinery at Bonnington for the purpose of extending their storage accommodation. The old buildings are being partly demolished, and partly converted into bonded stores. In addition to the existing buildings, the firm is erecting a new bonded warehouse. The new building, which stands on the banks of the Water of Leith, has a railway siding running into it from the Leith branch of the North British Railway, and is 190ft. long by 180ft., and is nine stories high. The height from the foundations is close upon 100ft. The floorage area is 6½ acres. It is entirely built of brick, and there will be about one million and a half of bricks used in its construction. The interior, having to bear great weights, is entirely constructed with steel standards and steel beams, the old cast iron construction of bonded warehouses being abandoned. The Architects for the new building are Messrs. George Beattie and Son, of George Street, Edinburgh.

LIVERPOOL.—It is intended to carry out important alterations at the Liverpool Baths, and also provide new establishments for the rapidly increasing number of bathers. The Westminster Road baths have been improved in several respects—the second-class plunge has been renovated by means of clear tiles, and the first-class plunge has also been put in order. For gala purposes this north-east-end bath possesses features which will commend itself to the swimming fraternity on account of the increased length for competitions—100ft., as against 89ft. in the old days of competition. It is proposed to make similar improvements at the Lodge Lane establishment, where the second-class bath will be improved in length from 63ft. to 75ft., and other alterations in the direction of securing a bath for championships are contemplated, at a cost of £4000.

LONDON.—On a corner site at the junction of Carmelite Street, and Tallis Street, facing towards the Embankment, a building in the modern Renaissance style has just been erected for the National Press Agency. The material

used for the frontage is a rich red-coloured brick, with dressings of warm terra-cotta. Flanking the curve at the corner of the street, which contains the main entrance, are two towers surmounted with domes. The ornamental terra-cotta columns and archway which form the entrance support an oriel window. On the first floor is a series of circular bay windows, and on the third floor an arcade crowned with a handsome cornice. The trade entrance is in Carmelite Street, and from this a fireproof staircase leads to the upper stories. All the floors are of steel and concrete, and the columns are protected against fire, whilst hydrants are placed upon every floor, and all the windows facing the adjoining premises are protected with rolled steel shutters. The building is fitted throughout with the electric light, and great attention has been paid to the sanitary arrangements. The Architect is Mr. Edwin T. Hall, of Moorgate Street, while the contractor is Mr. Howell J. Williams, of Bermondsey.

NAIRN.—The new Church has now been opened. The site is very central and convenient at the corner of Seabank Road, at the west end of Nairn, and the edifice has been erected at a cost of £9000. The style of Architecture is of the Early English transitional period, and the plans were prepared by Mr. Stanniforth, Edinburgh. Its main external feature is a massive square tower about 100ft. high, in which is the main entrance. On either side of the main tower are two smaller towers, which give access to the galleries. Two large gables on either side give massiveness and beauty to the structure. The stone used is the old red sandstone of the district, and where the masonry is plain it consists of bold hammer-dressed rubble, which looks exceedingly well. The interior of the Church is transeptal in design, but has the unique feature of being really circular in form. Two memorial windows have been presented to the Church.

SCARBOROUGH.—The tenders for the work of constructing the proposed new Congregational Church in the North-West Ward at Scarborough, have been decided upon. The Church alone will be proceeded with at present. The initial seating accommodation will be for 500.

SOUTH SHIELDS.—The foundation stone of the new building for the South Shields Unionist Club Company was laid on the 28th ult. The new building will be erected from the designs of Mr. J. H. Morton. It will be four stories in height, with a frontage of 40ft. and a depth of 55ft. The general design of the façade is elaborate and handsome. On the ground floor there will be a large entrance hall, reading room, and smoke room 42ft. long. The first floor of the building will be utilised for the billiard-rooms. The building throughout will be lighted by electricity. Mr. W. J. Robertson, of South Shields, is the contractor.

STONEHAVEN.—The new hall, presented by Mr. William Mowat, View Mount, Stonehaven, to the Free Church, occupies a site adjacent to the Church on the west side. The hall externally has a neat appearance. The hall is 64ft. by 30ft., the roof being 15ft. high. Ample light is provided by side windows, filled with cathedral or obscured glass, and by an artistic window in the west gable. From the south-west corner of the hall a door leads to the session-house, an apartment 17ft. by 18ft. The wood fittings of the building are all of dark stained oak. The total cost of the building, the Architect of which was Mr. George Coutts, Aberdeen, was about £1000.

THIRSK.—Thirsk Parish Church, which was restored internally about eighteen years ago, is in need of considerable work on the outside of the fabric. This need was fully recognised at that time, but the work was reluctantly delayed owing to lack of funds. In various directions, notably in the windows of the south side, the stonework has wasted, and in order to prevent the building from further decay it became necessary to undertake extensive

repairs. The cost has been estimated by the Architect, Mr. Hodgson Fowler, of Durham, at £1250, and the work of restoration has already been commenced. In the report of his inspection of the Church the Architect says that "built as the Church is, of a soft stone, it is wonderful how well, on the whole, it has stood; but undoubtedly very considerable portions of it are now in such a state of dilapidation that, if suffered to continue, the decay would increase more rapidly every year."

TODMORDEN.—Todmorden new Liberal Club has now been formally opened. The new premises are very conveniently situated, and before being adapted for a club, and prior to the building of the Town Hall, were used as the County Court. They have a frontage on the main street, right in the centre of the town, and it is safe to say that few provincial towns of lesser importance can boast so commodious and handsomely furnished a club. The large billiard room is fitted with three tables, and the building also includes reading, conversation, and committee rooms.

TORQUAY.—New Church Schools were recently opened at Upton, which have been erected by the Torquay Elementary Church Schools Union, to avoid the formation of a School Board for the borough. Situated at the bottom of Mudge's Hill, close to St. James's Mission House, the schools provide accommodation for 300 children, and comprise three class-rooms, the largest being 86ft. long by 24ft. wide, and 24ft. high. Well ventilated, with ample cloak-room and other accommodation, the buildings are of local brick with Bath and Limestone dressings. Intended for use as a mixed school, the boys, girls, and infants can be separated, but the playground is very limited. Erected by Mr. S. G. Trethewey from designs by Mr. Edward Richards, Manor Architect, the total cost is about £2800, the contract being for £2185. Towards this £570 has been raised, and £1580 guaranteed.

WAKEFIELD.—Sir Edward Green, Bart., opened a large Board School in Wakefield on the 23rd ult. The building, which is in Ings Road, has cost about £14,500, and accommodation has been provided for 600 children, while provision can be made for 240 more. The furnishing has been executed by Messrs. Illingworth and Ingham, of Leeds; the electric light fittings are the work of Mr. Edmondson, of Leeds; and the warming and ventilating arrangements are by Mr. W. Key, of Glasgow. The school was designed and the works have been carried out under the direction of Messrs. W. and D. Thornton, of Wakefield and Dewsbury. Messrs. Denholme and Co. have executed the masons and bricklayers' work, and Mr. John Lloyd the carpenter and joiners' work.

WORCESTER.—A special meeting of the city council was held recently to receive a report of the water and Sewerage Committee upon the question of the disposal of the city's sewage. The Committee reported that it had had an interview with Messrs. Beesley and Sons with regard to their scheme, which was awarded first prize in the recent competition, and recommended its acceptance, if the Local Government Board's sanction to a loan of £48,000 could be obtained. The recommendation was carried, with the substitution of £52,000 for £48,000.

YARMOUTH.—A revolving observation tower has just been opened at Great Yarmouth. It is a hexagonal structure of open ironwork, upwards 120ft. in height, resting on solid concrete, and, it is the first of the kind erected in this country. The great novelty is the external car, with its moving platform, accommodating 150 persons. The car ascends, and the platform revolves by steam power, affording magnificent views on every side. At the base of the tower, and surrounding the enclosed machinery, is a spacious pavilion, containing a refreshment buffet and shops. The tower and its associated buildings have cost over £5000.



## SOCIETY MEETINGS.

**Shropshire Archaeological and Natural History Society.**—The annual excursion of the members of this Society was held under the guidance of the Rev. T. Auden, F.S.A., Chairman of the Council, with the assistance of Mr. F. Goynes, secretary, to Brown Clee Hill, with the special object of visiting Abdon Burf. At Cleobury North they visited the Church, which possesses an Early English chancel arch of peculiar proportions, with corresponding arches forming a south aisle, and a font of the same, or possibly earlier, date. There is also a good screen of Perpendicular woodwork, which now encloses the font, and there is besides some good woodwork of a later period, especially the pulpit, which bears the date 1628. On Abdon Burf, the Rev. T. Auden read a short paper, in which he pointed out that it was a pre-Roman settlement, probably belonging to neolithic times, the round depressions in the soil marking the pit dwellings of its early inhabitants, and the stone circles being probably associated with worship. He concluded that Abdon Burf owed its origin to the non-Aryan dolicho-cephalic race of swarthy complexion, known as Iberians, whose descendants were the Silures, who, in that region, gave so much trouble to the Roman forces under Ostorius Scapula. This paper was followed by a short address from the Rev. A. Thursby-Pelham.

**Bradford Historical and Antiquarian Society.**—The members of the Bradford Historical and Antiquarian Society recently had an excursion to Barwick-in-Elmet and Aberford. The party was met at the Church by the Rev. C. P. Morris, who described the various objects of interest in and about the building. The present tower of the Church dates from the fifteenth century, and is built of two kinds of stone—the lower portion of magnesian limestone and the upper of sandstone, giving the tower a somewhat piebald appearance. That an earlier Church than this existed is proved by the fact that the first rector mentioned was Rad de Bodeham, in 1235. The remains of what has evidently been part of a Saxon Church are still to be seen in the present building. The Church contains some beautiful stained-glass windows in memory of some members of the Vavassour family. After viewing the Church the party proceeded to the Wall Tower Hill, from which a splendid view westward was obtained. Mr. Morris described the old British earthworks, which are very extensive, and are in a good state of preservation.

**Institution of Mechanical Engineers.** The proceedings of the Jubilee meeting of the Institution of Mechanical Engineers were resumed at Birmingham on the 27th ult., but only half the day was devoted to business, the afternoon being spent in visiting various places of interest. Mr. E. Windsor Richards again presided over the morning sitting. Mr. Alfred Morcom read a paper upon "High Speed Self-Lubricating Steam Engines." A technical discussion occupied the meeting until midday, and the reading of the other papers which had been prepared was deferred until a subsequent meeting. In the afternoon various works in Birmingham, and at Wolverhampton, Dudley Port, and Oldbury were visited. Stratford-on-Avon, Leamington, Coventry, Warwick, and Rugby were amongst the places visited at the end of last week.

The Westminster Vestry has decided to take up the wood pavement in Victoria Street, Milbank Street, and Chapter Street, and to relay those thoroughfares with compressed asphalt. The work is to be carried out by the Limmer Asphalt Paving Company (Limited), of 2, Moorgate Street.

The Commissioners of Northern Lighthouses are now inviting tenders for the erection of a light tower, engine-house for fog signal, and dwelling houses for the principal and assistant lightkeepers on the Blackhead, a bold promontory about two and a half miles north of Portpatrick Harbour, on the west coast of the Irish Channel.

## Trade and Craft.

## AN IMPORTANT POINT TO CONTRACTORS.

The House of Lords last week delivered judgment in the case of the Kent County Council v. Lord Gerard, which raised the question who was liable to compensate the County Council for damages to roads by extraordinary traffic. Lord Gerard was rebuilding his mansion at Eastwell Park, and large quantities of building and other materials were hauled there by traction engines, considerable damage being done to the roads. The County Council claimed that Lord Gerard was liable, but he maintained that if anyone was liable it was the contractors. The magistrates before whom the case first came held the respondent was liable. The Quarter Sessions reversed this decision, but on appeal the Queen's Bench Division reversed the judgment of the Quarter Sessions, and, again, the Court of Appeal reversed the decision of the Queen's Bench. Their Lordships affirmed the judgment of the Court of Appeal, holding that Lord Gerard was not liable.

## BUILDING LAND IN THE CITY.

The Commissioners of Sewers have recently sold a large area of vacant land in Monument and Widegate Streets at excellent prices. The building land in Monument Street, with frontages amounting in the aggregate to 435ft., and a total area of about 10,700 square feet, has been nearly all disposed of. Lot 19, having a frontage of 19ft. and a superficial area of 560ft., and lot 20, having a frontage of 25ft. and a superficial area of 460 square feet, sold for £3500, and lot 36, having a frontage of 19ft. 6in., and containing an area of 420ft., fetched £1400. Five lots were disposed of by private contract for £14,000, leaving only five portions of land in the street unsold. The various lots which have been recently offered for sale in Widegate Street possessed a total frontage of 500ft., and contained in all an area of about 9634 square feet. Several of the best portions were disposed of by private treaty for £5435, while others realised £3900. There now remains only one lot unsold, a small piece of land on the south side of the street.

## THE WALTHAM ENGINEERING COMPANY.

The beauty of the designs in Ormolu which the French nation of the last two centuries has bequeathed to posterity is well known, and to those who admire it most we would recommend the latest catalogue of Art metal work of the Waltham Engineering Company. To such it will prove a work of seductive interest, for therein are illustrations of almost every form of design of fittings in Ormolu which the eighteenth and nineteenth century designers of France produced. The styles distinctly peculiar to Louis XIII., XIV., XV., XVI., have all examples included, for it must be borne in mind, that in those days a change in King or Constitution meant a change in Art. Special care has been bestowed by the Waltham Engineering Company upon the accurate copying of the original models preserved at the present day in the public museums of France, and the work of adapting and manufacturing candle lights, the Company has entrusted exclusively to its Paris works, by which means a greater purity of style, and more exquisite finish are obtained. In addition to the many designs in Ormolu of gas brackets, pendants, candelabra, and the like, some pretty patterns of chased door and switch plates are also shown, whilst there is considerable variety in fittings in wrought iron, brass, and copper. And beauty of design is here equally conspicuous. Although it is in wrought iron work that ample indication of the progress of Art on the Continent during the Middle Ages can be found, and although some of the finest examples of smiths' work ever produced came from Germany at that time, it is pleasing to note that many of the most original and beautiful designs illustrated in the Waltham Engineering Company's catalogue had their origin in our own country. The demand for cheap and simple forms of electric light fittings has also claimed the Company's earnest atten-

tion. And whilst the greatest economy has been practised, mechanical soundness has at the same time been preserved.

## THE KEY METHOD OF VENTILATION.

Key's plenary method of mechanical ventilation and warming possesses many points of novelty and efficacy which lay claim to the general attention, and the thorough application of the system throughout the buildings of the Birmingham General Hospital, opened in July by the Princess Christian, is only one of the many pronounced successes won by Mr. William Key's novel system. Air is drawn from a point where it is of undoubted purity, and passes through an outer warming coil and then through the air filtering, air washing, and humidifying screen, which becomes in no way unclean or insanitary. Water which has become polluted by impurities is not used over and over again. Air is afterwards warmed by contact with coils clustered in batteries within the air-warming chamber, and a reduction in temperature is easily obtainable by the admission of filtered cold air through the bye-pass doors. Pure air entering a room is directed to the ceiling, and the air which is being continuously forced out of the room passes off at the floor level, and is led to roof ventilators, where the outlet air valves are so constructed as to place the whole air within the building under a pressure of about four ounces per square foot in excess of the outside atmospheric pressure of the time. Unaffected by the outside elements, therefore, a room or building ventilated on the Key system has incessantly a passage of air from ceiling to floor—a system of ventilation which, for purity and perfect arrangement, is equally meritorious. It certainly is a very efficient method for Churches and public buildings generally, with pure air warmed or cooled at will.

## THE COST OF LONDON SCHOOLS.

The sixth annual report of the Works Committee of the London School Board has just been published. During the year ended March 25 the Board agreed to purchase various interests and sites, at a cost of £116,561 13s., the surveyor's fees, &c., agreed to at the time of purchase amounting to £659 19s. 6d., the value of all sites purchased, or agreed to be purchased, previous to March 25, 1896, was £3,105,850 9s. 11d., and costs, £429,961 5s. 9d. The total cost, therefore, of the sites purchased up to the year under review was £3,222,412 2s. 11d., and costs, £430,621 5s. 3d. On March 25 last the following was the amount of school accommodation in course of provision: Eighteen schools were in course of erection, providing accommodation for 19,013 children; and nine enlargements were in course of erection to accommodate 3521 children. Thirty-two additional sites for new schools had been or were to be purchased. The schools to be erected on twenty of these sites would provide accommodation for 17,920 children. In the case of the remaining twelve sites the accommodation to be provided had not yet been determined. Ten sites for new schools had been scheduled in the season 1896-7. The schools to be erected on five of these sites would provide accommodation for 4185 children. In the case of the remaining five sites the accommodation to be provided has not yet been determined. Twenty-four enlargements of schools had been sanctioned by the Education Department or the Board, for which tenders had not been accepted, providing accommodation for 8075 children. The Education Department has also sanctioned the provision of sites in five districts (which would be scheduled next season). The school to be erected on one of these sites would provide accommodation for 800 children. In the case of the remaining four sites the accommodation to be provided had not yet been determined. Although we understand that the report is considered a satisfactory one, for our part we think a great deal of money is wasted on the purchase of valuable sites when less expensive ones would answer the purpose. It is another case of spending other people's cash.



## A SANITARY AUTHORITY OVER-ruLED.

The case of Wood v. Mayor of Widnes was tried in the Queen's Bench Division last week. The appellant was the owner of certain houses, 52 to 68, Terrace Road, Widnes. At a petty sessions holden at Widnes a complaint was preferred against him by the respondents under section 36 of the Public Health Act, 1875, claiming payment of certain private improvement expenses in respect of slop water-closets fixed at the appellant's houses. The justices adjudged that the respondents should recover the sum claimed. The facts were as follows:—On Feb. 12th, 1895, the respondents, who were the urban sanitary authority for the borough of Widnes, confirmed the following resolution of the Health Committee: "Waste water-closet system. Resolved—That in all future cases of nuisances requiring the reconstruction of privies and ashpits the local authority of this borough do, as far as practicable, order that such privies and ashpits be converted into the waste water-closet system, or into such other water-closet system as the local authority may from time to time approve, and that the Highway Committee be requested to take such steps for the adoption of the first-named system generally throughout the borough." On March 22, 1895, the respondents' inspector of nuisances served upon the appellant a notice requiring the appellant to abate a nuisance at his premises, 52 to 68, Terrace Road, by converting the privies into water-closets. On April 3 the inspector reported that certain houses in the borough, including the appellant's, were without a sufficient water-closet, earth-closet, or privy, and on April 9 the respondents confirmed a resolution of the Health Committee that notice be served upon the appellant and the other owners of the houses, requiring them to provide sufficient privy and ashpit upon the waste water-closet system approved by the Corporation. On April 23 notice was served upon the appellant in accordance with the terms of this resolution, and the notice not having been complied with, the respondents did the necessary work, and then took these proceedings to recover the amount. It was contended for the appellant that the resolution of February 12th and the subsequent proceedings thereunder were invalid. The question of law for the opinion of the Court was whether the resolution of February 12th was valid, or, if not, whether it invalidated the subsequent proceedings. — Mr. C. A. Russell, Q.C., for the appellant, contended that the respondents could only require an owner to provide a sufficient water-closet or privy. They were attempting to enforce in every case the substitution of a particular kind of water-closet, viz., the slop water-closet, for privies. There was no power to do that, and the proceedings were invalid. — Mr. McCall, Q.C., for the respondents, contended that it had been decided in many cases that a sanitary authority could substitute water-closets for privies. — The Court allowed the appeal. — Mr. Justice Lawrence said that it was contended for the appellant that the respondents had, by the resolution of 12th February, adopted a general rule that a particular kind of water-closet was to be used, and that this rule was to be applied in all cases, without any regard to the particular requirements of individual houses. In his Lordship's judgment the local authority was not entitled to do that. They must inquire into each case, and, although it was not disputed that in every case they could require a water-closet to be substituted for a privy, they were not entitled to say that only one particular kind of water-closet should be used. Section 36 of the Public Health Act, 1875, used the expression a "sufficient" water-closet, and that was all that the local authority was entitled to demand. In his Lordship's opinion the resolution of 12th February and the subsequent proceedings were invalid, and the appeal must be allowed. — Mr. Justice Ridley concurred.

## NEW BRIDGE OVER THE LEA.

The opening of the new bridge over the Lea was celebrated at Clapton a day or two ago.

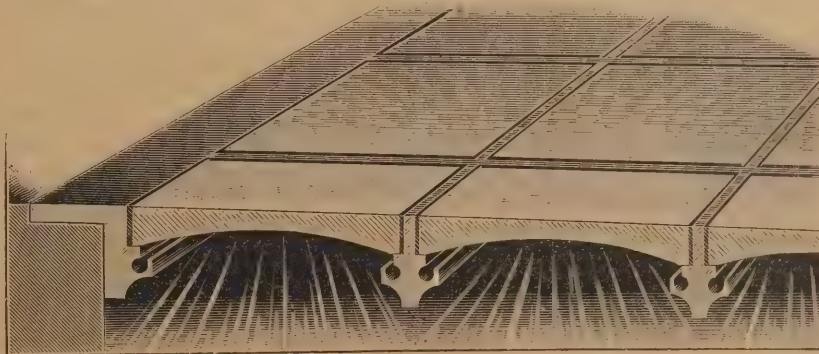
The structure takes the place of the one erected on the site in the latter part of the last century, and carries the Lea Bridge Road over the river, joining the County of London with that of Essex. It has been built by the London County Council, in conjunction with the Lea Conservancy Board, the Essex County Council, and the Leyton and Walthamstow Tramway Company, the total cost being £8399. By the use of a central girder, the road has been divided into two parts, giving 16ft. on either side, sufficient for two lines of traffic. The Chairman of the Bridges Committee of the London County Council said the task was not an easy one, as the Lea Conservancy wanted the bridge raised, while the Tramway Company and those who were proprietors of vehicles objected to a steep ascent. The problem had been very happily solved by Sir A. Binnie, the chief engineer of the London County Council, by means of the large girder, with access to the lower part. When it had constructed the proposed foot tunnel at Greenwich, and another large tunnel between Shadwell and Rotherhithe, he thought the London County Council would have done very well for the interests of traffic in East London.

## LIABILITY FOR ROAD REPAIRS.

At the Amersham (Buckinghamshire) Petty Sessions a case of importance to local authorities and others was heard. The Chesham Urban District Council claimed from Mr. B. Barnett, of Henrietta Street, Covent Garden, the payment of the sum of £117 4s. as extraordinary expenses incurred in repairing a portion of the highway within its district, by reason of the damage caused to it by excessive weight passing along the same, or extraordinary traffic thereon. The defendant, who trades under the style or firm of the Bellingdon Brick Company, hauls his bricks by means of traction engines and trucks, and these were alleged to have damaged the road to the extent named. The defence was that this particular road was never properly made by the Council before the haulage began, and that last winter's abnormal rainfall must be taken into account. Fifty pounds were offered in settlement of the claim. The magistrates awarded the Council £83 17s., reserving the question of costs.

## MESSRS. WILSON AND CO.

We have recently had an opportunity of inspecting Messrs. Wilson and Co.'s patent Dripless Roof Lights, at the head office of the North British and Mercantile Insurance Company, in Threadneedle Street, City. Wilson's Dripless Roof Lights are constructed to answer the purpose of a roof or skylight which is horizontal, and may be walked on.



Hitherto, the objection in using roof lights of the ordinary description has been the collection of a large amount of condensation, which drips incessantly. This moisture is, by Wilson and Co.'s patent shaped lenses, made to run to the sides of the lenses, and fall into a gutter formed in bars which collect this moisture, as seen by a section of the lenses in the frame shown in our illustration. The North British Insurance Company has been considerably enlarging its extensive premises in the rear by the erection of two blocks of buildings, with a space about 50ft. by 16ft. between the two buildings, and it is this space which Messrs. Wilson and Company have covered with

their patent roof lights, under the direction of Mr. Sheppard, the Surveyor to the North British Company. The whole of the ground floor is therefore all one large room, lighted in the centre by this ornamental horizontal roof light, consisting of fourteen large moulded cast-iron frames, filled with the patent fluit glass concave lenses, 9½in. by 9½in. square, each of the fourteen frames containing forty-nine lenses having a floral design, whilst the frame-work is enamelled white and gold with aluminium rosettes at the corner of each of the square lenses. In addition to this large ceiling light, the directors have had all the old-fashioned skylights and lead flats taken out, and Wilson's patent horizontal lights substituted. We are informed that the first cost of these lights is not more than the usual lantern and ceiling lights, and that the cost of maintenance is nil — and this with the great addition of light obtained by carrying the glass line close to the walls on all sides, dispensing with the lead gutters usually met with. The high-class appearance and pleasing efficacy of this work fully explains the popularity of Messrs. Wilson's patents. The Company's address is 24, Harrison Street, Gray's Inn Road, W.C.

MR. FRAMPTON'S statue of Dame Alice Owen, now in the Royal Academy, which is to be placed in the hall of the school at Islington which bears her name, will be unveiled in the early part of October.

We understand that the house built by the late Mr. Barney Barnato in Park Lane has been purchased by Sir Edward Sassoon (heir of the late Sir Albert Sassoon, of Brighton), for the sum of £100,000.

PRINCESS LOUISE, Marchioness of Lorne, last week opened the new building of the Grosvenor Hospital for Women and Children, situate in Vincent Square, Westminster. The cost of the new building is estimated at £12,000, towards which Lady Korthright has given £8000.

THE fine block of buildings at the corner of Dover Street and Piccadilly, comprising the Avondale Hotel and Restaurant, Hatchett's Restaurant (old White Horse cellars), and three shops, was offered for sale at the Mart last week, but not sold, being withdrawn at £140,000.

THE restoration of the ancient Abbey Church, Llanthony, Monmouthshire, through the munificence of Lord Llangattock, Mr. Walter Savage Landor, and others, is almost completed, and the Church will very shortly be re-opened by the Bishop of Llandaff. Mr. Spencer, of Abergavenny, is the Architect.

A NOTABLE domain was recently put up to auction and withdrawn, the highest offer,

£152,000, not reaching the reserve. This was Ditton Park, the Buckinghamshire seat of the late Dowager Duchess of Buccleuch. The mansion was rebuilt for the second time, in 1813, by Elizabeth Duchess of Buccleuch. The house still exhibits some marks of antiquity, particularly the old tower.

THE small estate of West Bangour, near Uphall, has been purchased by Mr. Addison Smith on behalf of the Edinburgh Lunacy Board at the price of £13,000. The property has been purchased for the purpose of erecting upon it a new asylum for pauper lunatics in consequence of the necessity imposed upon the Board of removing the pauper lunatics from Morningside Asylum.



## TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

**ABERTILLY (Mon.)**—For the erection of school buildings, for the Aberystwith School Board. Mr. G. Rosser, Architect, Victoria-buildings, Aberystwith. Quantities by Mr. R. L. Roberts, Holly House, Newbridge:—  
Williams & Thomas £2,355 0 J. Monks and Co. £2,146 0  
Lawson and Co. 2,190 0 C. F. Morgan 2,095 0  
Rowland and Lloyd 2,175 0 A. P. Williams, Aberystwith 2,157 0  
Jno. Jenkins 2,157 0 tillery\* 2,073 15  
\*Accepted.

**ASHTON-UNDER-LYNE**—For the construction of a brick culvert, Timperley Clough. Mr. J. T. Earnshaw, Borough Surveyor, Town Hall, Ashton-under-Lyne:—  
R. C. Fish Accepted on a schedule of prices.  
J. W. Brierley

**BEDFORD**—For the supply of 2000 tons broken granite, for the Urban Sanitary Authority. Mr. John Lund, Borough Surveyor:—

	1500 tons Per ton.	500 tons xx granite. Per ton.
	s. d.	s. d.
Wm. Grimley and Son, Sutton Bridge, near Wisbech	10 3	10 3*
J. Ford	9 6	9 6
Croft Granite, Brick, and Concrete Co.	9 0	9 4
Enderby and Stoney Stanton Granite Co., Ltd.	9 4	9 7
Narborough and Enderby Granite Quarries Co., Ltd.	9 2	9 4
W. Bassano and Co.	11 9	12 3
Fanquosan and Starkey	9 4	9 7
Whitwick Granite Co., Ltd.	9 6	9 6
Forest Rock Granite Co., Ltd.	9 3	9 3
Ellis and Everard, Ltd.	10 3*	10 9
J. E. Page	9 9	10 3

**BOURNEMOUTH**—For painting and repairing the Pavilion, &c., at the Winter Gardens, Bournemouth, with alternative tender for zinc roof, &c. Mr. F. W. Lacey, Borough Engineer and Surveyor:—

	Tender No. 1.	Tender No. 2. (including zinc roofing). extra.	Gilding
F. Walden	£335 0	£219 0	£40 0
F. T. Cutler	314 0	740 0	37 13
Jenkins and Sons*	313 0	711 0	35 0

**BRIDLINGTON**—For the erection of six houses and shop, Quay-road. Mr. S. Dyer, Architect, Bridlington Quay:—  
J. Wood £2,873 5 0 J. Sawdon £1,932 10 0  
E. Wilson 2,014 1 6 W. Barnes, Bridlington\* 1,608 0 0  
J. Rennard 1,950 0 0  
\*Accepted.

**BROWNHILLS**—For the construction of sewerage works, Walsall Wood District Sewerage, for the Urban District Council. Mr. H. Bertram Nichols, Engineer, Grosvenor-chambers, 59, Corporation-street, Birmingham:—  
J. Biggs £16,587 0 C. Tempest £14,893 9 4  
G. Law 16,282 0 0 J. Mackay 14,853 1 10  
G. Bell 15,583 10 0 W. Jones 12,001 0 0  
S. Wood 15,385 0 0 H. Holloway 11,647 0 0  
W. J. Hall 14,896 13 10 Wolverhampton\* 11,647 0 0  
\*Accepted.

**CAMBRIDGE**—For the erection of the "Red Cow" public house, shops, and offices, Guildhall-street, for Mr. Charles Armstrong, Messrs. Rowe and Scott, Architects, Park House, Cambridge. Quantities by Mr. F. T. W. Miller, 10, Delahay-street, S.W.:—  
W. Saint £23,987 W. Sindall £23,618  
Bell and Sons 3,917 F. Thoday and Co. 3,383  
Scales and Robins 3,850 P. Banyard 3,325  
Kerridge and Shaw 3,850 C. Kidman\* 3,192  
Coulson and Loftis 3,714  
\*Accepted.

**CHESTER-LE-STREET**—For the erection of kitchen buildings, &c., at the workhouse, for the Union Guardians. Messrs. J. G. and R. G. Cowe, Architects:—  
Thompson & Son £2,350 12 0 J. Oates, Pick-  
J. Jennings & Son 2,340 12 7 tree, Chester-le-  
H. Mole and Son 2,044 10 0 Street\* £1,997 15 0  
R. D. Harrison 1,999 0 0  
\*Accepted.

**CONWAY**—For the erection of market hall, armoury, &c., for the Town Council. Mr. T. B. Farrington, Borough Engineer, Municipal Offices, Conway:—  
J. Roberts £23,500 Matthews £2,950  
D. Owen 3,379 Thorpe and Sons, 2,900  
J. Hughes 3,250 Llandudno\* 2,900  
B. Jones 3,150  
\*Accepted.

**DOUGLAS (Isle of Man)**—For the erection of municipal buildings, free library, &c., for the Corporation. Mr. Arthur Ardron, Architect, 39, Victoria-street, Westminster, S.W. Quantities by Mr. Francis Miller, 10, Delahay-street, S.W.:—  
Kelly, Douglas £12,567 19 6 Brown & Back-  
Callow, Douglas 12,513 12 6 house, Liver-  
J. Henshaw and pool £11,440 0 0  
Sons, Liver-  
pool\* 12,117 0 0 Douglas 11,372 0 0  
Kelly & Preston, Gradwell & Co.  
Douglas 12,741 0 0 Barrow-in-Fur-  
Hughes & Stir- ness 10,358 0 0  
ling, Liver-  
pool\* 11,600 0 0  
\*Received too late.

**FALKIRK (N.B.)**—Accepted for the erection of a lodging-house, East Bridge-street, for the Borough Commissioners. Messrs. A. and W. Black, Architects, Falkirk:—

**Masonry and Brickwork**—J. Gardner, Falkirk £1,550 12 10  
**Joinery**—J. and A. Main, Falkirk 1,267 0 0  
**Plumbing**—R. Brown, Falkirk 490 17 5  
**Plastering**—J. Miller, Falkirk 192 0 0  
**Slating**—Drummond & Crowe, Falkirk 158 10 0  
**Heating Work**—Cormack and Sons, Glasgow 310 0 0  
**Tiling**—Kean and Wardrop, Glasgow 141 11 6  
**Glazing**—D. O'May, Falkirk 68 4 10

**GAINSBOROUGH**—For the execution of water supply works, for the Urban District Council. Mr. H. Riley, engineer, Council Offices, Gainsborough. Quantities by the engineer:—

	Contract No. 1. Cast-iron Pipes (2363 tons).	Straight Pipes per ton.	Special Castings per ton.
Stewart and Co.	£1,356 18 4	£5 14 0	£10 15 0
Birtley Iron Co.	1,380 6 3	5 12 6	9 10 0
Stavely Iron Co.	1,093 16 3	4 12 6	8 10 0
Stanton Iron Co., near Nottingham	1,067 18 0	4 12 0	8 10 0
James Oakes	1,064 5 0	4 10 0	10 0 0
[Surveyor's estimate]	1,182 10 0	5 0 0	9 0 0

**Contract No. 2. Excavating Trench.**  
Vickers, Limited £650 8 8 Benjamin Roberts, Gainsborough\* £550 0 0  
R. Hopkinson 572 19 6  
Wm. Doleman 570 10 9

[Surveyor's estimate, 1867.]  
**Contract No. 3. Reservoir.**  
Vickers, Limited £4,856 0 10 Benjamin Roberts, Gainsborough\* £3,500 0 0  
Wm. Doleman 4,547 16 4  
R. Hopkinson 3,680 19 4

[Surveyor's estimate, £3,736.]  
**GRIMSBY**—For the erection of premises, for the North-Eastern and International Trading Co., Ltd. Mr. H. C. Scapling, Architect, Court-chambers, Grimsby:—  
G. and J. Smith £2,755 10 0 J. M. Thompson  
Hewins & Good- and Sons £2,677 0 0  
hand 2,715 3 6  
H. Marrows 2,690 4 6 Levi N. Davison, 56, Wintring-ham-road\* 2,594 17 6  
\*Accepted.

**HANLEY**—For the erection of two houses, Birches Head, for Mr. C. B. Roberts. Mr. W. A. Baynes, Architect, Hanley:—  
C. Comes £655  
HANLEY—For the erection of two houses, Birches Head, for Mr. J. Morse. Mr. W. A. Baynes, Architect, Hanley:—  
H. Howlett £400

**HOLYHEAD**—For the construction of sewerage works, for the Urban District Council. Mr. F. N. Cotton, Engineer. Quantities by the Engineer:—  
W. T. Hall £1,900 0 0  
G. Bell, Corporation-street, Manchester\* 1,814 6 6  
T. J. Davies 1,800 0 0  
\*Accepted.

**HORSHAM**—For the erection of house and shops, New-street, for Mr. F. Langridge. Mr. C. H. Burston, Architect, 40, North-street, Horsham:—  
J. Hillman and Murrell £684 G. Potter, Hurst-road, Horsham\* £592  
H. Spooner 675  
\*Accepted.

**INVERNESS**—For additions, &c., to Arisaig Hotel. Mr. Dun, Cameron, Architect, Inverness:—  
W. Baird, Creagmore, Benbecula £1,520

**KNARESBOROUGH**—For the execution of street works, Cromwell-street, Pannal, for the Rural District Council. Mr. B. Annakin, Surveyor, 44, Station-square, Harrogate:—  
W. Annakin £586 F. U. Simpson, Burton M. Hall 518  
Leonard, near Leeds\* £385  
\*Accepted.

**LONDON**—For the erection of London Grove Hospital, for the Metropolitan Asylums Board. Mr. A. Hessel Tiltman, Architect, 6, John-street, Bedford-row, London:—

**Engineering Contract.**  
No. 1.—Four New Steel Lancashire Boilers.  
Leeds and Bradford Davey, Paxman, & Co. £2,501  
Boiler Co. £3,200 R. Taylor and Son 2,130  
Yates and Thom 2,460 J. Fraser and Son 1,960  
Anderson and Son 2,644

No. 2.—Steam, Hot and Cold Water Mains, Radiators, Heaters, and Heating.  
W. J. Fraser and Co. £20,943 Z. D. Berry and Son £17,450  
Purcell and Nobbs 19,784 Joel and Potter 17,357  
J. F. Clarke and Son 19,000 Wenham and Waters 16,850  
J. and F. May 16,300

No. 3.—Electric Lighting Installation: Consisting of Plant for Generation, Storage, Wiring, Fittings, &c.  
Both Combined.  
Camden and Co. £13,078 Electric and General Co. £10,705  
Fowler, Lancaster, and Co. 12,400 Brush Electrical Co. 10,312  
Sharp and Piper 12,240 T. Scott Anderson 10,150  
Pickard and Co. 11,630 Joel and Potter 9,972  
Laing, Wharton, and Down 11,100 Crampin and Co. 9,320  
Fryer and Co. 11,074 Mavor and Coulson 8,960

For One Section only.  
Wood £4,720 Holmes £4,120 to £4,890  
Middleton 7,412 Siemens Bros. 4,180  
Bates 4, Laundry Machinery and Appliances.  
Clement Jeakes & Co. £5,250 Mallett and Sons, & Co. £3,755  
Mallett and Co. 4,442 Macintosh, Meikle, Fletcher and Co. 4,200  
Joel and Potter 3,572 D. and J. Tullis 3,222  
Bradford and Co. 3,843 Goddard, Massey, and J. and F. May 3,510  
W. J. Fraser and Co. 3,792 Warner 2,850

No. 5.—Cooking Apparatus, Appliances, &c.  
Summerscales and Co. £2,450 Conyon, Ching, & Co. £1,680  
Mallett and Co. 2,023 J. F. Clarke and Son 1,660  
Joel and Potter 1,850 J. and F. May 1,420  
Hayward Bros. and Eckstein 1,802 Marwood, Sons, & Co. 1,252  
Purcell and Nobbs 1,793 J. W. Brooke 1,190  
Clement Jeakes & Co. 1,700 Goddard, Massey, and Carron Iron Works 1,680  
Warner 935

**LONDON**—For alterations and additions to the "Glen-gall Tavern," Hill-street, Peckham, S.E., for Mr. G. H. Tipping. Messrs. W. and T. Webbe, Architects, 8, Rye Hill Park, S.E.:—  
Bates and Roberts £1,179 H. Eames £291  
Roberts 1,073

**LONDON**—Accepted for the erection of two houses, Greyhound-road, Tottenham, for Mr. W. M. Jeffery. Mr. J. E. Pinder, Architect:—  
W. Hawley £540

**LONDON**—Accepted for the erection of two houses, Culross-road, Tottenham, for Mr. J. Rogers. Mr. J. E. Pinder, Architect:—  
W. Hawley £500

**LONDON**—For the erection of sub-station at Pavilion-road, for the Chelsea Electricity Supply Company, Limited. Mr. Alfred Roberts, Architect, 18, Nelson-street, Greenwich, S.E. Quantities by Architect:—  
Lole and Lightfoot £3,093 Holliday & Greenwood £2,630  
W. Mills 2,790 C. F. Kearley\* 2,439  
\*Accepted. [Architect's estimate, £2,500.]

**LONDON**—For the erection of workshops, for the Electrical Power Storage Company, Limited. Mr. Alfred Roberts, Architect, 18, Nelson-street, Greenwich, S.E.:—  
W. Mills £1,069 0 Yates and Sons 839 0  
F. Thorne 975 10 Jones and Groves 2959 0

**LONDON**—For alterations to "Star" Tavern, St. John's Wood, for Mr. James Newport. Messrs. Edward Brown and Son, Architects, Commercial-road, Bishopsgate, E.C.:—  
Building.  
Sheffield Bros. £494 J. V. Kiddle and Son\* £407  
Taperill and Davis 465 C. M. Henry 396

**LONDON**—For alterations to "Oxford Arms" inn, Cambridge-road, Bethnal Green, for the Alma Brewery, Mile End New Town. Messrs. Edward Brown and Son, Architects, Commercial-street, Bishopsgate, E.C.:—  
Building.  
J. Harris and Son £2945 Sheffield Bros. £2663  
J. V. Kiddle and Son 770 Taperill and Davis\* 636  
H. Hood 686

**LONDON**—For alterations to "Oxford Arms" inn, Cambridge-road, Bethnal Green, for the Alma Brewery, Mile End New Town. Messrs. Edward Brown and Son, Architects, Commercial-street, Bishopsgate, E.C.:—  
Gasfitting.  
Vaughan & Brown £53 J. J. Steadman\* £49 17 6  
R. Davis and Sons £43 10 P. J. Grimes and Son\* £48 0  
\*Accepted.

**LONDON**—For heating and ventilating the schools of St. George, Hanover-square, W. Mr. Philip A. Robson, Architect, 9, Bridge-street, Westminster:—  
A. M. Perkins and Co. £245 0 0 R. Crittall and Co. £245 0 0  
Son, Ltd. £463 0 0 A. Boyd and Son. 310 0 0  
Clements, Jeakes, and Co. 434 17 6 Gray, and Co. 259 0 0  
J. Jeffreys 350 0 0 Longden and Co.\* 235 0 0  
\*Accepted.

**LONDON**—For supplying heating apparatus at Ambler-road Schools (Islington), for the London School Board. Mr. T. J. Bailey, Architect:—  
Wenham & Walters, Ltd. £253 0 W. G. Cannon & Sons £520 0  
J. and F. May 546 0 Turner and Co. 501 10  
Maguire and Gatchell, Ltd. 588 12 J. Grundy 480 0  
J. C. and J. S. Ellis, Ltd.\* 420 0  
\*Recommended for acceptance.

**LONDON**—For erecting new infants' department, &c., at Bloomfield-road Schools (Plumstead), for the London School Board. Mr. T. J. Bailey, Architect:—

	Amount of Tender.	Extra amount required for building brickwork in cement.
J. Longley and Co.	£12,388	£168
W. M. Dabbs	12,237	169
Kilby and Gayford	12,139	155
E. Lawrence and Sons	12,055	157
J. Shillitoe and Son	11,350	157
J. and M. Patrick	10,452	94
G. E. Wallis and Sons*	9,847	120

**LONDON**—For supplying additional heating at the Brackenbury-road Schools (Hammersmith), for the London School Board. Mr. T. J. Bailey, Architect:—  
J. Fraser and Son £28 0 Rosser & Russell, Ltd. £24 10  
W. G. Cannon & Sons 79 15 G. Davis 50 0  
J. Grundy 72 2 J. C. & J. S. Ellis, Ltd.\* 49 0  
J. Wontner-Smith, Gray, and Co. 63 0  
\*Recommended for acceptance.

**LONDON**—For erecting new schools at Cavendish-road, Balham, for the London School Board. Mr. T. J. Bailey, Architect:—

	Amount of Tender.	Extra amount required for building brickwork in cement.
Lathey Bros.	£22,394	£150
Holloway Bros.	21,855	170
J. Shillitoe and Son	20,786	208
E. Lawrence and Sons	20,726	207
W. Shurmer	20,285	227
S. Hart	19,704	237
B. E. Nightingale	19,407	125
J. and M. Patrick	19,304	124
Stimpson and Co.*	19,150	207

**LONDON**—For erecting new school at Dee-street, St. Leonard's-road, Bromley, for the London School Board. Mr. T. J. Bailey, Architect:—

	Amount of Tender.	Amount of Tender.
W. Shurmer	£28,930	G. Munday and Sons £27,880
Kilby and Gayford	28,633	E. Lawrence and Sons 27,655
G. S. S. Williams & Son	28,497	Stimpson and Co. 27,540
W. M. Dabbs	28,397	J. and M. Patrick 27,061
J. Shillitoe and Son	28,351	G. E. Wallis & Sons* 26,631
C. Cox	28,149	

**LONDON**—For exterior painting of the East Lambeth (Fint-street) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
H. J. Williams £295 J. F. Ford £198  
W. V. Goad 238 B. E. Nightingale 157  
\*Accepted.

**LONDON**—For painting interior and exterior of the East Lambeth (Hilderton-road) Schools, for the London School Board. Mr. T. J. Bailey, Architect:—  
H. Line £398 W. Brown £350  
\*Accepted.

**LONDON**—Mannal Training Centre, &c., at East-lane (Bermondsey), for the London School Board. Mr. T. J. Bailey, Architect:—

	Amount of Tender.	Extra amount required for building brickwork in cement.
J. F. Ford	£2,576 18 16	£47 5 0
W. Akers and Co.	2,490 0 0	42 0 0
J. and M. Patrick	2,477 0 0	31 0 0
J. Smith and Sons	2,445 0 0	48 0 0
J. Garraatt and Son*	2,405 0 0	43 0 0

**LONDON**—For erecting new school at Ennersdale-road (Lewisham), for the London School Board. Mr. T. J. Bailey, Architect:—

	Amount of Tender.	Extra amount required for building brickwork in cement.
Lathey Bros.	£16,561 0	£320 0
J. Shillitoe and Son	16,554 0	287 0
W. M. Dabbs	16,500 0	290 0
W. Downs	16,468 0	345 0
E. Lawrence and Sons	16,312 0	287 0
J. and M. Patrick	16,078 6	172 0
J. Longley and Co.	15,923 0	296 0
Kirk and Randall	15,920 0	344 0
Treasure and Son	15,761 10	266 10
Stimpson and Co.*	15,441 0	266 0

**LONDON**—For interior and exterior painting of Gifford-street Schools (Finsbury), for the London School Board. Mr. T. J. Bailey, Architect:—  
McCormick and Sons £1,136 G. S. S. Williams and Stevens Bros. 1,080  
Son\* £1,078  
\*Accepted.

**LONDON**—For painting interior and exterior of Moreland-street Schools (Finsbury), for the London School Board. Mr. T. J. Bailey, Architect:—  
Vigor and Co. £743 15 A. M. Sparks £663 0  
E. Lawrence & Sonst 679 0  
\*Accepted.

**LONDON**—For boiler and hot-water supply at Gordon House Industrial Home for Girls (Isleworth), for the London School Board. Mr. T. J. Bailey, Architect:—  
J. Esson £550 0 Wenham and Waters, Ltd. 428 12  
J. Grundy 400 0 Maguire and Gatchell, Ltd. 335 0  
W. G. Cannon & Sons 379 0  
J. Fraser and Son 349 10 J. W. Brooke 238 10  
J. and F. May 335 0 G. Davis 245 0  
Dargue, Griffiths and Co., Ltd. 315 0 Gray, and Co.\* 198 0  
\*Accepted.

**LONDON**—For painting interior at Lewisham Bridge Schools, Greenwich, for the London School Board. Mr. T. J. Bailey, Architect:—  
S. J. Jerrard & Sons £513 0 C. G. Jones £229 0  
H. Leney 289 51  
\*Accepted.

**LONDON**—For painting interior of Columbia-road Schools (Hackney), for the London School Board. Mr. T. J. Bailey, Architect:—  
Barrett and Power £214 0 C. Willmott £233 3  
T. Nicholson 438 0  
\*Accepted.



LONDON.—For painting interior of Lucas-street Schools, Greenwich, for the London School Board. Mr. T. J. Bailey, Architect:—  
G. Summers ... £405 13 6 | C. G. Jones ... £282 0 0  
W. Banks ... 354 19 6 | C. S. Jones ... 250 0 0  
† Accepted.

LONDON.—For painting interior of Summerford-street Schools (Hackney), for the London School Board. Mr. T. J. Bailey, Architect:—  
C. Wilmott ... £457 10  
† Accepted.

LONDON.—For exterior painting of Tottenham-road Schools (Hackney), for the London School Board. Mr. T. J. Bailey, Architect:—  
McCormick and Sons ... £99 0 | J. Morrison ... £91 0  
J. Grover and Son ... 98 5 | † Accepted.

LONDON.—For interior painting St. John's-lane Schools (Finsbury), for the London School Board. Mr. T. J. Bailey, Architect:—  
G. S. S. Williams & Son ... £223 | A. M. Sparks ... £168  
Perkins and Co. ... 210 | F. Newton ... 140  
T. Nicholson ... 195 | W. Brown ... 129  
† Accepted.

LONDON.—Heating apparatus for Homerton-row Schools (Homerton, N.E.), for the London School Board. Mr. T. J. Bailey, Architect:—  
J. F. Clarke and Son ... £800 0 | A. H. Skinner and Co. ... £467 0  
J. C. and J. S. Ellis, Ltd. ... 532 10 | W. G. Cannon & Sons ... 429 0  
Vaughan and Brown, Ltd. ... 495 0 | J. C. Christie ... 427 10  
A. J. Kallaway & Co. ... 393 7  
Bates and Pearce\* ... 355 0  
\* Recommended for acceptance.

LONDON.—For interior painting (old portion), and in terior cleaning (new portion) of Melvin-road Schools (Green wich), for the London School Board. Mr. T. J. Bailey Architect:—  
G. Summers ... £353 | G. Kemp ... £298  
W. Akers and Co. ... 342 | † Accepted.

### BILLS OF QUANTITIES, &c.

Lithographed Correctly by return of Post, at Liberal Discount off usual prices. PLANS BEST STYLE.

J. L. ALLDAY, SHAKESPEARE PRESS, BIRMINGHAM.

### THE SMOKELESS FIRE CO. LTD.,

Sole Proprietors of Marsh's Patents

FOR THE

### COMPLETE COMBUSTION OF FUEL.

Ranges, Steam Boilers, Water Heaters, &c.  
100, SHAFTESBURY AVENUE, LONDON, W.

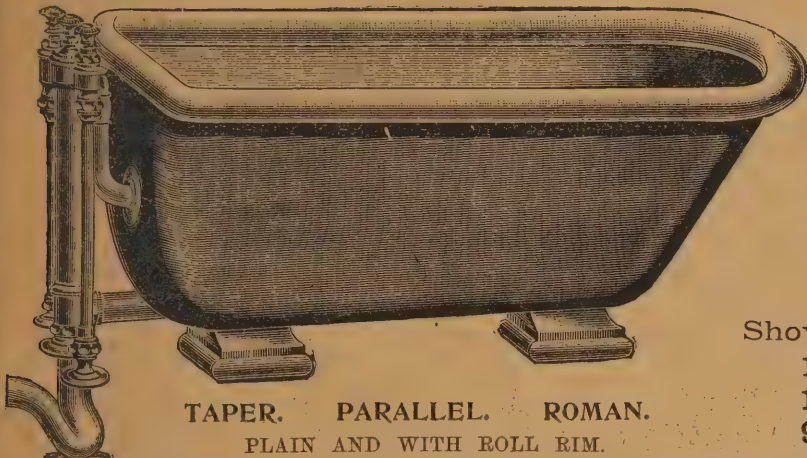
## "ECLIPSE" PATENT ROOF GLAZING.

Absolutely Imperishable. Needs no Maintenance Whatever.  
Millions of Feet Fixed.

MODELS AND ALL PARTICULARS ON APPLICATION. ESTIMATES FREE.

MELLOWES & CO. Works: SHEFFIELD.  
LONDON: 28, Victoria St., Westminster, S.W.

PORCELAIN BATHS IN "CLIFFE VALE" FIRE CLAY.



TAPER. PARALLEL. ROMAN.  
PLAIN AND WITH ROLL RIM.

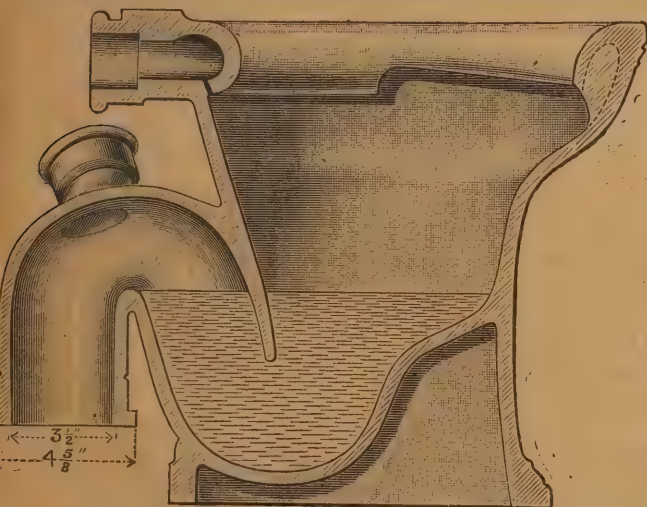
## TWYFORDS, Ltd., Hanley.

SPECIALITIES IN

Enamelled Fire Clay  
Sinks, Wash-tubs, Lavatories,  
Urinals, &c.

Showrooms:

16, Southampton Row, Holborn, London, W.C.  
19, Mosley Street, Manchester.  
95, Bath Street, Glasgow.



## SHANKS' PATENT "COMPACTUM" WASH-DOWN CLOSET.

LARGE WATER SURFACE, 8½ in. by 6½ in.  
DEEP SEAL IN TRAP, 3 in.

THOROUGHLY FLUSHED WITH TWO GALLONS OF WATER.

PERFECTO SEAT EXTENSION.

PORCELAIN SOLDERED JOINT.

Made in "Vitro-Porcelain," a new body, vitreous throughout, non-absorbent, and non-crazing. The best material for Sanitary Appliances ever introduced.

Prices and Particulars on Application.

SHANKS & Co., Tubal Works, Barrhead, near Glasgow.

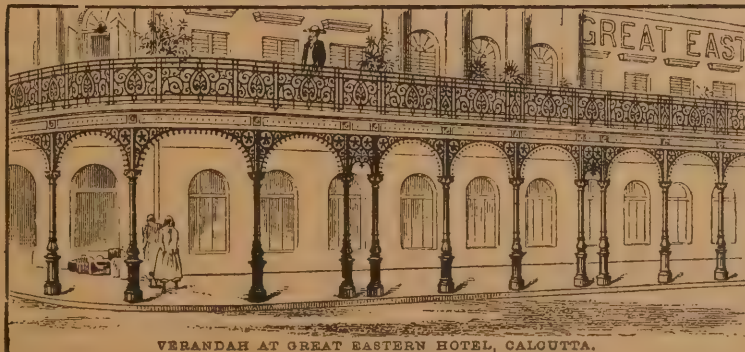
# WALTER MACFARLANE & CO., GLASGOW.

TWO GOLD MEDALS, CALCUTTA EXHIBITION.

Railings, Gates,  
Balconies, Panels,  
Stairs, Standards,  
Pipes, Gutters,  
Urinals, Closets,  
Fountains, Lamps.

ELECTRIC LIGHT  
PILLARS, BRACKETS,  
AND WIRE WAYS.

Illustrated Catalogue and Prices  
on application.



VERANDAH AT GREAT EASTERN HOTEL, CALCUTTA.

Spandrils, Columns,  
Verandahs, Covered  
Ways, Bandstands,  
Conservatories,  
Structures,  
Foot Bridges,  
Stable Fittings, &c.

GLASS ENAMELLED  
SOIL AND DRAIN PIPES.

Architectural, Sanitary, and  
General Ironfounders.





## HOISTING APPLIANCES

OF ALL KINDS.

Catalogue, 40 Pages, Free.

## WESTON

AND OTHER

## Pulley Blocks

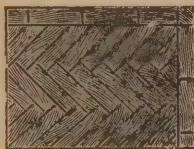
in Stock, with any  
length of

## CHAINS.

Chain Maker on Premises  
for Repairs, &c.

## LONDON HOIST AND CHAIN CO.

32, Norton Folgate, E.C.



## WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

For Churches, Schools,

Offices, &amp;c.

Estimates and full particulars on ap-

plication to

THOS. GREGORY &amp; CO.,

WOOD PAVING AND STEAM

JOINERY WORKS,

Clapham Junction, S.W.

**LADDERS, BARROWS, STEPS,  
TRESTLES, SCAFFOLDING,  
For Sale or Hire.**

**J. BATCHELAR & CO.,**  
48, HAMMERSMITH ROAD, W.

LONDON.—For painting interior and exterior of Trund-  
ley's-road Schools (Greenwich), for the London School  
Board. Mr. T. J. Bailey, Architect:—  
G. Summers ... £355 0 0 | E. Proctor ... £303 0 0  
W. Banks ... 335 17 6 | C. S. Jonest ... 283 15 0  
† Accepted.

LONDON.—For interior painting of Amberley-road  
Schools (Marylebone), for the London School Board. Mr.  
T. J. Bailey, Architect:—  
W. Hornett ... £238 0 0 | E. T. Foley ... £255 0 0  
F. Chidley ... 285 9 0 | F. T. Chinchent ... 252 13 0  
T. Cruwys ... 285 0 0 | † Accepted.

LONDON.—For interior painting of Barrow Hill-road  
Schools (Marylebone), for the London School Board. Mr.  
T. J. Bailey, Architect:—  
G. Foxley (accepted) ... £254 15 0

LONDON.—For interior painting (new portion), and in-  
terior cleaning (old portion) of Bell-street Schools (Mary-  
lebone), for the London School Board. Mr. T. J. Bailey,  
Architect:—  
T. Cruwys ... £410 0 0 | G. Foxley ... £322 8  
E. T. Foley ... 404 0 0 | F. T. Chinchent ... 279 10  
W. Hornett ... 399 0 0 | † Accepted.

LONDON.—For painting interior of Capland-street (junior  
mixed) Schools (Marylebone), for the London School Board.  
Mr. T. J. Bailey, Architect:—  
T. Cruwys ... £265 0 0 | G. Foxley ... £221 9 6  
W. Chappell ... 260 0 0 | F. T. Chinchent ... 184 15 0  
W. Hornett ... 259 0 0 | † Accepted.

LONDON.—For painting interior and exterior of Netley-  
street Schools (Marylebone), for the London School Board.  
Mr. T. J. Bailey, Architect:—  
E. T. Foley ... £556 0 0 | Marchant and Hirst £460 0  
T. Cruwys ... 550 0 0 | G. Foxley ... 420 0  
W. Hornett ... 542 0 0 | W. Chappell† ... 390 5  
† Accepted.

LONDON.—For painting Medburn-street (J. M.) Schools,  
for the London School Board. Mr. T. J. Bailey, Architect:—  
G. Chase and Son ... £235 0 0 | T. Cruwys† ... £143 15 0  
W. Hornett ... 150 0 0 | † Accepted.

LONDON.—For sanitary and drainage works at Melvin-  
road Schools (Penge), for the London School Board. Mr.  
T. J. Bailey, Architect:—  
J. Garrett and Son ... £1,961 0 0 | J. and C. Bowyer ... £1,592  
E. Triggs ... 1,686 0 0 | H. Levey ... 1,550  
H. Somerford and Son ... 1,659 0 0 | W. Akers and Co.\* ... 1,544  
G. Parker ... 1,609 0 0

LONDON.—For erecting manual training centre at  
"Michael Faraday" (Waltham), for the London School  
Board. Mr. T. J. Bailey, Architect:—

Extra amount  
required for  
building brickwork  
in cement.

Rice and Son	£1,494	£25
C. Cox	1,390	27
W. Downs	1,365	26
H. Semerford and Son	1,364	23
F. and H. F. Higgs	1,311	20
G. S. S. Williams and Son	1,203	19
E. Lawrence and Sons	1,202	21
J. Smith and Sons	1,155	20
J. F. Ford*	1,140	19

\* Recommended for acceptance.

LONDON.—For repairs, painting, &c., at the Royal Normal  
College for the Blind, for the London School Board. Mr.  
T. J. Bailey, Architect:—  
A. Ackworth ... £2,520 0 0 | J. Garrett and Son ... £1,850  
Lathey Bros. ... 2,489 0 0 | A. Black and Son ... 1,800  
Holloway Bros. ... 1,975 0 0 | E. P. Buller and Co. ... 1,698  
Holliday & Greenwood ... 1,950 0 0 | W. Poole and Son ... 1,450  
E. Triggs ... 1,950 0 0 | W. Akers and Co. ... 1,394  
J. Smith and Sons ... 1,930 0 0 | H. Leney\* ... 1,370  
J. and C. Bowyer ... 1,800 0 0

\* Recommended for acceptance.

LONDON.—For erecting upper standard rooms, &c., at  
St. John's-road Schools (Hoxton), for the London School  
Board. Mr. T. J. Bailey, Architect:—  
Kilby and Gayford ... £5,067 0 0 | J. and M. Patrick ... £5,771  
L. E. and H. Roberts ... 5,885 0 0 | C. Cox ... 5,082  
Johnson and Co. ... 5,967 0 0 | J. Grover ... 5,870  
W. M. Dabbs ... 5,904 0 0 | G. S. S. Williams & Son ... 5,650  
T. Boyce ... 5,760 0 0 | E. Lawrence and Sons\* ... 5,497

\* Recommended for acceptance.

LONDON.—For painting interior and exterior of Mag-  
dalen-street Schools (Southwark), for the London School  
Board. Mr. T. J. Bailey, Architect:—  
H. Linet ... £179 0 0

LONDON.—For painting interior of Pocock-street Schools  
(Southwark) for the London School Board. Mr. T. J. Bailey,  
Architect:—  
Lathey Bros. ... £398 0 0 | E. Triggs† ... £339  
H. J. Williams ... 390 0 0 | † Accepted.

LONDON.—For painting interior of British-street Schools  
(Tower Hamlets), for the London School Board. Mr. T. J.  
Bailey, Architect:—  
Vigor and Co. ... £326 5 0 | D. Gibb and Co.† ... £265 0  
† Accepted.

LONDON.—For painting interior of Trafalgar-square  
Schools (Tower Hamlets), for the London School Board.  
Mr. T. J. Bailey, Architect:—  
A. W. Derby ... £243 0 0 | A. W. Malins ... £448 0  
H. Cude ... 459 0 0 | G. Wales ... 435 0  
Vigor and Co. ... 455 10 0 | E. Jackson and Son† ... 387 0  
† Accepted.

LONDON.—For interior painting of Bellville-road Schools  
(West Lambeth), for the London School Board. Mr. T. J.  
Bailey, Architect:—  
E. P. Buller and Co. ... £429 0 0 | H. J. and G. Mallett† ... £326  
Maxwell Bros., Ltd. ... 340 0 0 | H. Brown ... 235  
† Accepted.

LONDON.—For interior painting of Jessop-road Schools  
(West Lambeth), for the London School Board. Mr. T. J.  
Bailey, Architect:—  
Lathey Bros. ... £252 10 0 | T. Hooper ... £198 10  
H. Somerford & Son ... 245 0 0 | Star and Son† ... 191 10  
F. R. Blaxton ... 242 0 0 | Maxwell Bros., Ltd. ... 186 0  
F. and H. F. Higgs ... 230 0 0 | † Accepted.

LONDON.—For interior and exterior painting of Lollard-  
street Schools (West Lambeth), for the London School  
Board. Mr. T. J. Bailey, Architect:—  
E. Triggs ... £265 0 0 | J. F. Ford ... £529 0 0  
F. R. Blaxton ... 532 15 0 | G. Brittain† ... 508 18 0  
† Accepted.

MIDDLEWICH.—For the erection of technical schools  
and library, Lewin-street, for the Urban District Council.  
Mr. R. T. Worth, C.E., Town Hall-chambers, Middlewich:—  
E. W. Bostock ... £2,425 0 0 | Clarke and Son,  
J. Matthews ... 2,278 0 0 | Middlewich\* ... 22,020 0  
Buckall Bros. ... 2,087 17 0 | \* Accepted.

No. 234.—WASH-OUT.



**SAMUEL HUNT ROWLEY, Swadlincote, nr. Burton-on-Trent.**

PATENTEE AND MANUFACTURER OF THE

## "WASH-OUT" CLOSET

(PATENT).

Three Awards at the International Medical Sanitary Exhibition, South Kensington, 1881.

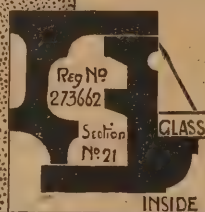
Specialities in Closets, Traps, Urinals, Lavatories, Sinks, and other  
Sanitary Fittings.

Price Lists and Full Particulars on Application.

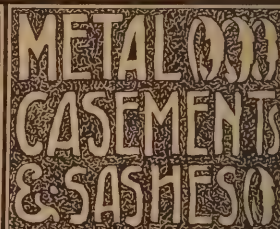
Telegrams:—"ROWLEY, SWADLINCOTE."



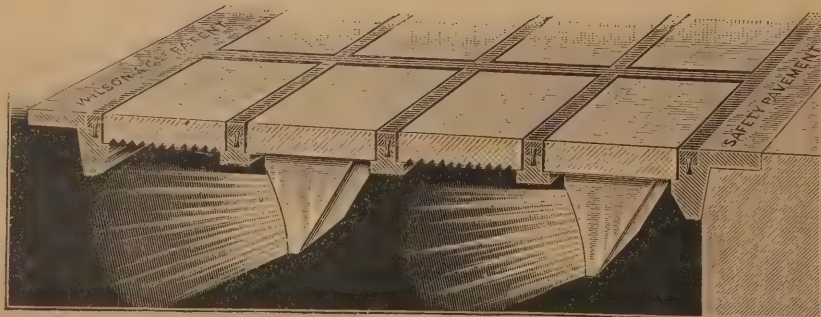
DECORATIVE  
METAL WORK  
GAS &  
ELECTRIC  
LIGHT  
FITTINGS



WARDRY WORKS  
SALFORD  
MANCHESTER  
LONDON 22  
SURREY STREET  
STRAND W.C.



# WILSON'S PATENT "Safety" Pavement Lights.



PREVENT SLIPPING. Lead Frames.

Level Tread for the Foot. Deaden  
the Sound. Do away with Studs.

Used at Hammersmith Town Hall and elsewhere.

WILSON'S PATENT DRIPLESS Lights.

Prevent Condensation Falling.

Used at North British & M. I. Co., Threadneedle St.; Com-  
mercial Union I. Co., Cornhill; Bankers' Clearing House,  
and elsewhere.

WILSON'S "DIOPTRIC" Lenses.

Utilise double the light of any other.  
Cost the same as semi-prism.

WILSON & CO., 24, HARRISON STREET, GRAY'S INN ROAD, LONDON, W.C.



MIDDLEWICH.—Accepted for the supply of 700 tons macadam, &c., for the Urban District Council. Mr. R. T. Worth, C.E., Town Hall-chambers, Middlewich:—Darbishires, Ltd., Penmaenmawr.—Macadam, 9s. 9d. per ton. Chippings, 7s. 6d. per ton.

NAZING (Essex).—For the erection of a lodge and appurtenances at Old House Farm, Middle-street, for Mr. John A. Rufus. Mr. J. Williams Dunford, Architect, 100c, Queen Victoria-street, E.C.:—Fuller and Son £260

W. Lawrence, Waltham Abbey (accepted) 315

NORTHWOOD (Staffs).—For the erection of two houses for Mr. Wm. Aspin. Mr. W. A. Baynes, Architect, Piccadilly, Hanley:—

T. Hobbs 2323

ODHAM.—For the erection of school buildings, Bury Fields, for the School Board. Messrs. Colson, Farrow, and Nisbet, Architects, 45, Jewry-street, Winchester:—

Tompsett and Co. £3,500 0 C. A. Hutchings £3,035 0

G. Hooker 3,350 0 Pool and Son 3,000 0

J. B. Seward 3,225 0 McCarthy and Fitt 2,947 0

Leming Bros. 3,225 15 J. J. B. Cooper and Son, Odham\* 2,899 0

J. Thurnwood 3,109 2 J. M. William & Son 3,095 0

\*Accepted.

PIRBRIGHT.—For the erection of a terrace of twelve cottages and a house and forge, for Lord Pirkbright. Mr. W. I. Chambers, Architect, London:—

Dockerill and Son £4,077 R. Smith £3,660

C. Thompson 4,030 Martin Wells and Co. 3,615

S. Wright 3,810 A. Gower 3,250

E. Faggetter 3,810 J. Faggetter 3,228

New English Homes C. Fildes 3,150

Construction Com- J. P. Groome 2,975

pany 3,800 Loe and Howard 2,765

[Architect's estimate, £3,230.]

RIPON.—For the erection of workhouse infirmary, for Guardians of the Ripon Union. Mr. F. H. Hargrave, Architect, Market-place, Ripon. Quantities by the Architect:—

Whole tender.—Mitchell and Webster, Ripon £3,040 0 0

Whole tender.—W. Sexton, Harrogate 3,300 15 0

Whole tender.—A. Lyons, Malton 3,040 0 0

Whole tender.—T. Bruce, Ripon 2,560 0 0

Whole tender.—Hy. Abbott, Harrogate 2,850 0 0

Exterior Brick, Masonry, Draining, Plastering, and Slating.—A. Trees, Ripon\* 1,512 0 0

Exterior Brick, Masonry, Draining.—R. Airlton, Harrogate 1,340 5 4

Exterior Brick, Masonry, Draining.—A. Braithwaite and Co., Leeds £1,566 3 9

Carpentry and Joinery.—J. J. Metcalf, Ripon 685 7 7

Carpentry and Joinery.—Ledger, Harrogate 516 10 0

Carpentry and Joinery.—Hy. Boddy, Ripon\* 473 0 0

Plumbing.—W. E. Dixon, Ripon\* 145 12 6

Foundry and Smith.—W. E. Dixon, Ripon\* 71 14 0

Painting.—J. S. Lowley, Ripon\* 46 16 6

[Architect's estimate, £2,650.]

\* Accepted tenders, which amount to £2,240 3.

SOUTHALL.—For the erection of public offices. Mr. T. Newell, Architect:—

Less for Box Less for

Ground stone in white facings

Reu of and Portland

Portland. dressings.

Cooper and Son £4,839 £495 2417

Secrett 4,658 490 505

W. Brown 4,587 500 —

A. & B. Hanson 4,221 287 428

Kearley, Uxbridge 4,010\* 386 467\*

\* Accepted.

SUNBURY (Middlesex).—For the supply of 700 tons

Quenast granite, &c., and 1,000 cubic yards of Kentish Flints,

for the Urban District Council. Mr. H. F. Coates, Surveyor,

Council Offices, Sunbury-on-Thames:—

Guernsey Granite.—W. Griffiths Per Ton: 16 1

Guernsey Granite.—A. and F. Manuelle 14 3

Quenast (Wharf).—Chas. M. Manuelle, Lime- 12 0

street\* Quenast (Station).—Chas. M. Manuelle, Lime- 13 2

street\* \* Accepted.

WALLSALL.—Accepted for sewerage, making up, &c.,

Moat-road, for the Corporation. Mr. Richard Henry Middle-

ton, Architect:—

James Atkins, Walsall £976 3

WALTHAMSTOW.—For the erection of a pair of semi-

detached villas, for Mr. John Hitchman. Mr. J. William

Dunford, Architect, 100c, Queen Victoria-street, E.C.:—

James Steel, Camden Town\* £1,500

\* Lowest, without basements, accepted.

WALTHAMSTOW.—For three shop-fronts, and other

work, at St. James'-street, for Mr. George Whitehead. Mr.

J. Williams Dunford, Architect, 100c, Queen Victoria-street,

E.C.:—

W. Shummr, Clapton (accepted) £437

## TO LOCAL SURVEYORS.—ASSISTANCE

In the preparation of Sanitary, Engineering, and Architectural Drawings, Quantities, Estimates, Surveys, Reports, &c., by a Firm holding public appointment, and certificated by the Association of Municipal and County Engineers and Sanitary Institute.—Address, Box 508, Office of BUILDERS' JOURNAL. 18

## QUANTITIES.—The Central London Sur-

vveying Office, assisted by a Competent Staff, is prepared to promptly PREPARE QUANTITIES, MEASURE-UP WORK, &c., guaranteeing strict accuracy. References given.—Address, SECRETARY, Walbrook-chambers, Walbrook, E.C. 10

Price 3s.

## GLOSSARY OF TECHNICAL TERMS

used in Architecture and the Building Trades. By GAVIN JAMES BURNS, B.Sc., F.S.I.

Contains explanations of over 2000 terms.

London: E. and F. N. SPON, 125, Strand.

## CIVIL SERVICE TECHNICAL EXAMS.

—Preparation personally or by correspondence. Residence can be arranged if desired. Full particulars on application to Mr. A. H. HENTY, Perchard House, 70, Gower-street, W.C.

## SANITARY INSPECTORS' EXAMINA-

TIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by Correspondence. No books are required.—For particulars and testimonials apply CERTIFIED COACH, 31, Herbert-road, Plumstead, S.E.

## R.I.B.A. EXAMS. PREPARATION

personally or by correspondence. Any subject taken separately if desired. Exceptional arrangements for Resident Students. Architectural Leading Library, Catalogues 6d. each.—Apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to British Museum).

# M'NEILL'S FELTS (Roofing, Inodorous, Sarking, Dry Hair, Damp Course, etc.)

# M'NEILL'S SLAG WOOL (Silicate Cotton), for Fireproofing and Soundproofing.

AS SUPPLIED TO H.M. GOVERNMENT, WAR OFFICE, ADMIRALTY.

Lists, Samples, and full particulars free on application to

F. M'NEILL & CO., Head Office, Bunhill Row, London, E.C.; Slag Wool Works, Kirkintilloch, near Glasgow.

# THE SUNBURY LINCRUSTA-WALTON. WALL DECORATION.

NOVELTIES for 1897—DADOES, FRILLINGS and CEILINGS at 1s. a yard, 2lin. wide.

CHEAP DECORATIONS, DELICATE COLOURINGS, supplied by all Decorators, Furnishers or Builders in the United Kingdom.

LINCRUSTA WALTON, tested and triumphant, "King of Wall Hangings" the only Wall Decoration on the Market.

SOLID in colour, SOLID in relief, and SOLID in value.

Write for Price List, Illustrations of "JUBILEE" and "NATIONAL EMBLEMS," &c., to

FREDK. WALTON & CO. Ltd., Sole Patentees and Manufacturers,

Telephone, 3769.

2, NEWMAN ST., OXFORD ST., LONDON, W. Telegrams:

"Lincrusta-Walton," London.

# EASTON, ANDERSON & GOOLDEN, LIMITED,

BROAD SANCTUARY CHAMBERS.

BROAD SANCTUARY, S.W.

Telegrams—"EGYPTIAN, LONDON."

Telephone—"545, WESTMINSTER."

# ELECTRIC & HYDRAULIC LIFTS & CRANES,

PUMPS, RAMS,

WATER SUPPLIES, ENGINES AND BOILERS,

ELECTRIC LIGHT AND POWER.

MAKERS OF THE MERSEY TUNNEL LIFTS. THE LARGEST

AND MOST SUCCESSFUL PASSENGER LIFTS IN THE WORLD.



## APPOINTMENTS VACANT.

THE LONDON (TELEPHONE {Holborn,}  
DRAWING & TRACING OFFICE,  
98, Gray's Inn Road, Holborn, W.C.

(Adjoining Holborn Town Hall.)  
MANAGER, JOHN B. THORP, ARCHITECT & SURVEYOR.  
Cheques Crossed The City Bank, Ltd.  
Office hours—Nine to Six. Saturdays One.

Established 1883.

For the PROMPT and EFFICIENT execution of all work  
usually required by the PROFESSION, such as

**WORKING DRAWINGS, TRACINGS,  
PERSPECTIVES, SURVEYS,  
COMPETITION DRAWINGS,**

Black Line PHOTO-COPIES and Blueprints.  
Quantities, Specifications LITHOGRAPHED.

**MODELS, DIAGRAMS, &c.**

TRACING and PRINTING Rooms, HATTON GARDEN  
connected by Private Telephone.

## ARCHITECT'S ASSISTANT WANTED.

Working drawings, details, specifications.—Apply,  
stating salary and experience, E. S. W., 2, Cheriton  
place, Folkestone.

## DRAUGHTSMAN. - WANTED, a neat

DRAUGHTSMAN. Good penman, used to both  
ornamental and architectural drawing, and make him-  
self useful in office. Must be of gentlemanly appearance  
and manners, aged about 30. Salary from £2 to £2 10s.  
—Apply, in own handwriting, stating qualifications,  
age, and experience, to Turpin's, 22, Queen's-road,  
Bayswater, W.

## LAND SURVEYOR (smart) WANTED for

the Indian Tea Districts. Thorough knowledge  
of theodolite, level, and plain table indispensable. Must  
be young and of strong constitution. Good terms to  
begin with, and first-rate prospects.—For particulars,  
apply by letter only, with copies of certificates, J. T. D.,  
Dracon's, 154, Leadenhall-street, E.C.

## LONDON PLATE-GLASS INSURANCE CO. LTD.

Head Office: 49, Queen Victoria St., E.C.

Glass of all kinds covered by the Policies of this Company.

MODERATE RATES. PROMPT REPLACEMENTS.

SURVEYS AND ESTIMATES FREE.

Ten per cent. of the Premiums returned every six years in  
cases where no claim has arisen.

Applications for Agencies Invited.

Liberal Terms for Business Introduced.

**BRICKS. LIME.  
CEMENT.**

## EASTWOOD &amp; Co., Limited,

47, BELVEDERE ROAD, S.E.

## WOOD BLOCK FLOORING.

**MASTIC** for laying above sup-  
plied in any quantity.

W. BRIGGS, Chemical Works, DUNDEE,

SOLE MAKER OF

"Tenax" Building Rock Composition  
For Wall Cavities.

## BOROUGH of BOURNEMOUTH.

First-class ARCHITECTURAL DRAUGHTS-  
MAN, experienced in the design of constructional iron-  
work, WANTED for about six months.

Apply by letter, stating experience and salary required.  
F. W. LACEY, M.Inst.C.E.,  
Borough Engineer,  
Bournemouth.

## BUILDER'S CLERK WANTED. Accurate

quantity-taker, good draughtsman, book-keeper,  
used to measuring-up work, and general routine of  
office.—Apply, stating age and salary required,  
HUBBARD, JUN., Contractor, East Dereham, Norfolk.

THE CORPORATION of the CITY of  
BIRMINGHAM.

SEWER FOREMEN are REQUIRED in the City  
Surveyor's Department, at a commencing salary of 35s.  
per week.

Candidates, whose age is not to exceed 35 years, must  
be thoroughly qualified persons, having had a practical  
experience in the construction of works of sewerage  
and house drainage, and in the management of work-  
men, be able to set out works accurately, and keep the  
necessary books, and will be employed the same hours  
as the working staff.

The persons who are appointed will be required to  
devote the whole of their time to the work of the  
department.

Applications in the candidate's own handwriting,  
stating age and qualifications, present and past employ-  
ment, together with copies of three recent testimonials,  
endorsed "Sewer Foremen," to be sent to the under-  
signed not later than AUGUST 6th next.

Canvassing, either directly or indirectly, will be con-  
sidered a disqualification.

JOHN PRICE,  
City Surveyor's Office, City Surveyor.  
The Council House, Birmingham,  
July 27th, 1897.

EDMONTON URBAN DISTRICT  
COUNCIL.

The Edmonton Urban District Council invite APPLI-  
CATIONS for the APPOINTMENT of a BUILDING  
INSPECTOR, to see that buildings, sewers, and drains  
are properly constructed, to fix and check levels of  
sewers and drains, to make surveys of all new houses,  
buildings, and drains, and to perform all the duties set  
out in the Standing Orders of the Council.

The salary will be £130 a year, rising by annual in-  
crements of £5 to £150 a year, and candidates must be  
prepared to enter upon the duties within one month  
after notice from the Council's Engineer, from whom  
further particulars may be obtained.

Applications, accompanied with testimonials, to be  
sent to G. EIDES EACHUS, Esq., Town Hall, Edmon-  
ton, on or before THURSDAY, AUGUST 19th next.

Canvassing will disqualify.

By order,

Town Hall, WM. FRANCIS PAYNE,  
Lower Edmonton, Clerk,  
July 28th, 1897.

## CLERK of WORKS REQUIRED for

Laundry Buildings near London. £3 10s. per  
week; also part services of two hours per day of CLERK  
of WORKS for overlooking painting at Holborn, £1 1s.  
per week. Write, Box 179, Willing's Advertisement  
Offices, 125, Strand, W.C.

## BUILDER'S CLERK WANTED. Must

write shorthand and used to general office routine.  
—Apply by letter, stating age, references, and salary  
required, to A. D., 1, Ellerthorpe-street, Poplar.

## APPOINTMENTS WANTED.

## YOUNG ARCHITECT, A.R.I.B.A.,

DESIRES to ASSIST others

in the

PREPARATION of DRAWINGS

at his own office.

G. SCORER, 28, Newman-street, W.

FIRST-CLASS ASSISTANCE to ARCHI-  
TECTS. Twenty-five years' experience. Designs,  
perspectives, and other work, specimens, &c.—Address,  
"Pen and Ink," Office of the BUILDERS' JOURNAL, 3

JUNIOR DRAUGHTSMAN will shortly be  
open to RE-ENGAGEMENT. First class refer-  
ences. Salary 18s.—H. Cox, West Haddon, Rugby.

## ARCHITECT'S GENERAL ASSISTANT

(24) desires ENGAGEMENT. Good London  
and country experience, and references.—Apply, A., 31,  
Salisbury-road, Walthamstow.

ARCHITECT and SURVEYOR'S ASSIS-  
TANT requires RE-ENGAGEMENT. Working  
drawings, details, specifications, &c. Nine years' ex-  
perience; 50s.—"MONTAGUE," Central View, Leaming-  
ton Spa.

JUNIOR ASSISTANT (22) desires an EN-  
GAGEMENT in Architect's office. Plans from  
sketches, tracing, colouring, and general office routine.  
Salary 25s.—F. W. LINSELL, Charman-road, Redhill.

CLERK of WORKS or GENERAL FORE-  
MAN DISENGAGED. Just finished large hotel  
contract. References, testimonials, &c.—W., 48, New  
Church-road, Camberwell, London, S.E.

BUILDER'S CLERK (age 22) seeks  
SITUATION. Good references. Dissecting and  
jobbing accounts, tracings, drawings (villas, &c.), house  
agency, &c.—H. BYRNE, care of Stratford, 5, Albemarle-  
terrace, Hotwells, Bristol.

CLERK of WORKS wants RE-ENGAGE-  
MENT. Good, practical, experienced, sober, and  
reliable. First-class testimonials and reference. Fair  
draughtsman.—Address, C. F., 133, Clapham-road,  
London, S.W.

**GODWIN'S TILES**  
For PAVEMENTS  
WALLS HEARTHES &c  
AS USED BY THE  
Leading Architects & Builders  
13 Cathedrals, Thousands of Churches, Public  
Buildings, and Private Residences Paved with these  
Tiles. Best Quality Only.  
Send for Patterns, Price Lists, and Testimonials to  
**W. GODWIN & SON, Lutterworth, WITHINGTON,**  
Patronised by Royalty. Established 1848. Near HEREFORD.

20,000 yards

FLOOR TILES

in Stock.

Quick Supply!

Best Quality!

Low Price!

## ROBT. ADAMS, 67, Newington Causeway, London, S.E.

These marvellous  
Double and Single  
Action, Silent,  
Adjustable, and  
Self Compensating

SPRING  
HINGES

Guaranteed to last  
longer and work better  
than any hitherto  
made.

CAN BE FITTED TO ANY  
DOOR.

Fig. 1 (Silent).

A Double-Action  
Spring Hinge

which opens to and  
closes from the angle  
of 135°.

Fig. 3 is the new

Single Action Spring.

It opens to and closes  
from the angle of 180°,  
i.e., "wide back."

THE FIRST

SPRINGS EVER

PRODUCED WITH

THESE GREAT

ADVANTAGES.

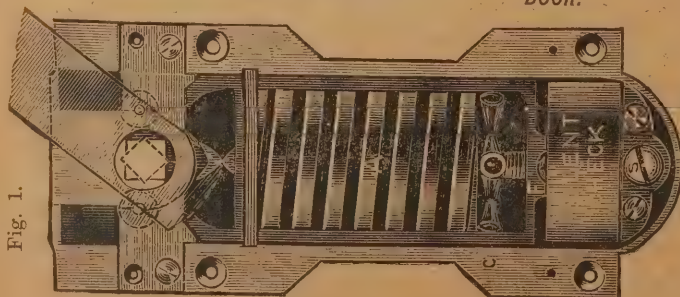


Fig. 1.

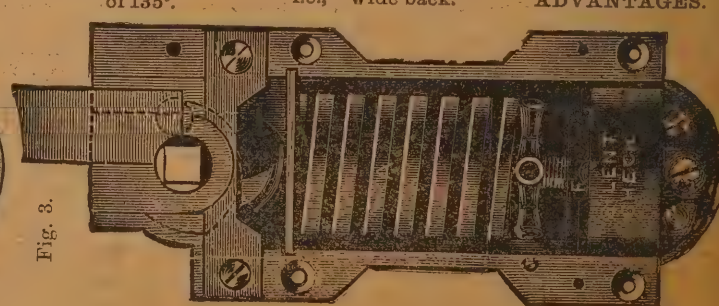


Fig. 3.



# Surveying and Sanitary SUPPLEMENT.

AUGUST 4TH, 1897.

## THE SEWERS COMMISSION: A RETROSPECT.

ONLY a little more than six months' life is left to the Sewers Commission. The Bill for its abolition has received the Royal assent, and, as a consequence, on Plow Monday next, just 232 years after its formation in the reign of Charles II., it will cease to exist, and its duties and responsibilities will devolve upon the Corporation. The Commission has an honourable record to look back upon, and in its closing weeks it can comfort itself with the reflection that its extinction by Act of Parliament is actuated not by any neglect of duty or by any malversation, as, alas! must be said of the old Metropolitan Board of Works, but by the fact that it has discharged its duties so thoroughly that the Corporation, by whom it has hitherto been appointed year by year, desires to take upon itself the credit that attaches to the municipal work that it has been discharging. The Act that has just been placed upon the Statute Book emanates indeed from the Corporation in the person of the Special Committee, and the change has been brought about with the idea that it will strengthen the hands of the City

### BY MEANS OF THE CONSOLIDATION

that will be effected. In one sense the Act may be said to date back to the report made by the Unification Commission in the year 1893. In that document stress was laid on the fact that the Sewers Commission performed the municipal work of the City, and the suggestion was made, indirectly it is true, but at the same time not the less pointedly, that the Commission should become the sole authority for the City of London. The reverse operation has been now carried out. Now that the change has been made, says the City Press, it will devolve upon the Special Committee of the Corporation to devise a scheme by which the work hitherto performed by the Commission may be assumed by the older body. What course will be taken it is not possible as yet to say, but doubtless a conference will be sought with the Commission for the purpose of arranging for the transfer on lines that will be mutually satisfactory to all parties concerned. This is not the place in which to discuss the details, but it may be incidentally mentioned, as a point that will require especial attention, that some definite understanding will have to be arrived at as to

### THE CONDUCT OF PUBLIC BUSINESS.

Will the Corporation create a separate department for this work, as originally intended, or attempt to transact the Sewers business by means of committees, each committee to report to the Court, as is the case at present with the Corporation committees; or will the Court decide to hold one week a meeting for disposing of its civic business, and in the following week a meeting for the settlement of the business now performed by the Commission at its fortnightly meetings? The latter proposal appears

to be the more reasonable, as otherwise the Thursday's sittings of the Court would be prolonged to an extent that would prove a great strain on the members. On the other hand, if there is to be a weekly meeting, how will it be possible for the Lord Mayor, with his numerous other duties, to act as president? He would have to appoint a deputy, and if so, that deputy, though nominally holding a less important office than that occupied by the chairman of the Commission, would undoubtedly as an actual matter of fact be invested with far greater responsibilities. It is interesting to follow the

### HISTORY OF THE COMMISSION,

and to sketch the progress it has made during the 200 years since the Great Fire of London, and the changes that have been brought about by the passage of time. The origin of the Commission is to be found in the work of reconstruction that was rendered necessary by the Great Fire. But, indeed, for that great catastrophe, in all probability no such body would have been formed, and we should find the Corporation both actually and nominally the municipal authority of the City. The Act under which the Commission sprang into existence became law in the year 1667, and was termed an Act for Rebuilding the City after the Great Fire. Section 22 provided that the number and place of every sewer, drain, and ventilator, and the order and manner of paving and pitching the streets and lanes of the City, should be designed and set out by "such and so many persons" as the Mayor, Aldermen, and Commonalty in Court of Common Council assembled should from time to time appoint under the Common Seal of the City. A further section gave authority to such persons "or any seven of them," to impose "any reasonable tax in proportion to the benefit" to be derived. This section is especially interesting from two points of view. In the first place it fixes the quorum that exists to-day; and here it may be remarked that the Commission is appointed year by year in almost the same phraseology that was used when the new body was formed originally. In the second place this clause as to the imposition of "any reasonable tax," rather suggests that even in those early days

### THE QUESTION OF BETTERMENT.

was receiving attention. At the outset it was intended apparently that the new body should be but temporary, and that when the work of reconstruction had been completed the Commission should quietly disappear and the Corporation once again wield undivided authority. If this was the intention it was soon departed from. Three years later another Act was passed by which the Commission was made permanent. Clauses were added, moreover, that invested the Commission with further powers in regard to street cleansing, &c. In the year 1708 a further Act was passed, and then for the first time the title of Sewers Commission was used, while that body was

clothed with all the municipal functions discharged by any Sewers Commission in any part of the country. In the year 1768, for reasons that are not quite clear, although we may hazard the assumption that it was because there was a movement in certain quarters to deprive the Commission of

### THE POWERS IT EXERCISED,

a further Act was obtained that set forth that the authority of the Commission "shall be in no way suspended or taken away," save by the appointment from time to time of a new Commission by the Corporation. In the year 1771 the first mention is made of the question of rating—that is, as far as an actual sum is concerned. It was then enacted that for the purpose of defraying expenses a rate should be made that was not to exceed "in any one year" 1s. 6d. in the pound on the yearly rent of "such land and houses as shall be situate in any street actually begun to be new paved." The rate for any property "not so situated" was fixed at 1s. In the same Act authority was taken to charge only half rates on empty houses. Further, it was decided that the rating of Churches and public buildings, "the hospitals and St. Paul's alone excepted," and "void spaces" should not exceed 4d. Yet another clause provided that

### "DEAD WALLS" SHOULD BE CHARGED

not more than 6d. per yard "per running measure." The rate, by the way, still remains at 1s. 6d., and the relieving of empty houses to the extent of 50 per cent. is also in force. The year 1817 witnessed the placing on the Statute Book of what is generally known as Michael Angelo Taylor's Act. This measure gave the Commission, with other kindred municipal bodies, the right to effect street improvements, pave, cleanse, and water the streets, and regulate encroachments. In the year 1823 the distinction as to the rating of houses in paved and unpaved streets was abolished, and the rate was fixed at 1s. 6d. all round. The year 1866 was rendered remarkable by the fact that for the first time the then Commission did not run its full term. It was "superseded," to use the word that was adopted, by the Court of Common Council, in order that the strength of the body might be increased in view of the growth of the business it was called upon to perform. In the past the numbers had been strictly limited, but then they were increased to 83 by the inclusion of all the Aldermen and Deputies. In the year 1875 the Artizans and Labourers' Dwellings Improvements Act served to yet further extend the duties of the Commission. Advantage was immediately taken of the provisions of that useful measure, and the Commission, at an outlay of £328,765,

### CLEARED A LARGE AREA,

and erected model dwellings to accommodate as many as 1000 persons. This effort was the first and last made in that direction, not because the Commission was anxious in any



way to shirk its duties, but because all the land that would have been available for buildings was absorbed for commercial purposes. It is of interest to note in this connection that, though the Act gives authority to the Commission to charge a rate for the erection of such dwellings, no advantage was taken of this privilege, and the sum required was defrayed by means of a loan raised on the security of the Consolidated Rate. These buildings, from which an income of about  $2\frac{1}{2}$  to 3 per cent. on the total original outlay is derived, have, by-the-way, proved a great boon to the class for whom they were designed. This article would be incomplete were it not to briefly indicate the great work the Sewers Commission has performed during the past half century. Finance commands primary attention. Judged from this point of view, the Commission is honourably distinguished from the majority of rating bodies. Rates have gone up all round, but that of the Sewers Commission has remained stationary, and at the present time the rates are less by 6d. in the pound than they might legally be. For instance, although the Commissioners are empowered to levy, for their own purposes, a consolidated rate of 1s. 6d. in the pound and a sewer rate of 4d. in the pound, they have still a rating margin of 3d. in the pound on each rate. This state of affairs is the more satisfactory seeing that the

**ARTIZANS' DWELLINGS HAVE BEEN PROVIDED** without any burden being imposed, and that within the last fifty years the City has been practically reconstructed, so numerous have been the improvements the Commission has carried out. As regards its debts, the Commission has every reason to feel proud. In spite of the outlay it has incurred its loans are now about £1,350,000, whereas four years ago they were £1,620,624. Naturally, the great increase in the assessments is in a sense responsible for this, the receipts from this source now being upwards of £504,000, whereas in the year 1893 they were only £433,000; but this fact is not alone responsible, and great credit attaches to the Commission for the existing satisfactory position of the finances. The Commission has all along led the van as regards municipal progress; and the question as to acquiring land down the river for the purposes of a dust refuse farm is an indication that in the closing year of its history it possesses as much vigour and vitality as has ever characterised it. Much might be written as to

#### THE MUNICIPAL DEVELOPMENTS

that from time to time have marked its career, but for present purposes it will be sufficient to indicate a few special new departures that have been generally adopted. For instance, it was the first local authority to adopt asphalt paving. Fifty years ago the streets were paved with cobble stones, and the paving we know to-day was undreamt of. Little by little improvements were introduced, and finally, not quite thirty years ago—1869, to be exact—asphalt was experimentally laid in Threadneedle Street, the success being so marked that it was soon generally adopted. In the year 1867 the City first marshalled a corps of orderly boys, in this way again setting an example other bodies were not slow to follow. Ilford Cemetery, which was laid out at a cost of £82,000, and in which as many as 300,000 interments have taken place, was another useful work, while a minor improvement, in which once more the City led the way, municipal authorities the world over following suit, consisted of the construction of underground conveniences. Of the outlay on street improvements it is unnecessary to say more than that as many as 300 streets have been widened or improved in the past fifty years, and that the net cost to the City, exclusive altogether of its contribution of one-eighth of the entire rates of the metropolis, has been close upon three millions sterling. Some idea of the work the Commission now discharges year in and year out may be judged from a few facts that may be given almost at random.

**THE PUBLIC WAYS OF THE CITY** extend over about fifty miles, the cost of keeping the streets in repair is over £40,000,

as many as 25,000 load of refuse are annually disposed of in the dust destructor, the cleansing department gives employment to 650 hands, the paving of the streets cost more than £35,000, the lighting involves an outlay of £16,000, for cleansing and watering £46,000 is expended, and the repayment of loans and interest runs away with nearly £120,000. These figures afford a fairly comprehensive idea of the work the Commission performs, and will convince even the most grudging ratepayer that there is plenty to do with his 1s. 3d., and that economy in administration must be a ruling principle when for so small an outlay, comparatively speaking, he has the proud satisfaction of knowing that the "one square mile" is, from a sanitary point of view, the best administered City in the world.

#### SEWAGE DIFFICULTY AT MANCHESTER.

**A** DEPUTATION from the Mersey and Irwell Joint Committee, a few days ago, had an interview at the offices of the Local Government Board with Mr. T. W. Russell, M.P., Parliamentary Secretary of the Department, their object being to obtain a relaxation of the rule according to which sewage purification must be done by means of filtration through land. The deputation wished that artificial filtration should be allowed. Sir J. T. Hibbert, one of the deputation, said the subject was of great importance to the Mersey and Irwell district, which contained seven county boroughs, with a population of 1,148,000; eleven non-county boroughs, with 249,000 inhabitants; sixty-two urban district councils, ruling 620,000 persons; and ten rural district councils, under whose jurisdiction were 127,000 inhabitants. The total rateable value of the district was £9,731,000. The Joint Committee dealt with four rivers—the Mersey, Irwell, Irk, and Medlock—on the banks of which were 394 manufactories. The Committee was formed under the Act of 1888, and had almost succeeded in keeping solid matter out of the streams. In dealing with liquid sewage it had made great progress. Its task was a growing one. When it began there were only twenty-seven works in operation within their district; last March the number had increased to forty-seven, all

#### IN URBAN SANITARY AREAS.

Besides these there were five in rural sanitary areas. The works which were being built when the Committee began were eight; in March last they were thirty-two. Urban and rural authorities had their schemes in twenty-four places for preventing the pollution of rivers. Great progress had been made in preventing the pollution of rivers by manufactories, the manufacturers having behaved in a very liberal manner. Of 394 works 186 had now efficient means of purification—a phrase which, unfortunately, did not necessarily mean perfection. In 202 cases means which could not be classed as efficient had been adopted. Seven firms were now making arrangements to purify the liquid they discharged into the rivers, and only five were doing nothing. In seeking this interview the deputation had in mind not so much the manufacturers as the local authorities, especially those with large constituencies like Manchester and Salford. The policy of the Committee was to deal with every authority, large or small, on the same principles. It had taken action against the Manchester people, who pleaded guilty, and were allowed twelve months in which to prepare an amended scheme to avoid river pollution. Proceedings against Salford had resulted in laying that borough under a penalty. Neither town had yet proposed a scheme which the Committee considered satisfactory. Manchester had embodied in a Parliamentary bill a proposal to discharge its sewage in the Mersey below Warrington, after treating it artificially. The bill was withdrawn, otherwise the Committee would have opposed it. Knowing the difficulties of Manchester and Salford in getting land for the filtration of sewage, the Committee instructed its chemical adviser (Sir H. Roscoe) and its

chief engineer (Mr. Tatton) to report on the subject of precipitation and artificial filtration. The report of the first-named gentleman contained this passage: "I am of opinion that the

#### ADOPTION OF ARTIFICIAL FILTERS

is a move in the right direction, especially in the case of large towns having difficulties in acquiring sufficient area of land and of a suitable character for the purification of its sewage. Land filtration, so far as the chemical results are concerned, is superior to artificial filtration. Unfortunately, however, the volume of effluent that can be treated permanently on land is small as compared with the volume that can be filtered by artificial filters." Among Mr. Tatton's conclusions were the following:—"There seems, therefore, to be ample evidence to show that if filters are constructed to conform the principles which have been laid down satisfactory results may be obtained. The reasonable view to be taken of the matter seems to be that, instead of any hard and fast rule being laid down, each case should be treated on its own merits; that if suitable land can be obtained it should be used, but that if it cannot be got artificial filters should be sanctioned, but with stringent restrictions as to the volume of sewage allowed on a given area." The Committee asked the Local Government Board to consider the views of these two gentlemen, and to say that no hard and fast rule should prevent the use of artificial filtration if

#### A SATISFACTORY SCHEME

were presented. It did not wish the Board to decide that all filtration should be artificial. It only wished the Board to have a more open mind on the subject, and so help the Committee in carrying on its difficult but important work. Sir H. Roscoe thought all persons would agree that the work of preventing river pollution was most difficult chemically, and, he supposed, from the engineering point of view also. The difficulties lay, not with the rural authorities, or even with the manufacturers, but, as far as Lancashire was concerned, with the seven county boroughs and their million and a quarter of population. Take the case of Manchester. The authorities, consulted him on the subject. The only land they could purchase, and which, in fact, they did purchase, was not fit for a sewage filter. Salford and other Lancashire towns were in the same fix. In addition to the want of sufficiently porous soil, our climate was against land filtration, and the most suitable land became water-logged. But artificial filtration could be carried out so as to produce an effluent which would not putrefy in hot weather. There was no doubt that by means of intermittent filtration that result could be reached. These being the facts, the Local Government Board should

#### NOT IN ALL CASES INSIST,

especially where dense populations were concerned, on land filtration. Each case should be treated on its merits, and that system permitted which was the most suitable. Mr. Tatton informed Mr. Russell that in the Mersey and Irwell watershed there had been many cases of buying land for sewage works, and being rewarded with failure. He believed the same experience had been met with on the lower reaches of the Mersey valley. Manchester, with a population of 500,000, would, according to the Local Government Board, need 500 acres, and yet that quantity would be totally inadequate. Thirteen hundred acres had been suggested, so that the city appeared to be in an extremely difficult position, especially considering what Sir Henry Roscoe had said as to the unsuitable nature of the soil and the impossibility of getting enough land. Dr. Hewett, speaking as specially representative of Cheshire, said the condition laid down by the Local Government Board had resulted in a deadlock. The Mersey and Irwell Committee had an action pending against the Salford Corporation for polluting the Ship Canal, in which a large bulk of sewage was now locked up, giving rise to putrescence and fermentation. The evil was increasing, and property in Cheshire had been seriously damaged by it. Salford's experts advised that



a satisfactory effluent water could be obtained from the sewage by precipitation and artificial filtration. Salford, however, could not borrow money to carry out the scheme which would be satisfactory to the Joint Committee as well as to itself—a difficulty created by the rule of the Local Government Board. This was the problem which the County Court Judges had to solve. Of course, if Salford could obtain suitable land for the natural filtration of its sewage, the Joint Committee would have no objection, but it could not. Oldham and Rochdale had taken land for that purpose, only to find it unfit. Under these circumstances it seemed absolutely necessary to permit artificial filtration. Precipitation alone

#### WOULD NOT PRODUCE A SAFE EFFLUENT,

but with artificial filtration it would. Public opinion in Manchester was much impressed with the proposal to ask Parliament next session for power to send the effluent water of the city's sewage to the estuary of the Mersey, but the Joint Committee held that to allow Manchester to remove its effluent in that way from the community would be unfair to other places in the watershed, where much expense had been incurred in meeting the requirements of the Joint Committee. Matters had reached a crisis which could only be abated by the Local Government Board. Mr. Russell replied that the immense importance of the question imposed great reserve upon him. He had given personal attention to it, visiting Radcliffe and Royton among other places, in order to see purification works. Up to the present the Local Government Board had held that land filtration gave the best result, but in recent years the Board had lessened its demand for land where chemical treatment was applied. The deputation said, with perfect truth, that it was difficult, if not impossible, to get land in the neighbourhood of enormous centres of population. There was a great deal in that. It placed on the Board a responsibility to examine the whole question afresh. The rise and progress of large towns created a difficulty which probably did not exist to the same extent when the Board's orders concerning the filtration of sewage were issued. The President (Mr. Chaplin) authorised him to say that the views of the deputation would receive immediate consideration.

At recent meetings of the Insanitary Areas and Sanitary Committees of the Leeds City Council, preliminary suggestions for another instalment of the insanitary areas scheme were briefly considered. The quarter proposed to be taken in hand is in the vicinity of Ainsley Street, Holbeck. It is about four acres in extent, and the inhabitants number about 1500. The matter was adjourned. Arrangements were made for improving the sanitary accommodation connected with the property that will survive the demolition of houses in connection with the Camp Field insanitary area undertaking.

At the meeting of the City Commission of Sewers a long and animated discussion ensued upon a report presented by a special committee as to the present system of dealing with dust and refuse from the City, and as to whether it was expedient to make any alterations therein. The committee having considered the system adopted in Glasgow, recommended that the refuse should be collected into the country by means of barges, and recommending that the committee negotiate for the acquisition, at a cost not exceeding £25,447, of the freehold of Farnchurch Marshes, near Barking, and the Romford Canal adjoining. Before the report was put, a letter was read from the South London Electric Supply Corporation, intimating their intention of applying next year for a Provisional Order to supply the City with electricity, and proposing, with the consent of the Commission, to utilise the City refuse in producing the light, as was the case in Shorelitch. After discussion, it was decided to postpone the consideration of the report with reference to the proposed purchase of land, and to merely enter the letter of the South London Company on the minutes.

#### NEW THEATRE FOR SWANSEA.

THE new Grand Theatre at Swansea, opened last week by Madame Patti, is erected on the site of the Drill Hall, Singleton Street, which was purchased from Colonel Pike by the firm, and the foundations of which were partially utilised in the new building. Mr. W. Hope has in this most commodious structure adopted the Renaissance style of Architecture, the materials used for the walls being white stone and red brick, faced with rough cast plaster. Dark red bricks are used at all angles, and terra-cotta has been freely used for the ornamental portions. An almost new departure has been made and a very pleasing effect produced by covering the roofs and towers with Swansea terne-plates, instead of the ordinary slates which have hitherto been used in theatre construction.

#### THE AUDITORIUM

of the theatre is in the form of a square, each side of which is 65ft. long, and consists of three floors, comprising on the ground floor stalls and pit, on the first floor the dress-circle, and on the upper floor the gallery. The plastic decorations in the interior of the building, which adorn the proscenium and the front of each tier, are exceptionally rich and elaborate. The modelling of the figures and forms in plaster is decidedly artistic; in the lower tier Cupids holding festoons of flowers, &c., with bold cartouche ornaments, and in the upper tier grotesque masks form the plastic treatment. These masks are delicately coloured in ivory tones, relieved with terra-cotta and blue tints lavishly gilded. The ceiling is treated in the florid French Renaissance style in finely modelled plastic work, and here, again, the colouring is very fine, the whole being richly relieved by massive gilding. The dress-circle is furnished with 300 comfortable tip-up arm-chairs, upholstered in brilliant red plush, and every one of them commands a perfect view of the stage. The pit seats are thoroughly comfortable, and are padded and upholstered in tapestry. Each section of the house is provided with lavatories for ladies and for gentlemen, and with a convenient refreshment-room.

#### THE STAGE

is most completely equipped, and to anyone not conversant with modern stage appliances is almost a revelation. The height from the cellar floor to the top of the roof is no less than 80ft., and the arrangements for handling the scenery with ease and despatch are ingenious and complete. The dressing-rooms are light, and are well ventilated. There are no less than five exits leading directly on to the street, and for each part of the building there is an exit on each side of the auditorium. It is calculated that the entire audience could easily leave the building within the short space of two minutes. All the staircases have been constructed of fireproof materials, and the "panic bolts" enable all the doors to be opened by the slightest push from the inside of the building. Hydrants are provided in every part of the building. The principal entrance leading to the stalls and dress circle is in Singleton Street, and will have a fine marble staircase and handsomely decorated walls. The floor and entrance lobby, with the landings and foyer, will be

#### PAVED IN MOSAIC TILES.

The gas and electric light arrangements on the stage are singularly practicable. From the switch-board every part of the "front of the house" and of the stage can be controlled. Each part can be lighted separately, or all parts can be lighted together. The appliances also enable varying strength of light to be used, and on the stage a variety of colours. The switch-board is not, as in the old-fashioned theatres, on the stage, but is placed on a kind of balcony some 8ft. above the stage, the lighting arrangements thereby being controlled from a position where the artistes and stage hands are not passing and re-passing, and a corresponding advantage is obtained by allowing additional stage room. This arrangement for checking the lighting is a very recent improvement, and is at present only in use at

Her Majesty's Theatre, and the Haymarket Theatre, London. The contractor for the building is Mr. S. Jenkins, of Swansea. The plastic decoration, the furniture upholstery, and the seating of the auditorium have been carried out by Messrs. A. R. Dean, Limited, of Birmingham.

## Surveying and Sanitary Notes.

AN inquiry was recently held at the Trustees Hall, Boston Spa, before Mr. W. Randall Slack, of the Local Government Board, as to the application of the Wetherby Union Rural Sanitary Authority for power to borrow £4500 for the purpose of carrying out a scheme of sewerage for Boston Spa. It was explained that the population of Boston Spa was at present 1500, but the proposed scheme would be sufficient to provide for a population of 3000. There was about 380 houses in the township, and for fifty of these the drainage now went into the River Wharfe. The remaining houses were drained into cesspools, and as a consequence about half of the wells in the township were polluted by the sewage which percolated into them. The cesspools would now be done away with, and a sum of about £50 per year which was spent in cleaning them out would thereby be saved. The lack of a drainage scheme for Boston Spa, had constantly been brought to the notice of the authority by the West Riding County Council and the Rivers Board, the latter body complaining of the pollution of the river by the drainage which now passed into it. The necessary land for the outfall works had been secured at a point in the neighbouring township of Bramham, close to the eastern boundary of the township of Boston Spa, and a provisional agreement has been entered into with Mr. Lane Fox to lease the land for twenty years at a rental of £30 per year. The plans and details of the proposed scheme were then explained at length by Mr. Mallinson, who stated that the outfall works would be on the broad irrigation principle.

At a recent meeting of the Keighley Rural District Council deputations from the Morton Parish Council and from a recent parish meeting at Morton attended and submitted an alternative scheme for the sewerage of the Morton district. This scheme has been drawn up by Mr. H. A. Johnson, engineer, of Bradford, as an alternative to that which has been adopted by the Rural District Council, and it was claimed that by its adoption a saving of from £800 to £1000 could be effected. It was decided that the scheme should be considered at a future meeting.

CANKLOW, a hamlet on the outskirts of Rotherham, is in need of a sewerage system. Houses have been rapidly run up for the accommodation of the miners, and there are indications that the builder has still plenty of work before him in this locality. Realising the need for better sanitary arrangements, it was decided to construct sewage works on the Magnetite process. The scheme has now been completed. Inclusive of the land, the scheme has cost £2200, and it is capable of dealing with a population of 4000. On its way to the tanks the sewage passes through a box containing a powerful chemical known as "Aelite," which, it is claimed, assists the precipitation of the sludge, and preserves the sewage from decomposition. Having passed through several tanks, the sewage leaves the last division in a fairly clear condition. A process of filtration follows, after which the liquid is run on to land, and finds its way into the river in a condition almost as clear as drinking water. At the opening Mr. Jubb spoke of the difficult problem which sewage disposal presented to local authorities, expressed his entire satisfaction with what he had seen of the Magnetite process, and concluded by assuring the engineer and others responsible for the work that if the scheme operated as satisfactorily five years hence the District Council would be delighted,



## COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
<b>BUILDINGS—</b>			
Aug. 6	Aberdare—Two Shops in Cardiff-street	Building Committee, British Schools	T. Roderick, Architect, Clifton-street, Aberdare.
" 6	Abergavenny—Alterations and Additions to Schools		E. A. Johnson, M.S.A., Architect, Abergavenny.
" 6	Croft, Carmarthen—Farmhouse	Christopher Ryall	Tenant.
" 6	Stowmarket—Villa Residence, Regent-street		H. G. Bishop, M.S.A., Architect, Market-place, Stowmarket.
" 6	Thornton, Yorks—Masonry for five Scullery Houses	Guardians	J. Drake and Sons, Architects, Queensbury.
" 6	Howden—Erection of Vagrant Wards		H. Green, Solicitor, Howden.
" 7	Fryston, near Pontefract—Lodge		J. G. Kelly, West View, Pontefract.
" 7	Hereford—Residence in Hampton Park	Corporation	Nicholson and Hartree, Architects, Hereford.
" 7	Jarrow—Wall & Alterations to Sheds at Willington Quay		J. Petree, Borough Surveyor, Jarrow.
" 7	West End, Morecambe—Portion of St. Barnabas Stone Church.		Austin and Paley, Architects, Lancaster.
" 7	St. Stephen's-in-Branwell, Cornwall—School, &c.	School Board	Sampson Hill, Architect, Redruth.
" 7	St. Swindon—Additions and Alterations to Queenstown Club College.		R. J. Beswick, M.S.A., Architect and Surveyor, Swindon.
" 9	Chester—Hospital, Sealand-road	Sussex Portland Cement Works	H. Beswick, Architect, Chester.
" 9	Heighton, Newhaven—Chimney Shaft, 120 feet high	Guardians	Manager of Works, Heighton.
" 10	Dover—Alterations, &c.	Guardians of Loxden and Winstree Union	E. Carder, Clerk, 17, Market-square, Dover.
" 10	Lexden—Drainage and Reflooring to Workhouse	Guardians of St. Mary, Islington	J. Ennals, Surveyor's Office, Copford.
" 10	Upper Holloway—Infirmary for 800 Patients, Highgate Hill	Great Western Railway Company	E. Davey, Clerk, Guardians' Offices, St. John's-road, Upper Holloway, N.
" 10	Plymouth, Millbay—Enlargement of Station, &c.		Engineer's Office, Plymouth Station.
" 10	Galway—Alterations to County Court House	J. Tidman	J. Perry, M.E., M.I.C.E., County Surveyor, Galway.
" 11	Gorleston—Six Cottages, Church-road	Guardians of Lurgan Union	W. B. Cockrill, F.I.A.S., Architect and Surveyor, Gorleston.
" 12	Aghalee, Lisburn, Ireland—Dispensary and Dispensary Residence at Folly Hill	Lords Commissioners of the Admiralty	E. J. Donaldson, Clerk, Lurgan.
" 13	Scarborough—Eight Dwelling-houses at Coast Guard Station		Director of Works Department, Admiralty, 21, Craven-street, London, W.C.
" 13	Flushing, Falmouth—Re-seating and Decorating Wesleyan Chapel		H. W. Collins, Architect, Penryn street, Redruth.
" 14	Clones, Ireland—Repairs to Tower and Spire of Catholic Church	Urban District Council	W. Hague, Architect, 50, Dawson-street, Dublin.
" 16	Cockermouth—Tool-house in Park	Guardians of Pontypool Union	Surveyor.
" 18	Pontypool—Alterations to Workhouse, Laundry, Hospital, &c.	Commissioners for the Control of Lunatic Asylums	Lansdown and Griggs, Architects, Metropolitan Bank-chambers, Newport, Mon.
" 20	Carlow, Ireland—Additions and Alterations to the Carlow District Lunatic Asylum		Board of Control of Lunatic Asylums, Custom House, Dub. in.
" 24	Trimdon Grange, Durham—Enlarging and Re-seating Wesleyan Chapel		W. R. Woodhead, Trimdon Grange.
No date.	Cork—New Roof, Flooring, &c., 6, North-mall	Norman and Pring, Exeter	K. D. Roche, Architect, Marlborough-street, Cork.
"	Exmouth—Railway Hotel		Kerley and Ellis, Architects, Exmouth and Salterton.
"	Ferrybridge, near Pontefract—Villa Residence		J. Greaves and Co., Architects and Surveyors, Cornmarket, Pontefract.
"	Ipswich—Additions to Rose-hill Schools	School Board	E. F. Bishopp, Architect, 32, Museum-street, Ipswich.
"	Llandrindod Wells, Wales—Hotel	Gwalia Hotel Limited	Swash and Bain, Architects, Midland Bank-chambers.
"	London, E.C.—Alterations to "The Three Tuns," Fium-street, Barbican.	J. Beer	G. Silvester, Surveyor, 46, Strand.
"	London, E.C.—Rebuilding "Rose and Crown" Public-house, Bartholomew-close.	Benskin's Watford Brewery Limited	Dear and Winder, Architects, 119, Great Russell-street, Bloomsbury, W.C.
"	Peterborough—Two Villas in Fletton-avenue	E. Toms	J. Ruddle, Architect, Boroughbury, Peterborough.
"	Peterborough—House, Shop, and Bakehouse, Buckle-st.	J. W. Tirrell	J. G. Stallebrass, Architect, Peterborough.
"	Rawdon, near Leeds—Four-terrace House, Apperley-lane		F. Mitchell, Architect and Surveyor, 71, Albion-st., Leeds.
"	Sheffield—Alterations to Heeley and Sheffield House, Gleadless.		W. T. Rhoden, Architect, Buckingham-chambers, St. James's-street, Sheffield.
"	Swansea—Additions and Alterations to St. Thomas's Church Schools.		J. Buckley Wilson and G. Moxham, Architects, 15, Castle-street, Swansea.
<b>ENGINEERING—</b>			
Aug. 10	Stonehouse, Gloucestershire—Footbridge over Railway	Great Western Railway Company	Engineer's Office, Gloucester Station.
" 12	Morecambe—Widening Pier, &c.	Pier and Pavilion Company Limited	Magnall and Littlewoods, Architects, 42, Spring-gardens, Manchester.
" 23	Romford—Construction of Reservoir, Pumping Station, &c.	Rural District Council	J. Simmons, 1, Prince's-street, Doncaster.
<b>IRON AND STEEL—</b>			
Aug. 10	Douglas, Isle of Man—Pipes and Appendages for Out-fall Sewer.	Corporation	Town Clerk, Douglas, or Messrs. Stephenson and Burstall, 38, Parliament-street, Westminster.
" 10	London, W.—Supply of 600 Steel Bridge Girders, &c.	Great Western Railway Co.	Engineer's Office, Paddington Station.
" 31	Saltcoats, Scotland—Supply of 600 Steel Galvanized Buckets.	Commissioners	J. Miller, Surveyor.
<b>PAINTING—</b>			
No date.	Greetland, Yorks.—Painting Cottages at Crosshill		J. Peel, Mount Pleasant, Greetland.
"	Holbeck, Leeds—White-washing Schools	Church School Managers	G. B. Cronshaw, 22, Cambrian-terrace, Caretaker.
"	Smithy Bridge, Lancs.—Painting, &c., U.M.F.C. School		
<b>ROADS—</b>			
Aug. 7	Desborough—Supply of Broken Granite (300 tons)	Urban District Council	T. Streather, Surveyor, High-street, Desborough.
" 9	Eccles, Lancs.—Paving Works, &c.	Highways Committee	Borough Surveyor's Office.
" 9	Liverpool—Supply of Broken Macadam (470 tons)	Little Woolton Urban District Council	J. Bourne, Surveyor, Grange-lane, near Liverpool.
" 9	London, W.—Supply of Broken Granite	Hanwell Urban District Council	Council's Offices.
" 9	Portland—Supply of Broken Granite for One Year	Urban District Council	E. J. Elford, Council Offices, New-road, Portland.
" 9	Batley—Road Works	Corporation	O. J. Kirby, Borough Surveyor, Market-place, Batley.
" 18	Burnley—Paving, &c.	Highways and Sewage Committee	G. H. Pickles, Borough Surveyor, Town Hall, Burnley.
" 23	Sunbury-on-Thames—Road Works, &c.	Urban District Council	J. Anstie, 17, Victoria-street, S.W.
No date.	Bacup, Lancs.—Re-flagging and Channelling Two Streets	Urban District Council	J. W. Eyre, Christ Church-street, Bacup.
"	Barnard Castle—Materials	Co-operative Society	J. I. Dawson, Council Office, Barnard Castle.
"	Castleford—Paving and Macadamising	M.S. and L. Rly. Co.	Offices, 28, Carlton-street, Castleford.
"	Ashton-in-Makerfield, Lancs.—Supply of York Flags (1500 yards).		J. W. Liversedge, Surveyor, Ashton-in-Makerfield.
<b>SANITARY—</b>			
Aug. 6	Barry, near Cardiff—Island Sewer Works	Urban District Council	C. E. Walker, Engineer, Barry.
" 16	Shipley, Yorks.—Sewers	Urban District Council	W. B. Woodhead & Son, Engineers, 18, Exchange, Bradford.
" 16	Shipley, Yorks.—Sewerage Works	Urban District Council	M. Paterson, Engineer, Bradford.
" 17	Luton—Drainage Works	Town Council	Borough Engineer's Offices, Town Hall, Luton.
Sept. 7	London, E.C.—Sewer	Shoreditch Vestry	J. R. Dixon, A.M.I.C.E., Surveyor and Engineer, Town Hall, Old-street, E.C.

## COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 22	London, S.W.—Designs for Erection of Public Baths	£100, £50, £25	Vestry of St. Mary, Battersea, Municipal buildings, Lavender-hill, S.W.
Oct. 1	Morecambe—Plans, Estimates, &c., for Sewage System in District.	£100	Morecambe Urban District Council.















